MARKETING FIELD SERVICES IN EUROPE

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MARKETING FIELD SERVICES IN EUROPE

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1 INTRODUCTION

I INTRODUCTION

- This Issue Report is produced by INPUT, Ltd. as part of the 1980 European Field Service Programme (FSP/Europe).

- The information provided in this report is based upon the analysis of primary research among vendors and users of computer equipment maintenance services in Europe. The total interview base was:

Country	End Users	Vendors
United Kingdom	128	15
West Germany	90	8
France	88	3
Benelux	8	6
Scandinavia	24	2
Other	-	7 (Int'l)
TOTAL	338	41

- The general questionnaires used for this study are found in Appendices B and C.

- The objective of this report is to underline the growing necessity of a formal marketing programme of field service capabilities to:

  - Ease the introduction of continued price rises to a reluctant user base.

- Improve the field service image, both internally and externally.

- Integrate field services into all levels of the company's activities.

- Present field service as a viable and increasingly important business.

- Systematically investigate the competitiveness of the market and the relative value of the company's own field service program.

- Inquiries and comments from clients on the topics and data provided in this report are welcomed and invited, both for clarification purposes and for presentations and/or other studies that clients wish to be undertaken.

II EXECUTIVE SUMMARY

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A. MARKETING FIELD SERVICES - A MUST

- Investment, management attention, sales effort and marketing expenditure are usually geared to the revenue and profit potential of each of the markets addressed. Indeed one of the principal justifications invoked when building a marketing plan is the revenue expectation and contribution to profit of the product/service being marketed.

- On this basis alone, it is reasonable to argue for increased marketing attention being paid to field service (FS) activities, since on average they will supply 18% of the revenue of European vendors of computer equipment in 1980, increasing to 25% by 1985.

- But another, equally important factor must be added. It is quite literally impossible to sell any computer product successfully unless adequate field services are available to support installations. Adequate, in this case, means providing the support necessary for the functioning of the equipment installed to a reasonable level of performance at a reasonable cost to the client.

- Yet the price for maintenance has already risen over the last five years to a level bordering on the unacceptable, and these prices must continue to rise if profitable FS operations are to be maintained.

- That FS prices are already seen by the users as being high is demonstrated by the fact that third-party maintenance (TPM) vendors are beginning to plan advances beyond the obvious targets of the major equipment user bases (e.g., IBM, DEC, ICL, etc.) into the smaller user bases (e.g., Prime, communications equipment, etc.).

- Exhibit II-1 shows INPUT's estimate for field service revenue and personnel through 1985.

  - On average, FS prices will rise 12% because of inflation per annum, accounting for over two-thirds of the FS revenue increase.

  - Revenue per FE, which appears to grow dramatically, grows only 3.5% if the above is taken into account.

  - FS revenues, as a percentage of installed base value, rise from 7.9% to 11% primarily as a result of the shift in the installed base to smaller and more dispersed equipment.

- This is a classical dilemma: trends of costs (and therefore prices) that are meeting user resistance, and competitive services making increasing inroads, creating loss of revenue and account control. However, in Europe user resistance to price increases is the dominant factor, since TPM has achieved only minor penetration of the installed base.

- Although it is not claimed as a panacea for these problems, the positive and aggressive marketing of field services can:

  - Reduce user resistance to price increases.

  - Assist in the pre-sale phase of the selling cycle.

  - Enhance field service personnel integration into corporate plans and organisational structure.

EXHIBIT II-1

WESTERN EUROPE FIELD SERVICE REVENUE AND EMPLOYMENT FORECAST, 1980-1985

YEAR	FIELD SERVICE REVENUES ($ BILLION)	NUMBER OF FEs (THOUSANDS)	TOTAL VALUE OF INSTALLED BASE ($ BILLION)
1980	$3.5	52.0	$44.4
1981	4.1	55.0	48.7
1982	4.8	58.0	53.5
1983	5.6	61.0	58.8
1984	6.6	64.0	64.6
1985	7.8	67.0	70.9
AAGR	17.5%	5.2%	10%

NOTE: $B = 10^9

- But more than that, FS marketing should be viewed as an opportunity to contribute to an improvement in product and company image and to enable painless growth of FS revenue on a planned basis. FS marketing must be an aggressive strategy, not a defensive policy.

B. FIELD SERVICE AND PRODUCT RELIABILITY

- Most European computer vendors will not openly communicate or discuss MTBF values for the products they sell to end users.

  - In the initial stages of discussion with a prospect, the salesperson may confide, 'This is a very reliable product' (how much is 'very'?), or, 'We're experiencing as much as 99% uptime with this product' (how do you define uptime, what is the average uptime and what is the lowest?).

  - Only the lure of multimillion dollar government contracts may entice the supplier to commit to performance guarantees that the ordinary commercial end user never sees.

- As a result, prospects regularly require reference site visits to talk to members of the user group they intend joining, to hear first-hand the 'other side of the story'.

  - They also insist on knowing which physical location will service their site, how many engineers are employed there and, in some cases, how many sites they service.

  - This information, when not hidden by the 'company confidential' label, is given reluctantly and often incorrectly, since the salesperson is not usually given 'official' answers for these queries.

- Yet, based on claims made by the computer vendors interviewed by INPUT, very few need to hide these values, and almost all would benefit from the open use of the reliability values for their products.

- If MTBF values were included in the standard contract, appropriately qualified with the necessary environmental and usage reservations, then the product sales cycle could be shortened and total sales possibly increased.

- If product reliability and field service are as good or better than the competition's, then every possible ounce of advantage should be drawn from an open communication of, and commitment to, these characteristics of the vendor's service to the end user.

- Traditionally, product reliability and FS have been regarded as post-sales activities that are best not discussed with the end user, and which salespeople are actively dissuaded from taking any interest in.

  - This is an area which is of vital concern to end users.

  - Given the right approach, these two post-sales activities could be turned into pre-sales arguments.

C. MANAGING FIELD SERVICE - AUTONOMOUS OR INTEGRAL?

- Field service has always been treated as the poor relation of the computer vendor, no matter how many superficial efforts have been made to paper over this state of affairs.

  - The field engineer has always been a less-than-equal participant in the company's hierarchy.

- This was a sore point with the FS managers interviewed, who, despite recent improvements, feel that their role is a fundamental one that should not need to be justified.

- With the rise in the size and relative importance of FS revenue, the FS manager's internal visibility has been given new emphasis. But beyond treating FS as an autonomous cost or profit centre, there has been little visible effort to integrate the FS function with all levels of company activities. This situation gives rise to the following questions.

  - At the prospect level:

    . How often do FS managers participate in the pre-sales activities?

    . How many are effective in this environment?

  - At the sales level:

    . How much sign-off authority does the FS manager really have?

    . Can he veto a signed contract because the proper site preparation, environmental control or response time commitments have not been agreed upon?

  - At the point of maintenance contract renegotiations:

    . How much support does the FS manager receive from sales in obtaining renewals?

    . Does he have his own sales force?

  - At the R&D planning level:

  - How much weight does the FS manager carry in determining the schedule of new product introductions, given the workload/availability/training of his staff, the current status (ECO level) of his installed base and the inventory impact of new spares on his budget?

- At the marketing level:

  - Should there be a field service marketing organisation?

  - What is its charter at pre- and post-sale points?

- At the corporate strategy level:

  - How much consideration is given to the resolution of current, product-induced FS problems?

  - Is this explicit in a corporate FS strategy that is an integral part of the overall corporate strategy?

D. FLEXIBLE RESPONSE VERSUS USER GROUPS

- Standard maintenance contract conditions are a handicap to the sales force in selling to certain types of users.

  - This has been recognised by most vendors with regard to the very large user, who can force a certain amount of negotiation.

  - Where vendors refuse to negotiate, they can lose large user business to a third-party maintenance supplier who generally secures the account through a multi-year agreement.

  - At the small system business end, maintenance costs and conditions are a major cause of loss of sales.

- Other smaller users have not been addressed, including:

  - Timesharing bureaux, for whom an hour's downtime is a catastrophe.

  - Process control users, whose equipment controls hundreds of thousands of dollars of production.

  - Database systems users, whose only source of revenue is the transaction processed against the database (i.e., 'quotation' systems of all kinds).

- Each of these users has a high level of urgency attached to the availability, in prime time, of his system, but for whom a 50-80% premium over normal maintenance charges is unacceptable.

- The lack of flexible options available to these user groups is sometimes very hard to explain for the salesperson trying to penetrate a vertical market for which the price/performance characteristics of his product seem ideal.

- While a negotiated maintenance contract may seem like a Pandora's box to many vendors, even a token willingness to discuss maintenance response in relation to costs on the basis of fixed criteria (such as the location of the user in relation to established maintenance sites, establishment of user categories, 'reference site' bonuses, etc.) would be a welcome improvement on current fixed-price contracts.

- Ultimately, this may have to be resolved by enforcing selective marketing of products (something that marketing directors are usually in favour of) on the basis of maintenance criteria (which they are nearly always opposed to).

E. IMPROVING THE FIELD SERVICE IMAGE

- The FS image needs to be improved in four spheres:
  - In the minds of the field engineers themselves.
  - Within the other divisions of their company.
  - In the eyes of their end users.
  - In front of the prospects that the salespeople are negotiating with.
- This amounts to a total re-evaluation of the role of field services, and its relative importance to the company, which is considerably overdue in some cases. It is not an easy process.
- A principal difficulty with the improvement of the FE's own perception of himself is that the majority of FEs have not developed a positive view of their role with the client.
  - They are not good at communications, nor are their skills at handling irate customers highly rated.
  - They tend to be blunt, abrupt and cautious with users.
  - They have often become what they are treated as: backroom boys.
- The difficulties of improving the FS image within the company are related to this personality issue. In addition, there is a tendency to ensure that the situation is perpetuated. Whenever a skilled, extrovert FS manager appears, he is removed by internal promotion to a marketing or general management position.

- Nevertheless, it is time to market the abilities of field service to prospects and users alike, as a means of reassuring and convincing the former, and enabling smooth growth of revenue from the latter.

- This transition, which is bound to be slow, needs to be directed and supported by top management.

  - The aim is not to privilege the field service organisation, but merely to place it truly on a par with the other company divisions.

- The unique pressures on the field service executive are shown conceptually in Exhibit II-2.

- It should be remembered that the principal distinguishing factor between vendors is service, be it hardware- or software-based. The field service organisation is intimately and increasingly involved in both of these.

F. CRUCIAL FACTORS FOR FIELD SERVICE STRATEGIES

- There is no single strategy that can encompass all vendors, all products, all situations. Indeed, completely contradictory strategies can be successfully employed by separate companies, whose current market status and problems demand different solutions.

- Nevertheless, there are a number of crucial factors that need to be considered; their acceptance or rejection being a decision that only FS management can make. These factors are listed in Exhibit II-3.

- The starting point of a 1980-1985 strategic plan is usually a 'best estimate' forecast of FS revenues, broken down by:

  - Source (type of service rendered - site preparation, installation, contractual revenues, T&M, etc.).

EXHIBIT II-2

THE FIELD SERVICE EXECUTIVE - MAN IN THE MIDDLE

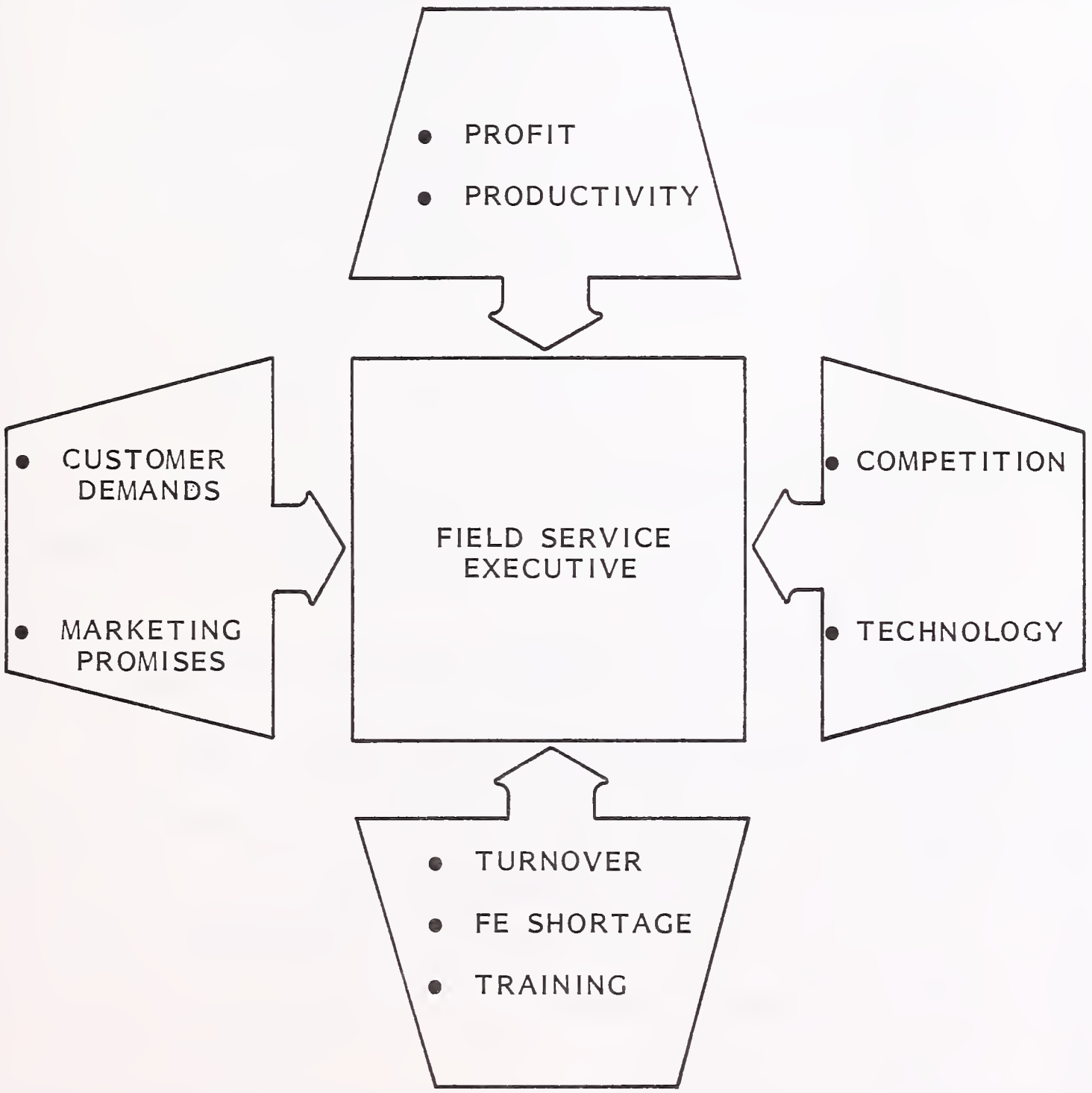

EXHIBIT II-3

CRUCIAL FIELD SERVICE STRATEGY FACTORS

- Creative marketing of FS image, capabilities.
- Integrating FS aspects with marketing plans.
- Packaging field service:
  - Fixed charge 3 yr/5 yr contracts.
  - Flexible response vs. user groups.
  - Demand servicing.
  - Discounting.
- Service strategy:
  - Remote diagnostics.
  - User-run diagnostics/user maintenance/user board swap.
  - Support centres.
- Selective marketing of products: environment/geography/ accounts.
- Source of field service revenues and growth to 1985.
- Field service pricing strategy: bundled/unbundled/discounting.
- RAS design evolution: implementation plan.
- Current capabilities of the field service organisation.
- Account strategy planning.
- Reaction to TPM threats.

- Geography (country, region, district).

- Product line.

  . With assumptions made on pricing, labour, costs, inflation, etc., a P/L estimate can be made.

- The next phase is to examine the assumptions made and list all activities required to ensure that fulfillment of these assumptions and costs associated with the activities have been factored into the plan.

- At this point, the planning exercise reaches a crucial decision stage:

  - Are revenues adequate?

  - Are costs too high?

  - Are returns on assets acceptable?

  - What are the opportunities to increase revenues substantially?

  - Can a march be stolen on the opposition?

- The introduction of creative marketing of the field service capabilities can do just that, in allowing the FS manager to effectively increase his revenues; e.g., by changing the structure of his tariff and offering new service packages.

- Most opportunities for a significant improvement in revenues lies in the repackaging of services where possible:

  - Standard eight-hour response cut to four hours, with a 10% price increase.

  - Standard four-hour response cut to two hours, with a 15% price increase.

- Standard two-hour response cut to one hour, with a 20% price increase.

- In many cases these can be 'no cost' items, in that most vendors responding to a call from a user on an eight-hour response contract target usually achieve four hours.

- The vast majority of users say, and believe, that their needs are for less than four-hour response, ideally. Therefore, such a repackaging can legitimately be sold as a response to user requirements. Such a move should be widely publicised as a decision by the company to recognize the real needs of today's business conditions.

- Another packaging consideration concerns the inclusion of maintenance charges in the three- or five-year lease/rental plans, in such a way as to enhance the competitive position of the low-entry products while recovering maintenance revenues, with interest, at the back end of the contract. CMC has been very successful with this approach in the UK.

- Other possibilities are:

  - Flexible response, demand servicing, which carries no fixed charge, but guarantees fast response at a very high call cost.

  - Discounting to allow for multiple system sites and multi-year contracts.

  - Due to customer demand, a captive FE sale is required, with an on-site dedicated engineer and a full complement of spares. This is expensive to the customer but very profitable to the vendor.

- Almost all vendors have begun to implement one or more of the following:

  - Remote diagnostics.

  - User-run diagnostics/limited user maintenance.

- Board/unit swapping.

- 'Local' (district/regional) support centres.

- Few vendors have spent adequate effort communicating the attendant benefits of these approaches to their user base, however.

- Longer-term considerations concern Reliability, Availability and Serviceability (RAS) design evolution. A key consideration must be redundancy architecture; it is the only source of order-of-magnitude improvements in the MTBF.

- Finally, the true capabilities of the current FS organisation must be brought into all of these considerations, not only in numbers and product experience but also in terms of the nature, character and personal characteristics of the average FE in the field.

- The question must be constantly asked:

  - Can our FEs do what we are asking them to do?

  - Can they be trained/assisted in doing it in the short term?

- If the answer is 'no' then either a separate function must be created or the plans be postponed until the required capabilities are on-board.

G. INDUSTRY TRENDS AND FORECASTED DEVELOPMENTS, 1980-1985

- The principal EDP industry and maintenance market trends expected to impact European maintenance revenue over the period 1980-1985 are:

- Inflation of field service costs, principally due to increases in labour costs, which represent approximately 50% of the total cost of a call, according to data gathered in the vendor survey.

- Inability of new techniques (such as remote diagnostics, depot maintenance and local support centres) to completely offset the rise in call costs.

- Change in the mix of equipment maintained, with a heavy shift to terminals, minicomputers and small business systems, (i.e., implementation of distributed processing).

- Continued shortening of average product life cycles, with the attendant increase in requirements for training and inventory of parts and documentation.

- Intensified search for productivity tools and methods of improving the revenue-per-head ratio.

- Use and gradual spread of new field service packaging techniques supported by dedicated marketing staff.

- A gradual conversion of the basic capabilities and character of the individual field engineer will be seen to cope with the new demands thrust on him in:

  - Supporting software as well as hardware.

  - Improving his ability to communicate with clients and prospects alike.

- Incentive programs for FEs will become more widespread as the need grows to add rewards to offset the new pressures, and ways are sought to compensate the FE other than with straight salary increases.

- Growth of maintenance revenues should proceed at a combined average annual rate of 17.5% in real terms.

- One further possibility is the use of contracted TPMs for high-risk, new-market ventures. This has been avoided so far in Europe, but there is no reason why TPMs should not be considered in the same way as system/software houses or body shops are considered to supplement a company's operations.

H. RECOMMENDATIONS

- Field service marketing should be based on an aggressive strategy to ease the implementation of higher maintenance prices, improve sales and improve the image of FS with a vendor organisation.

- Field service offerings should be packaged so that the user can select from a range of options regarding response time and other performance criteria. This involves the user more directly in the purchasing cycle, and reduces the tendency to do direct price comparisons with the competitor.

- Field service management and personnel must be given training in communications skills so that they can interact more effectively with the client in carrying out marketing objectives.

- Pricing should be based more on the value of up-time to the user, and less on cost and competition.

- Vendors must develop a plan to implement improved marketing techniques that recognise the forces currently resisting these techniques:

  - The non-marketing orientation of much of field service management and personnel.

- The increasing complexity of FS offerings as new offerings, such as remote diagnostics, are introduced.

- The potential opposition from field sales who view FS marketing as potential competition for the user funds, and as a hinderance to sales of hardware.

- A five-year plan is a reasonable timeframe for moving from a typical current environment to an aggressive FS marketing capability.

III NEED FOR POSITIVE MARKETING OF FIELD SERVICE

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A. MARKET ENVIRONMENT AND TRENDS

- The environment in which field service now operates is characterised by:

  - A growing conviction on the part of all European vendors that there is a need for increased user self-reliance for first-level diagnostics, through improved diagnostic displays, easier-to-run diagnostics, cooperative testing and remote diagnostic support.

  - A series of measures to enhance management's awareness of the performance of each field engineer and to assist FEs with better spares availability, local repair centres, adequate diagnostic equipment, etc.

  - An ongoing drive to stabilise rising maintenance costs while maintaining a profit contribution by regular FS price rises.

  - Widespread acceptance of the need to integrate hardware and software maintenance into a single field-support force.

  - The continued rise of third-party maintenance vendors.

  - Users' growing dissatisfaction with the service they receive compared to the price they pay.

- Increasingly short product life, fast upgrade expansion of the product during that short life, and continued impact of advances in technology.

- Against this background of changing product base, skills requirement and technology, allied with increasing competition and inflation, the field service manager is under pressure to grow revenues profitably while improving the overall level of service supplied.

- There are no easy answers to his dilemma, but there is little doubt that the FS manager must now apply marketing effort to creatively package and sell the services he knows he can already provide, as opposed to those that are still in the planning stages.

- This entails treating field service as a product, carrying out standard competitive analyses, reviewing pricing regularly, promoting new services or improvements as they occur, and in general convincing the user of the benefits of continued use of the service despite regular price increases and TPM pressure.

- This is an ability that few FS organisations currently have, but one that they can acquire. Marketing FS is no different from marketing any other service, and in many ways can be simpler than most, given the 'semi-captive' nature of the prospective user.

- It is highly unlikely that enough market-orientated staff can be found within the current field service organisation. It is therefore preferable to set up a separate marketing section within the FS organisation, reporting to the FS manager, with specific responsibility for the packaging, promotion and pricing of field services.

B. ROLE OF MARKETING FOR FIELD SERVICE

- The principal difficulty for such a marketing group will be to reverse 20 years or more of ingrained, habitual thinking on the parts of corporate management, field service staff, sales staff and end users.

- End users have clearly identified maintenance service as one of their main equipment selection criteria. Product reliability is the ultimate judgement, whether it is achieved by the intrinsic reliability of the product itself or by the combination of hardware reliability and field service.

- However, given that not a single major equipment vendor will communicate MTBF/MTTR values to its users or prospects, 'gossip' is relied on to evaluate vendors - surely something that vendors cannot allow to continue.

- The roles assigned to an FS marketing group should be as follows:

  - Prepare end users for price increases, and present such increases in a palatable way ('improved service costs money').

  - Assess the competition's product reliability and monitor the user's perceptions of any competitive advantages.

  - Review and propose modifications to the current packaging of field services to:

    . Counteract any competitive advances.

    . Improve revenue from existing services.

    . Propose new services to add to current revenue sources.

- Monitor FS contract expirations and secure renewals at equal or better conditions.

- Review dissatisfied user sites and propose solutions in coverage, packaging and tariff to counter any impending contract/revenue loss.

- Organise communications to users to regularly inform them of new services available (e.g., remote diagnostics), impending ECO programs and price/condition modifications.

C. CURRENT VENDOR FS MARKETING ACTIVITY

- Of the 41 European vendors interviewed, only three have taken some form of concrete action towards the creation of a field service marketing organisation. This excludes third-party maintenance vendors, whose entire business is structured around marketing and delivering field services.

- In one case, to avoid internal conflict with the existing sales force, the term 'consultant' has been coined. The function of these consultants is clear, however: sell available field service capabilities and increase revenue from the existing base.

- Organisationally, it is instructive to see how the TPM vendor structures its business in this regard:

  - Sales and marketing effort is orientated entirely towards obtaining new business (no upgrades or add-ons).

  - Administration and local field service management has the responsibility of contract renewals and any adjustments, including price increases.

- Included in the definition of 'new business' are extensions of existing contracts for higher coverage, more equipment, etc.

- For the most part, however, European vendors do not engage in marketing or sales activity specific to field service. They rely on FS being sold as a by-product of the equipment sale.

- An increasing proportion of small business systems are rented or leased for an all-inclusive charge covering equipment rental and maintenance. This is effective in that:

  - There is no option for maintenance service; it comes with the product.

  - Maintenance contracts are automatically coterminous with equipment contracts.

  - A single legal document binds vendor and client, which is simpler for the end user.

  - Price charges must be coordinated by the vendor, if only to avoid continuous administrative interruptions to its business.

- One vendor said that it was the company's policy to actively discourage the salespeople from having any involvement with field service. 'They might get into arguments about meantime between failure of our products and the competition, which they can't handle.'

D. CONTRACT RENEWALS

- The whole area of contract administration is badly handled by the average European vendor. The sequence of events in time seems to be as follows:

Stage 1. The company is set up and business begins, maintenance is priced 'at the going rate', most contracts are multiyear, all efforts are orientated towards signing new ones, organising support engineers/spare depots, etc.

RESULT: No initial need for contracts administration beyond filing.

Stage 2. Maintenance services begin to lose money, a price raise is decided, a standard letter is written and mailed, standard price lists are revised, all with the minimum amount of attention being drawn to the event wherever possible.

RESULT: The basic terms and duration of the maintenance contracts are unchanged, but the billing rates are modified. No change in the level of contract administration.

Stage 3. The initial contract period of most contracts has expired, contracts are not renewed explicitly; they are assumed to be valid as they stand; billing continues at the current rate.

- Most European vendors are at Stage 3. War stories abound over 'lost' contracts, incorrect invoicing, particularly invoices of a lower value than that justified by the actual equipment on-site. In one case a vendor noticed that he had failed to invoice a customer for maintenance services on an installed product for a total of five years. This was of course lost revenue, since no user will accept to pay such large back-payments. In this particular case the vendor was too embarrassed even to ask for the money.

- Yet the marketing value of locking clients into maintenance contracts that overlap the end of the equipment rental/lease period are obvious - users feel committed and are loath to change products unless it is within the range of the current supplier, from whom an appropriate 'concession' can be obtained.

E. COMPETITIVE ANALYSIS

- This traditional evaluation of the services or products offered by the competition is used in all other industries as a permanent guideline to management of how effective the company's approach to the marketplace is and what modifications need be made to the price, packaging, characteristics, delivery and marketing of the service/product.

- It is an indispensible tool to good and effective management of any business. However, it is ignored by the vast majority of the European Field Service Managers.

- Some say they have all the information they need, but when pressed to say how it is carried out admit that it is by 'gut feel', 'hearsay', 'feedback from the sales force', 'new FE hires from the competition', etc.

- Others frankly admit that it is an activity they should carry out, but somehow never find time for. Alternatively, growth is given as the principal reason for not carrying out competitive analyses:

  - 'At the rate we're growing, we have enough problems trying to monitor our own business, let alone worry about anyone else's.'

  - 'Analysing our own numbers is bad enough!'

- Or availability of information:

  - 'Does anyone really know this kind of data?'

  - 'Through the grapevine; is there any other way?'

  - 'Very difficult; either you get data subreptitiously or all you get is the manufacturer's blurb - not real data.'

- Or a dependence on someone at corporate doing the job:

  - 'I think it's done at corporate level.'

  - 'Corporate does it - I think; we generally know what others are doing.'

- Quite obviously it is not adequate in any business to allow individual opinions to replace facts, even if, until now, field service revenue has been shielded from normal market forces by the fact that it is sold as an inclusive part of the product sale.

- This is merely saying that vendors are relying on their natural monopoly of field service revenue continuing indefinitely. This is, in INPUT's view, a dangerous assumption to make. As FS costs rise, whether through the legitimate passing-on of inflation-led labour costs or any other justifiable basis, the end user will seek alternate solutions that make price/performance sense.

- The logical way for a third-party maintenance organisation to approach this potential business is through the users groups, which frequently have a determined charter for cost cutting on behalf of their members.

- Once the stage has been reached where the users groups start making investigations along these lines, it is not an easy thing for the vendor to reverse.

F. PACKAGING OF FIELD SERVICE

- The actual content and form that the packaging of field services takes is a strategic decision that each company needs to examine carefully. The issues at stake include, but are not limited to:

- Length of standard contract. Of the vendors interviewed, this ranges from 12 months to seven years.

- Whether field services are included in the rental/lease payments or separately invoiced.

- Variation of rates; e.g., whether prices are frozen over a given period or allowed to rise in relation to a price index/fixed percentage.

- Due date of maintenance charges; e.g., payable annually in advance, monthly in arrears.

- Discounts for years subsequent to the initial 12 months' usage.

- Interest on overdue amounts - fixed rate or MLR-related.

- Installation and warranty - included or additional.

- Site preparation - customer's responsibility or vendor's.

- Use of test and diagnostic programs - user-driven or mandatory.

- User obligations - quality of supplies used, alteration to equipment, use of third-party services, TPM or devices excluded from the FS contract.

- Delivery and installation substitution of items ordered, transportation liabilities, expenses incurred, etc.

- All of the above have a direct and immediate bearing on either the revenue obtained from the installed base or the liabilities of the vendor. Each needs to be regularly reviewed to assess the need for change or improvement in the light of changed market conditions or new product introductions.

- In Europe, with the exclusion of a handful of vendors, this review has been at best a sporadic occurrence, usually initiated by the replacement of the FE Manager, or because FS is included in the standard terms and conditions and so comes under scrutiny when the normal sales contract is reviewed or changed.

- The situation is rapidly improving, however, as evidenced by some of the vendors' comments:

  - 'Is being done now and will become a regular occurrence.'

  - 'Did it 3 weeks ago - each country now has its own regular review, partly because our products and user base are changing.'

  - 'Reviewed 60 days ago; our own uniform agreement is reviewed once a year; this includes rental and maintenance charges.'

  - 'Did it last week; occurs every six months as part of our business plan.'

  - 'Will be done later in the year as part of the budget exercise.'

- It is becoming increasingly clear to vendors that the field service package is truly a product in its own right, one which affects an average of 18% of the total revenue and thus requires careful attention.

G. DISCOUNTING

- Discounting is an aspect of field service pricing that is considered standard practice by those vendors that currently use it, while those that do not use it consider it an absolute heresy, the only effect of which is to reduce FS revenues.

- The use of discounting is generally linked to the use of very long contracts (more than five years), with no discounts applicable to 12-month contracts.

- The obvious target for discount is the large or extra large site where the density of equipment makes normal maintenance costs look like punitive charges. An example is British Airways, where maintenance charges exceed $2.4 million a year, and where the service contract has been won by a third-party maintenance vendor.

- It is recommended, therefore, that discounting be used as a competitive tool for sites that have equipment valued at more than $1.2 million as an alternative to the on-site, dedicated engineer. As the volume of maintenance revenue increases at any given site, so does the visibility of both the cost in the user's eyes and the opportunity to a third-party maintenance vendor.

H. ECOs - A PRODUCT UPGRADE

- The normal method of treating Engineering Change Orders (ECOs) is:

  - To regard them as a necessary evil that absorbs FE manpower without generating any revenue.

  - To treat them as a product 'patch' that is best not talked about to end users.

  - To install them subreptitiously, usually during a prolonged PM.

- The alternative is to process ECOs for what they are: a significant product improvement, at no cost to the end user. This is a process that should be planned with the user base, openly discussed with the user group, and presented as tangible evidence of the continued improvement in performance that goes with the regular maintenance service.

I. SYSTEMS SOFTWARE MAINTENANCE

- The ability of field service to absorb and support the maintenance of systems software is already impacting the hiring plans of European vendors, and it is generally accepted that over the next five years, systems software support in the field will be performed by the FE.

- Systems software is composed of operating systems, supervisors, compilers, high-level languages and utility routines/programs that were provided by the equipment vendor for free in the 1960s, but that are increasingly charged for as unbundled products in today's market.

- Applications software is largely outside the scope of the equipment vendor and is principally in the hands of the end users and system/software houses.

- However, a growing number of European equipment vendors are offering their own brand of vertical market applications (e.g., manufacturing packages, CAD, office automation) and horizontal market applications (e.g., payroll, accounting, etc.).

- This addition of software maintenance revenue will increase the revenues achievable per site, since a typical end user will run a minimum of five major applications.

- The growth of software maintenance revenues is largely dependent on the growth of vendor-owned application packages, which in Europe has not been a strength for most equipment manufacturers. (IBM and Honeywell are exceptions.) The vast majority of applications currently running on minicomputers are owned by third parties, however.

- Software maintenance charges are highly subject to discounting. This is an industry trend already established by the system/software houses and that cannot be reversed. It is normally based on the number of modules of the

package that are purchased and the number of sites where the same package is used. The integration of software maintenance with hardware maintenance will therefore have an impact on the contractual discounting of hardware support service.

J. SERVICE: THE KEY TO IDENTITY AND IMAGE

- It is increasingly difficult for equipment vendors to maintain their identity through their product line. Users' ultimate choice is not based on hardware characteristics but on the total service package offered by each vendor.

- This is evidenced by the established success of the turnkey system/software house, whose packaging of hardware, application packages and support has found a ready market in Western Europe, despite the shaky state of their finances and lack of track record.

- The key factor separating the competitors in the eye of the prospective user is the total service offered, which is composed of:

  - Software design.
  - Programming support, or package adaptation.
  - Upgrade assistance.
  - Hardware maintenance.
  - Software maintenance.
  - Site planning.
  - Installation support.

- Financing.

- The 'total solution' approach has an obvious advantage to prospective users in that they need only deal with a single vendor.

IV STRATEGY COMPONENTS AND ALTERNATIVES

IV STRATEGY COMPONENTS AND ALTERNATIVES

A. PROFITABILITY IS FOREMOST

- Of the vendors interviewed, 65% operate on a profit centre basis or are in the process of moving to that type of structure.

- The principal requirement of all is to operate at a profit, either performing to a precise given target, as a percentage of revenue, or to a minimum profit level.

- The strategic options can be broken down into three areas:

  - Revenue growth.

  - Reducing (or at least holding/controlling) costs.

  - Ensuring the long-term viability of field service revenues.

- There are several options open with regard to revenue growth, including adding new sources of revenues, contractual price increases (usually within limits), unbundling of no-charge items and aggressive marketing of FS capabilities.

- Options on cost reductions are more numerous, including new maintenance techniques, selective marketing, user self-maintenance, efficiency/ productivity improvements and redundancy architecture.

- Most vendors address at least some of these points. The safeguarding of the long-term viability of field service revenue through careful attention to contractual conditions is less well attended to, particularly in regard to contract renewals, currency of present contracts and terms and conditions in use. This aspect is treated in some detail in Chapter VI, 'Contractual Conditions and Trends'.

- Exhibit IV-1 shows the range of profitability reported by European field service vendors for 1980. Three-quarters of the organisations questioned aimed at a profit level of less than 13%.

B. NEW SOURCES OF REVENUE

- Additional sources of revenue can include:

  - Site preparation services management. Many vendors give customers complete freedom to select 'site-prep' suppliers, but the majority of users would prefer the operation and its planning to be managed by the vendor.

  - 'Dedicated FE' contracts, where a suitable local FE is assigned to a customer site for a long-term contract.

  - On-site spares kit sold at a discount (forward-selling of parts that would otherwise be added to inventory).

  - Applications software maintenance (not support) added to systems software maintenance, particularly new-version releases and error-reporting management.

- Site preparation management can be extremely profitable, charged as a percentage of the total site preparation cost. It has other, less tangible (but

EXHIBIT IV-1

VENDORS' TARGETTED PROFIT
AS A PERCENT OF REVENUE, 1980

TARGETTED PROFIT AS PERCENT OF REVENUE, 1980	VALUE
• TOTAL RANGE	0-34%
• LOWEST 25%, AVERAGE	5.5
• LOWER 50%, AVERAGE	8.1
• LOWER 75%, AVERAGE	12.7
• OVERALL AVERAGE	17.8

nonetheless real) advantages, as the vendor FE can ensure that the site layout will provide the optimum environment for the product.

- Applications software maintenance is a possible area for additional revenues, but in the vendor-owned software only. No third-party systems software house (or user, for that matter) will give up revenue from that source, as it contributes a large proportion of the post-sale profit.

C. CONTRACTUAL PRICE INCREASES

- There are two distinct groups of vendors with regard to this point:

  - Those who freeze their maintenance service charges over a period of time (12 months' minimum) and who contractually commit not to increase prices by more than a stated fraction of the retail price index or some other measure of inflation.

  - Those who commit to nothing, but bind their users to paying the 'charges in effect from time to time', and who increase maintenance costs sporadically.

- The former, who currently are charging 12-15% per annum more each year, can plan their revenue growth over the effective period of the contract - and so can their users.

  - The latter go through a planning session at every increase, and are regularly met with vociferous resistance from the user group.

- Several of the vendors interviewed said they had no plans to increase prices this year 'or in the near future'. There can be only one rational justification for this: user acceptance of current maintenance fees has reached a breaking point.

- 'Per-call' costs (in the view of the vendor) of vendors interviewed show an enormous range. This is tied to the equipment covered: $75 for a terminal vendor and $500 for a very large mainframe vendor. Distribution of costs is also very varied, suggesting that cost control/analysis is not the forte of the FE managers interviewed. Details of costs are shown in Exhibit IV-2.

- The overall average does make sense, however, with half the cost going to labour, nearly a quarter to parts and materials, and just over 17% for travel.

D. EFFICIENCY/PRODUCTIVITY IMPROVEMENTS

- The combined thrust of new maintenance techniques such as remote diagnostics (RD) and increased emphasis on user self-help, has been to improve FE efficiency and thereby to reduce costs.

- The implementation of RD in Europe has been slow and is estimated to cover less than 10% of all sites. The efficiency improvements expected are based on:

  - Elimination of site visits for simple or 'phony' faults (pre-qualification).

  - Determination of the faulty board/unit prior to FE dispatch.

- Initial savings experienced suggest that, while some productivity improvements can be firmly counted on, it is highly unlikely that RD will allow user maintenance price reductions.

- RD will make a profit contribution over the next five years, but its main role will be to alleviate the shortage of high-quality engineers. The latter's talents can be centralised at RD centers, and the simplified tasks of most on-site visits can be accomplished by lower-quality engineers.

- RD will thus have an impact on:

EXHIBIT IV-2

PER-CALL FIELD ENGINEERING COSTS,
WESTERN EUROPE, 1980

$ COST/CALL	PERCENT			
	LABOR	TRAVEL	P & M	OTHER
• RANGE $ 75-500	30-75%	5-35%	8-45%	0-34%
• AVERAGE $230.95	50.4	17.7	21.9	10.0

- FS profit.

- FS organisation.

- FE job satisfaction, career paths.

- Hiring patterns, training programs.

- Management reporting.

- Readers are referred to the INPUT report on Remote Diagnostics in Western Europe, October 1980, for an in-depth discussion of this topic.

E. REDUNDANCY ARCHITECTURE

- Without doubt, the principal source of user maintenance price reductions and order-of-magnitude improvements of product reliability will be redundancy architecture, or the back-up of critical functions by duplication of the unit within the standard hardware configuration, with automatic reconfiguration around a failed element.

- Automatic error detection and correction techniques also add to product reliability.

- IBM's 4300 series is a clear demonstration of its strategy in this regard. CPU maintenance prices to users of 4300 series have been slashed by 86% (model 4331) and 58% (model 4341) with respect to the charges that users of the replaced 370/138 are used to paying!

- In conjunction with such massive cost reductions and improvements in overall product availability/uptime, the use of redundancy architecture has greater

significance to users and meets less user resistance than when it is implemented on top of current pricing structures.

- In addition, there is no preventive maintenance on the 4300. This has been replaced by a program that users run periodically to examine the log of recovered errors and to predict faults; these predictions are then communicated to IBM for cure before breakdown.

F. CURRENT FS CAPABILITIES

- The overriding limitation in all strategic options is the in-house ability of the field service organisation. Each time an option is reviewed, the question must be asked: 'Are resources available/attainable in the timeframe of the strategy implementation, and are the requisite skills available?'

- This is one of the attractions of remote diagnostics; it calls for leverage of the best engineering skills available in the company, with fewer engineers required for the same workload.

- Similarly, redundancy architecture and other RAS design improvements that lessen the burden of maintenance manhours required by a given number of installed systems are attractive in that they call for a reduction in the service hours per site.

- Other options, such as dedicated on-site FE, are attractive for long-term account security but lessen the number of available skilled engineers in the short term. The overall impact of too successful a sales campaign of this capability must therefore be carefully measured.

G. ACCOUNT STRATEGY PLANNING

- For the top accounts in each region/district/industry sector, account strategy has a role to play. The objective is to have a coordinated plan of attack for the planned growth and servicing of the account - a mini-business plan for each major source of FS revenue, as illustrated in Exhibit IV-3.

- The principal reasons for implementing such a plan are to:

  - Coordinate the sales strategies of each product line involved with the site.

  - Provide a vehicle for interproduct-line communications.

  - Establish a plan for revenue growth.

  - Develop a plan of concrete actions that will enact the agreed strategy, in the face of competition.

- This approach is effective in sales environments and can be applied to field service strategy equally well, in coordinating the implementation of a plan for FS revenue growth through the application of redundancy architecture, captive FEs or multiple levels of contractual coverage, according to user needs.

- The other benefit is that it enforces formal account planning and regular reviews of FS efficiency, reputation and performance at key accounts, which can only improve the company image in the eyes of the user.

EXHIBIT IV-3

ACCOUNT STRATEGY PLANNING

PRODUCT 1	BENEFITS
• SALES STRATEGY • IMPLEMENTATION PLAN • CURRENT STATUS • REQUIREMENTS	• COORDINATION • RESOURCE PLANNING • INTERNAL COMMMUNICATIONS • REVENUE PLANNING • CONFLICT RESOLUTION • ACTION BLUEPRINT • COMPETITIVE OFFENSE/ DEFENSE
PRODUCT 2 • SALES STRATEGY • IMPLEMENTATION PLAN • CURRENT STATUS • REQUIREMENTS	

V VENDORS' FIELD SERVICES MARKETING

V VENDORS' FIELD SERVICES MARKETING

A. INTRODUCTION

- Marketing is, by definition, a system of regular interactions between product definition, pricing, promotion, sales and distribution. Therefore even if a company is manifestly not marketing-orientated (i.e., does not have the frame of mind that constantly re-evaluates and re-defines its products in its own eyes and in the eyes of the marketplace), activities carried out in the areas listed above can be termed 'marketing'.

- It is fair to say that very few European computer vendors are marketing-orientated with regard to field service. What follows is a critical review of some of the major suppliers.

- The areas examined are, broadly speaking:

  - FS support strategy.

  - Product maintenance coverage.

  - Pricing, where available.

  - Marketing of FS (if any).

B. AMDAHL

1. SUPPORT STRATEGY

- With Amdahl's business built exclusively around 'big-ticket' items, the field support strategy is to examine each sale on a case-by-case basis and to organise the field support services accordingly.

- As a result, there is no 'geographical' support organisation in the habitual sense of the word, since user population is low and very localised.

2. PRODUCT MAINTENANCE COVERAGE

- All equipment is covered by the Basic Maintenance Service Agreement, which operates twenty-four hours a day. Amdahl is the only provider of maintenance service for its products.

- Contractually, the duration of services is 'perpetual', unless terminated on either side with three- to six-months' notice, or if maintenance charges are increased above the retail price index of the local country market.

- Acitivities outside the normal maintenance of products are quoted for on a project basis. No official T&M rates are published, but rates are approximately $160/hour on normal prime shift and $200/hour at other times.

- Amdahl's marketing is obviously closely tied with IBM's moves in the medium and large mainframe area, and their competitive analysis and information gathering is highly organised.

- Pricing of products and service follows IBM's, with 'better performance for equivalent dollars' the overriding guideline. Amdahl has succeeded with its plug-compatible mainframe approach in Western Europe, and has an excellent reputation for quality products and services.

- No marketing, per se, is done of field services, but it is sales policy to put product reliability and field service response to the fore when relating the Amdahl sales argument.

C. CONTROL DATA

1. SUPPORT STRATEGY

- CDC's corporate strategy is structured on the 'service' concept around their activities in bureaux, education, OEM peripherals and mainframes. The maintenance services mirror this strategy, and follow closely the services available in the United States, in format.

2. PRODUCT MAINTENANCE COVERAGE

- Standard maintenance contract conditions cover nine hours per day, Monday through Friday, and target a four-hour response. After 24 hours of continuous downtime, maintenance credits apply.

- Per-call hourly rates are par for the industry and are structured on a rates class basis.

- Although not a thriving business, third-party maintenance service is available targetting two-hours' response, mainly for IBM equipment (360 and 370 series). The same set of basic conditions applies as those found in the basic maintenance contract.

- The third type of maintenance contract is that covering CDC's OEM plug-compatible peripherals. Again, four-hour response is targetted, but no maintenance credits are allowed.

- Two further types of contract are available: one for parts, tools, maintenance software, etc., but no labour, and the other for engineering services on CDC interfaces or equipment. The two frequently operate together.

- CDC has wholeheartedly endorsed remote diagnostics in the U.S., but its use has had a slow start in Europe due to users' resistance. Ultimately, the aim is to have engineers decentralised and mobile, as opposed to fixed on-site, as is currently practised.

D. COMPUTER FIELD MAINTENANCE

1. SUPPORT STRATEGY

- CFM has the strategy of a classic third-party maintenance vendor, attacking the four basic weaknesses of the equipment manufacturer and offering:

  - Tailored maintenance service by adapting contract conditions to the exact requirements of the end users.

  - Total service, as in the coverage of a mixed equipment site under a single contract.

  - Price competition with each of the vendors it markets against.

  - Response time, again, in competition with other vendors.

- Despite all of the natural reluctance CFM faces from end users (many of whom prefer to 'play it safe' by staying with the equipment manufacturer, while putting up with inferior service at a higher price), CFM has been successful with tailored maintenance and total service.

2. PRODUCT MAINTENANCE COVERAGE

- There is no 'standard' contract per se. With 200 engineers covering the U.K., and local spares centres near all the main equipment populations, CFM is ready to write a maintenance contract tailored to each individual site.

3. MARKETING

- Surprisingly, CFM does not carry out a systematic competitive analysis of other vendors, and admits that it operates 'by the seat of our pants'. Their sole guideline is 'what the client is looking for', concentrating on local market needs.

- Selling is mainly by cold calls on DEC, IBM and other sites, but in addition CFM has a number of sole-source maintenance contracts with predominantly U.S.-based equipment manufacturers that bring in 'automatic' business.

- The TPM concept has been very successful in the U.K., moderately successful in France and unsuccessful in West Germany.

E. DIGITAL EQUIPMENT CORPORATION

1. SUPPORT STRATEGY

- With the enormous spread of DEC's OEM business (70% of all DEC sales in Western Europe), DEC has the alternative now to increase the proportion of direct sales to end users, to reduce the number of OEMs with whom DEC does business and to develop its own application markets using DEC-owned and/or licenced software products.

- DEC-owned applications call for maintenance support that could also be handled by the FE. This change in business mix means an increased burden on the field service organisation.

2. PRODUCT MAINTENANCE COVERAGE

- The current business mix is handled by several types of contracts:

  - The product repair centre supports the OEM or end user that wishes to support its own system; in this environment response time is measured in days (10 days turnaround on the failed unit/part or new one sent, charged at 50% of the price or $960, whichever is less).

  - The basic service agreement, with response labelled 'best possible effort' (until 5pm, when service terminates under the normal coverage); incremental coverage is available for 10, 12, 16 and 24 hours on five, six or seven days (with costs increased from 12-88% over basic charges). It covers all DEC equipment except terminals.

  - The DEC service agreement, which targets four-hour response time if the call is received between 9am and 5pm. The FE will 'work through' if the fault is not fixed by 5pm. Extensions of coverage are for the basic service agreement. It covers all DEC equipment terminals.

- Contracts are annual and billing is monthly in arrears except for the product repair centre, which is quarterly in arrears.

F. HONEYWELL

1. SUPPORT STRATEGY

- Honeywell keeps a tight rein on its maintenance agreements, which are mandatory, if a user purchases a Honeywell product.

- No marketing, as such, is carried out by field services, which are considered an ancillary part of the normal sales process.

2. PRODUCT MAINTENANCE COVERAGE AND PRICING

- The normal service hours are 8:30am to 6pm, Monday to Friday.

- Extended coverage is in six steps:

-	Up to 12 hours	MMC + 15%
-	Up to 16 hours	MMC + 25%
-	Up to 24 hours	MMC + 35%
-	Saturday/Sunday	Any consecutive 8 hours without a coverage + 5%
-	Saturday/Sunday	Same, with a break + 10%
-	24 Hours, 7 Days/Week excluding bank and public holidays	MMC + 65%

G. IBM

1. SUPPORT STRATEGY

- Originally, maintenance rates were only relevant to purchasers of equipment, with the monthly rental covering a 24-hour, seven days/week service. One year ago IBM began to systematically apply a new rule to all new product announcements, whereby only eight-hour, five days/week coverage is included in the rental. All other coverage requires a separate maintenance agreement.

- The new product announcements have also shown IBM's overall product maintenance strategy: improve product reliability, reduce maintenance costs, reduce maintenance service prices to end users. The 4300 is a dramatic example, with annual maintenance service prices down from around 10% of

equipment cost to 2.3% (4341) and 2.7% (4331) and a simultaneous reliability improvement.

2. PRODUCT MAINTENANCE COVERAGE

- A single contract covers all data processing equipment, excluding the 3101/2 terminal and printer.

- Products are grouped into four categories: A, B, C or D. According to the category of product, increased time coverage results in additional charges ranging from 10% to 79%.

- On some products, such as 303X, 4300 and some I/O devices, IBM offers remote support facility (RSF) as an option. The products covered by this option will be expanded over the next two years.

- Software support is provided on a support-centre basis and is totally separate from field service both physically and organisationally.

3. PRICING

- Until the announcement of the 4300, annual maintenance service prices ranged from 6% to 10% of sales price, according to the electromechanical content of the device. This has now dropped below 3% for the most recent products.

- Price increases are not affected by an across-the-board increase of x%. The most recent increase was in September of this year, when the average maintenance service price was raised by 8%. However, each product line was treated separately, and actual price changes ranged from - 5% to +10%. Again the electromechanical devices were penalised.

- Extended coverage price increases over Minimum Monthly Maintenance Charges (MMMC) depend on equipment category, not product line. A sample is shown below:

	% Charge over MMC for 24-hour coverage			
CATEGORY	M-F	SAT.	SUN.	TOTAL
C	46%	15%	18%	79%
D	18%	19%	12%	49%

- Per-call rates also vary by product category.

	Per Call, $/hr Travel time included	
CATEGORY	Within office hours	Outside office hours
1	$108.00	$141.60
2	$120.00	$156.00
3	$122.40	$160.80
4	$141.60	$184.80

- Travel time is charged at the same rates.

4. MARKETING

- IBM has a stick-and-carrot approach to its end user for all products and services, and field service is no exception.

- New services are introduced as options and heavy marketing pressure is brought to bear, pre-sale and post-sale, to have the option 'selected' by the user. No bonuses like price reductions or better guarantees are offered, for example, for the use of RSF. Customers are told it will reduce downtime because of better, more accurate response to failures.

- Over time all products will be covered by this 'option' and the 'option' qualifier is then removed.

H. ICL

1. SUPPORT STRATEGY

- The maintenance service agreement is an integral part of the sales agreement and specifies that ICI maintenance services is accepted by the user.

- The contract also specifies that the customer agrees to pay the maintenance charges 'in force from time to time', with no provision for cancellation due to excessive price increases.

- ICL requires the user to complete a useage log and to send copies to ICL quarterly. The user also agrees to have available for ICL, at the user's expense, the latest issue of standard ICL diagnostic and test programs.

2. PRODUCT MAINTENANCE COVERAGE

- The normal coverage is for up to eight hours a day within the services hours of 9am to 5pm, excluding public holidays, and up to 40 such hours a week. For this the customer pays the Standard Monthly Maintenance Charge (SMMC).

- Additional coverage is supplied in quarter, half, three-quarters and full shifts at a rate dependent on, but not equal to, the SMMC.

- Response rates are a standard two hours for CPU and peripherals and four hours for communications equipment and terminals.

- 'Remedial carryover' (or work through coverage) can be supplied at T&M rates of $60/hour or at fixed rates dependent on the amount of remedial coverage chosen.

3. PRICING

- Prices for field service vary according to product. At the low end, such as the 2903 model 25, annual charges are 15.2% of the sale price. As the value of the equipment rises, the mainframe charge decreases as a percentage of system sales value, to 7.7% on the ME29.

I. TANDEM

1. SUPPORT STRATEGY

- A relative newcomer to Europe, Tandem operates two types of maintenance contract: one for the mainframe and one for terminals that are remote from the central T16 processors.

- Software is supported by a contract appendix which is added to the T16 maintenance agreement.

- In line with the principal sales argument for the T16 product line as 'the only commercially available, virtually failsafe computer system', Tandem offers full-time on-site coverage by a dedicated FE with full spares, in addition to normal shift coverage.

- The Tandem 16 uses standard hardware and software modules linked in such a way that failure in any one hardware module does not contaminate programs or data in other modules. Equipment reconfiguration is automatic.

2. PRODUCT MAINTENANCE COVERAGE

- Apart from the resident service option mentioned above, the usual eight-hour/four-hour/two-hour time targets are the determining factor of the maintenance agreement.

- As a new supplier to Europe, selling frequently also to governments or public corporations, Tandem faces a credibility problem in regard to its ongoing support commitment to the equipment it sells. This is partially off-set by contractually agreeing to support the products for five years.

- Normal service hours are from 9am to 5pm.

3. PRICING

- The MMC charge is incremented as follows for coverage additional to the normal eight-hour response for one shift, Monday through Friday:

  Eight-hour response: add 30% for each additional shift
  Four-hour response: add 18% for each additional shift
  Two-hour response: add 30% for each additional shift
  Saturday or Sunday, 8 hours: add 30% for each shift
  Saturday or Sunday, 4 hours: add 9% for each shift
  Saturday or Sunday, 2 hours: add 15% for each shift

- Billing is quarterly in arrears with a 6% credit for optional annual payment.

- Quantity discounts are available according to the number of terminals on-site.

VI CONTRACTUAL CONDITIONS AND TRENDS

VI CONTRACTUAL CONDITIONS AND TRENDS

A. PRINCIPAL CONTRACTUAL CATEGORIES

- The range of fixed monthly maintenance charge contracts in use is quite large. As a result, the categories used in Exhibit VI-1 have been widened to three principal areas:

  - The 24-hour-a-day contract.
  - The 11-to-20-hour-a-day contract.
  - The 7-to-10-hour-a-day contract.

  Each of these has a seven-day, six-day and five-day contract.

- There is a large number of special arrangements implemented, such as 'booking' extra time if it is needed, standby engineer/emergency/ad hoc, T&M, 'fix ourselves', spare equipment.

- Contractual conditions vary according to type of equipment.

- Five-day coverage is naturally the most popular, accounting for 72-84% of all contracts, and producing over 65% of all revenues from MMC.

EXHIBIT VI-1

MAINTENANCE SERVICE, ALL PRODUCTS,
CURRENT COVERAGE CONTRACTED

COVERAGE	PERCENT OF TOTAL RESPONSE				
	UNITED KINGDOM	WEST GERMANY	FRANCE	BENELUX*	SCANDI-NAVIA
24 HRS, 7 DAYS	10.9%	5.3%	4.5%	-	4.8%
24 HRS, 6 DAYS	1.6	1.0	1.0	14%	-
24 HRS, 5 DAYS	8.3	3.2	2.0	-	-
11-20 HRS, 7 DAYS	2.5	1.0	1.0	-	-
11-20 HRS, 6 DAYS	1.7	4.3	4.5	-	4.8
11-20 HRS, 5 DAYS	15.8	12.8	15.0	14	19.0
7-10 HRS, 7 DAYS	-	-	-	-	4.8
7-10 HRS, 6 DAYS	0.8	4.3	1.0	14	-
7-10 HRS, 5 DAYS	58.4	68.1	7.1	5	60.4

*BENELUX DATA PROBABLY DISTORTED BY LOW VOLUME OF RESPONSE

- Seven-day coverage is almost uniformly two or more shifts, with the exception of Scandinavia, and covers a further 5.5-13% of contracts.

- Contractual coverage is affected by social conditions. In Scandinavia very few contracts are anything but five-day, except for the all-inclusive seven-day/24-hour contract. In West Germany, 84% of all business is transacted during the normal work week.

B. USER TRENDS IN COVERAGE

- The number of users upgrading their coverage is equally affected by social conditions. In West Germany only two users out of 90 surveyed intend to make any increase of current contractual coverage. In the U.K., 14.8% of the 128 surveyed will increase coverage.

- In some cases, even when calls have been effected outside the contractual period, users have not been charged and therefore feel it is not necessary to increase their contractual coverage.

- Many adopt the 'pay-or-wait' attitude, according to urgency. One user commented, 'Service is easy to get on an urgent basis, but very expensive'.

C. CONTRACT PREFERENCES

- The vast majority of users prefer the fixed monthly maintenance charge contract as opposed to the time and materials (T&M) charge, but their reasons vary enormously.

- The principal comments are summarised in Exhibit VI-2 (reasons for fixed MMC) and Exhibit VI-3 (reasons for T&M).

EXHIBIT VI-2

REASONS FOR PREFERRING FIXED MONTHLY MAINTENANCE CHARGE

- 'Ease of administration, budgeting, etc.' (Several)
- 'Insurance premium.'
- 'Good experience of this arrangement.'
- 'It's cheaper.' (Several)
- 'No problems with spare parts.'
- 'Guarantees good service.'
- 'Better service.' (Several)
- 'Vendor absorbs the risk for unstable equipment.'
- 'Better relationship between vendor and user.'
- 'We can withhold our monthly payment if we're not satisfied.'
- 'Better for high-useage equipment.'
- 'Absolute security.'
- 'Frequent breakdowns.' (Several)
- 'Because of the cost of spare parts.'
- 'Ageing of the equipment increases maintenance costs.'

EXHIIT VI-3

REASONS FOR PREFERRING T & M

- 'Better control of costs and vendor performance.' (Several)
- 'Improved reliability of electronic versus mechanical devices.'
- 'Easy to use the spare terminal.' (Several)
- 'I pay for what I get.'
- 'Flexibility to take care of breakdowns quickly.'
- 'Low usage of essentially reliable equipment.'
- 'New equipment is more reliable.'
- 'This equipment (IBM 370/138) has only failed once since November 1977.'
- 'Terminals are reliable and spares are cheap.'
- 'Better quality of service.'

- The principal points are:

  - If the equipment is consistently reliable, users can become reluctant to pay maintenance fees for no visible return.

- The use of a fixed MMC contract gives the user a feeling of:

  - Security.

  - Clear understanding of costs.

  - A lever over the vendor for the performance of the equipment by withholding payment.

  - Better relations with the vendor.

- Terminals are clearly entering a special category where it is easier to sell a spare terminal and T&M on an ad-hoc basis than to include them in the standard configuration for MMC.

- A more complete analysis of users' attitudes is given in Exhibit VII-3.

D. DESCRIPTIONS OF MAINTENANCE TERMS AND CONDITIONS

- The following pages summarise the maintenance terms and conditions of:

  - Amdahl.

  - CDC.

  - DEC.

- HP.
- HIS.
- IBM.
- ICL.
- Tandem.
- Texas Instruments.

AMDAHL

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Basic maintenance service agreement.

EQUIPMENT COVERED:
Includes all Amdahl products.

SERVICE HOURS:
Twenty-four hours per day.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
'Perpetual'. Customer can terminate with three months notice, or if maintenance charges exceed retail price index.

RESPONSE TIME:
Not specified.

TRAVEL CHARGES:
Not available.

T&M HOURLY RATES:
Price on a project basis but normal rates are approximately $180/hour on prime shift and $230 per hour at all other times.

CONTROL DATA

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

STANDARD MAINTENANCE CONTRACT

MAINTENANCE COVERAGE:
Normal coverage, large systems.
Covers EDP systems manufactured by CDC.

SERVICE HOURS:
9am-6pm, M-F.
Nine hours per day. Several extended maintenance options.

BILLING PERIOD:
Monthly, in arrears.

PERIOD OF CONTRACT:
One year. (Ninety-day cancellation after one year.)
Response Time: Four-hour target.

MAINTENANCE CREDITS:
Downtime credit after 24 hours inoperative.
Refurbishment of equipment not included in maintenance contract.

TRAVEL CHARGES:
No charges for 50 miles (83km) during CPM.
For each 25 miles (42km), zone charges increase 10%. Large systems exempt from zone charges.

PER-CALL HOURLY RATES:

Rate Class	Prime Period	Other Contract	Other Noncontract
1	$92/hr.	$104/hr.	$104/hr.
2	$80	$97	$ 97
3	$69	$80	$ 80

REMARKS:
Control Data will quote special rates.
Multiple systems discounts are available.

COMMA

MAINTENANCE COVERAGE:
On-call, full-coverage contract for third-party maintenance.

EQUIPMENT COVERED:
Primarily IBM 360-370 and Univac equipment.

SERVICE HOURS:
Nine hours (7am-6pm), M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Thirty days' cancellation.

RESPONSE TIME:
Two hours target.

MAINTENANCE CREDITS:
Credit for 24 hours' downtime.
Has right to subcontract for service.

UNIQUE CHARACTERISTICS:
Strongly stated liability limits:

'Disclaimer of warranties and limitation of remedies.
No warranties expressed or implied including merchantability or fitness for a particular purpose.
No liability for damages caused by delay.
Remedies limited to re-performance or a refund equal to manufacturer's charge.
No liability for consequential damages.'

TRAVEL CHARGES:
Same as Schedule D and Schedule J.

PER-CALL HOURLY RATES:
Same as Schedule D and Schedule J.

SCHEDULE J

COVERS:
Plug-compatible products attached to non-CDC systems; e.g., disc drives, tape drives, etc.

SERVICE HOURS:
Nine hours (7am-6pm), M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year (90-day cancellation after one year).

RESPONSE TIME:
Four-hour target.

MAINTENANCE CREDITS:
No downtime credit.

TRAVEL CHARGES:
Fifty miles free during CPM. For each additional 25 miles (42km), zone charges increase by 10%.

PER-CALL HOURLY RATES:
Same as Schedule D.

SCHEDULE E

MAINTENANCE COVERAGE:
Offered to customers desiring to provide labour. Contract defines relationship with CDC.

EQUIPMENT COVERAGE:
Not specified.

BILLING PERIOD:
Monthly.

Includes: Parts, use of tools.
Maintenance software.
Maintenance documentation.
Field engineering change orders.

Excludes: Special maintenance aids used under Schedules D and J.
On-line diagnostics.

TRAVEL CHARGES:
CDC will respond to requests for technical support subject to availability of personnel. Labour and travel will be billed at 'per-call' rates.

REMARKS:
Charges are normal BMMC less 30%.
Customer is responsible for training personnel.

TECHNICAL ASSISTANCE

MAINTENANCE COVERAGE:

Engineering services may be available to provide technical assistance on CDC equipment or interface.

This service is not available for purposes of providing normal maintenance and is usually intended as special assistance where customer is covered under a Schedule E (no labour) contract.

DIGITAL EQUIPMENT

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

BASIC SERVICE AGREEMENT

MAINTENANCE COVERAGE:
On-call remedial maintenance.

EQUIPMENT COVERED:
Covers all DEC equipment except terminals.

SERVICE HOURS:
9am-5pm, Monday through Friday.
Extended: 12-16-24 hours and Saturday and Sunday.

BILLING PERIOD:
Monthly in arrears.

PERIOD OF CONTRACT:
Annual 90 days' notice.

RESPONSE TIME:
'Best possible effort' (up till 5 o'clock).

INCREMENTAL COVERAGE COSTS

10 hours per day:	+ 12%
12 hours per day:	+ 20%
16 hours per day:	+ 30%
Saturday:	+ 10%
Sunday:	+ 15%
24 hours X 5:	+ 44%
24 hours X 6:	+ 62%
24 hours X 7:	+ 88%

Over standard rates for above coverages

PRODUCT REPAIR CENTRE

MAINTENANCE COVERAGE:
For OEMs or end users who market their own systems.
DEC product catalogue of commercial and OEM products.

SERVICE HOURS:
N/A.

BILLING PERIOD:
Quarterly.

PERIOD OF CONTRACT:
Annual.

RESPONSE TIME:
Target: turnaround of 10 days, or new one sent and charged at 50% of module cost or £4, whichever is less.
Equipment must be returned with approved interface for fault diagnosis.

TRAVEL CHARGES:
F.O.B. Repair centre.

DEC SERVICE AGREEMENT

MAINTENANCE COVERAGE:
'The form of on-site service that meets the needs of the majority of our customers.'

EQUIPMENT COVERED:
Covers all DEC equipment except terminals.

SERVICE HOURS:
9am-5pm, M-F.
12-16-24 hours and Saturday and Sunday.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, 90 days' notice.

RESPONSE TIME:
Within primary time.
Guarantees: four hours if fault call is within 'window' of 9 am-5pm. Workthrough thereafter till fault fixed.

EXCLUSIONS:
This agreement is available to customers located within 50 miles (83km) of a Field Service Branch office.

HEWLETT-PACKARD

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

STANDARD SYSTEM MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
For all computer systems and some selected products.

SERVICE HOURS:
8:30am-9pm, M-F. 'Workthrough' if fault is not cured.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
Three- to eleven-month option for an added charge.

RESPONSE TIME:
Target: 4 hours, Zones 1,3.
8 hours, Zones 4,5.
12 hours, Zone 6.

UNIQUE CHARACTERISTICS:

HP 300 or 3000 must also be covered by HP software support service.
All elements of systems must have the same coverage unless eligible for the On-Site Product Maintenance Agreement.
Interfaces and accessories such as dynamic mapping and fast FORTRAN, can be included with the system.

TRAVEL CHARGES:
Zones 1,2,3 (0-100 miles) (0-166km) - MMC.
Zones 4,5 (101-200 miles) (167-333km) + 25% MMC.
Zone 6 (201-300 miles) (334-500km) + 50% MMC.

EXTENDED COVERAGE RATES:

Period of Coverage	Extra Hours' Coverage 5 days	6 days	7 days
8am-9pm	MMC	+10%	+20%
8am-12m	+10%	+20	+30
8am-8am	+20	+30	+40

ADD-ONS:
Installed free of charge.

BASIC SYSTEM MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
Different from Standard Agreement in hours, response time and price.

EQUIPMENT COVERED:
For all computer systems and some selected products. (Same products as eligible for 'Standard System'.)

SERVICE HOURS:
8am-5pm, M-F.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 months optional for an added charge.

RESPONSE TIME:
Next-day response.

EXCLUSIONS:
Normal exclusions.

T&M HOURLY RATES:

Zone	Miles	Km	MMC	Response
1, 2, 3	0-100	(0-166)	--	Next day
4, 5	101-200	(167-333)	+25%	2 days
6	201-300	(334-500)	+50%	3 days

ADD-ONS:
Installed free of charge.

ON-SITE PRODUCT MAINTENANCE AGREEMENT

EQUIPMENT COVERED:
HP terminals, desktop computers and peripherals.

SERVICE HOURS:
8am-5pm, M-F. Next-day response.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 months optional for an added charge.

ADD-ONS:
Separate charge quoted.

TRAVEL CHARGES:

Zone	Miles	Km	Charge	Response
1, 2, 3	0-100	(0-160)	MMC	Next day
4, 5	101-200	(161-320)	+25%	2 days
6	201-300	(321-480)	+50%	3 days

REMARKS:
Lowest cost on-site agreement.

FIELD REPAIR CENTRE MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
Repair centre, customer delivery.

EQUIPMENT COVERED:
Selected products only (e.g., terminals, printers, plotters, desktop computers and associated peripherals).

SERVICE HOURS:
8am-5pm, M-F.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 months optional for an added charge.

RESPONSE TIME:
In-house turnaround time: Three-day target.
Return shipping costs covered by M/A.
Shipping container not provided.
Inbound shipping is at customer's expense.

TIME AND MATERIAL

MAINTENANCE COVERAGE:
Per-call service.

SERVICE HOURS:
8am-5pm, M-F.

PERIOD OF CONTRACT:
N/A.

RESPONSE TIME:
Three days.

MAINTENANCE CREDITS:
N/A.

TRAVEL CHARGES:

Zone	Miles	Km	Charge
1	0-25	(0-42)	$124
2	26-50	(43-83)	$200
3	50-100	(84-166)	$276
4	100-150	(167-250)	On a time basis

T&M HOURLY RATES:
$104 on-site time.

REMARKS:
Time and material service is provided with charges for travel, on-site labour and parts. For selected products, labour and parts are combined in a standard repair charge (STREP). Products with STREP may be repaired in the field or at a repair centre.

HONEYWELL INFORMATION SERVICES

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

BASIC AGREEMENT FOR LARGER SYSTEMS

MAINTENANCE COVERAGE:
On call, on-site coverage.

EQUIPMENT COVERED:
Product classes 3,4,5,6,8 & 12.
Series 200/2000, level 64 C.S. and peripherals, G100, 200, 600, 6000.
DN 30, 305, 355, level 66, level 68, Xerox manufactured by HIS.

SERVICE HOURS:
8:30am-6pm, M-F.
Extended coverage hours:

Up to 12 hours: 15% + MMC.
Up to 16 hours: 25% + MMC.
Saturday or Sunday: 24 hours, +35% over MMC.
Any consecutive 8 hours +5% (provided no break in coverage).
Any consecutive 8 hours +10% (if there is break).
24 hours, 7 days, excluding bank and public holidays +65%.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, then 90 days' cancellation.
Mandatory to have a Honeywell maintenance agreement.

TRAVEL CHARGES:
More than 120 miles (200km) subject to surcharge.

BASIC AGREEMENT FOR SMALLER SYSTEMS

BASIC MAINTENANCE AGREEMENT:
On-call, on-site coverage.

EQUIPMENT COVERED:
Product class 9, 11, 11A.
Level 6, system 700, terminals, INCOTERM terminals.

SERVICE HOURS:
8:30am-6pm, M-F.

PERIOD OF CONTRACT:
One year.

TRAVEL CHARGES:
More than 50 miles (83km) subject to surcharge.

T&M HOURLY RATES:
Minimum time charge is two hours, including travel time.

LEVEL 62 COMPUTER SYSTEMS AND PERIPHERALS

MAINTENANCE COVERAGE:
On-call, on-site coverage.

EQUIPMENT COVERED:
Level 62 - computer systems and peripherals.

SERVICE HOURS:
8:30am-12pm, M-F.
Extended hours available:
Saturdays: 10% + MMC.
Sundays: 12% + MMC.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, 90 'days' cancellation.

TRAVEL CHARGE:
More than 120 miles (200km) subject to surcharge.

BASIC AGREEMENT FOR OLD SYSTEMS

MAINTENANCE COVERAGE:
On-site/on call.
(Product class 1, 10 & 12A.)

EQUIPMENT COVERED:
Level 61 (including peripherals).
Series 16 - Series 1640 (computer systems and peripherals, etc.).
Xerox-manufactured units.

REMARKS:
Subject to renewal only.

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Maintenance agreement for mainframe and other equipment specified on a maintenance agreement machine list.

SERVICE HOURS:
8am-6pm, M-F.
Early product monthly use plan customers are entitled to 24-hour, seven days/week coverage. More recent product monthly use plan users receive eight-hour, five days/week coverage. Added charges are based upon meter readings. Other customers may elect optional periods of availability. Depending on the machine group designation (Group A, B, C and D) and the time coverage desired, the charge for optional periods ranges from 10% premium (nine hours on Saturday for groups A and D) to 74% (24 hours, Monday-Sunday for group C). The appropriate group is defined by IBM for each equipment type.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Month to month.

RESPONSE TIME:
Not specified.

EXCLUSIONS:
Repair of damage or increase in service time caused by unsuitable installation environment is not covered by the agreement.

TRAVEL CHARGES:
Charged at per-hour rates.

T&M HOURLY RATES:

	PER-CALL RATES	
Product Category	Within 9-5AM	Outside
1	$104/hr.	$136/hr.
2	$115	$150
3	$117	$154
4	$136	$177

ICL

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

STANDARD PRIME SHIFT MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
All ICL computer system peripherals and terminals.

SERVICE HOURS:
9am-5pm, M-F excluding public holidays.
Standard Monthly Maintenance Charge (SMMC) is for any eight consecutive hours during the above hours and up to 40 hours useage per week.

BILLING PERIOD:
Monthly in advance, (most equipment). Quarterly in advance (ME 29).

PERIOD OF CONTRACT:
Open-ended. Tied to the duration of equipment rental (if rented), or one year (if purchased).

RESPONSE TIME:
Target: Two hours, CPU and peripherals.
Four hours, Communications equipment and terminals.

UNIQUE CHARACTERISTICS:
'Workthrough' beyond the contracted service cover is an additional service called 'Remedial Carryover'. For the first hour no extra charges are incurred. Thereafter three options are open:

- No cover: Work stops at the end of the extra hour.
- User can pay a T&M charge at $138/hour.
- User can pay a rate per month which varies according to additional coverage.

EXTENDED COVERAGE RATES:
This is offered in quarter, half, three-quarters and full shifts.

- Quarter shift (up to 2 hours)	40% of shift rate.
- Half shift (2-4 hours)	60% of shift rate.
- Three-quarter shift (4-6 hours)	80% of shift rate.
- Full shift	100% of shift rate.

The shift rates to which these apply depend on the SMMC.

TANDEM

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINFRAME COVERAGE

MAINTENANCE COVERAGE:
Maintenance agreement for mainframes (terminals subject to special condition).

EQUIPMENT COVERED:
Remote exchange available for T16/6520, T16/6524.
Quantity discount available for numbers of terminals on-site.

SERVICE HOURS:
9:00am-5:00pm.

BILLING PERIOD:
Quarterly, 6% credit for annual payment.

PERIOD OF CONTRACT:
One year.

RESPONSE TIME:
Target response is normally eight hours, with options for four hours or two hours. (Can buy two- or four-hour response.)

UNIQUE:
1. Customer can buy resident service.
2. Regular documentation update.
3. Tandem agrees to support equipment for five years.
4. Tandem will assist in relocation.
5. Software covered in a related document, 'Appendix C'.

TRAVEL CHARGES:
No additional charge.

T&M HOURLY RATES:

	9:00-5:00 Regular	All Other
On call	$ 81/hr.	$127/hr.
Minimum per call	368	506

For extended maintenance, add 10% or $460 per month, whichever is greater.

TERMINAL COVERAGE

MAINTENANCE COVERAGE:
Remote terminals, or when large numbers of terminals are involved.

UNIQUE:
1. Tandem will use 'best efforts' to respond.
2. Charges are in addition to basic monthly maintenance as follows:

Miles from service office	Terminals remote from system under contract
0-50 miles	NC
51-100	$16/terminal/mo.
101-200	$53/terminal/mo.
201-300	$78/terminal/mo.
Over 300	Actual travel expenses plus hourly rates for time.

3. For Tandem products (T16/6520 and T16/6524) depot maintenance is offered.

SOFTWARE COVERAGE

MAINTENANCE COVERAGE:
System operating software products, 'Appendix C'.

EQUIPMENT COVERED:
Subset of the basic agreement for maintenance.

UNIQUE TERMS:
After a problem is reported, Tandem will evaluate it and perform one of the following actions:

a. Provide a patch, update or revision.
b. Provide a temporary bypass.
c. Provide a statement that the problem could not be verified and more data is necessary.
d. Provide a statement that the problem is not of sufficient magnitude to warrant immediate correction, whereupon it will be corrected in a later revision.
e. Provide a statement that the problem will not be corrected.

Maintenance will be performed during the specified periods of coverage.

TEXAS INSTRUMENTS

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-site maintenance, on call. One standard maintenance agreement.

EQUIPMENT COVERED:
Small business systems, terminals, minicomputer systems.

SERVICE HOURS:
8:30am-5pm, M-F. Regular hours, with FE staying on if fault is not fixed by 5pm.
No extended coverage offered.

BILLING PERIOD:
Monthly/annually.

PERIOD OF CONTRACT:
One year. After one year may be cancelled with 30 days' written notice.

EXCLUSIONS:
Work on equipment not covered by contract or not supplied by T.I.

TRAVEL CHARGES:
No change under normal maintenance agreement.

T&M HOURLY RATES:
1) Depends on which role is assigned to T.I.
Example: if site preparation, installation, etc., are all done by TI, then an all-inclusive charge of 1.6% of the hardware system cost (undiscounted) is charged.

2) If TI engineer is asked to do preinstallation survey only and installation is carried out by third party, T&M rates of $55 per hour are charged, to include travel time.

VII THE USERS' VIEW

VII THE USERS' VIEW

A. OVERALL LEVEL OF SATISFACTION WITH MAINTENANCE

1. INTRODUCTION

- In the following section, a distinction is made between the level of service currently experienced by users ('current average'), the level they believe to be the minimum acceptable and the 'ideal' level they would like to see, given their business requirements.

- Each value in Exhibits VII-1 to VII-5 is the average number of hours indicated by the total sample for each category of equipment, both for response (which is defined as the time between the call for assistance and the arrival of the field engineer) and repair (which is defined as the time between arrival and the renewed functioning of the faulty device).

- The discussion that follows focuses on the Western European averages shown in Exhibit VII-1. There are significant variances from country to country, and these are given in Exhibits VII-2 to VII-5.

2. MEDIUM/LARGE MAINFRAMES

- There is no great variance between the desired minimum response and the actual level of service obtained, and overall the speed of repair exceeds the

EXHIBIT VII-1

RESPONSE/REPAIR TIMES:
WESTERN EUROPE,
TOTAL SAMPLE AVERAGES

RESPONSE/REPAIR TIMES	USER RESPONSES		
	MINIMUM ACCEPTABLE	CURRENT AVERAGE	IDEAL
A. RESPONSE TIMES			
• MEDIUM/LARGE MAINFRAMES	1.9 HRS.	1.8 HRS.	1.1 HRS.
• SMALL BUSINESS COMPUTERS	3.7	4.5	2.2
• MINICOMPUTERS	4.8	6.7	3.1
• PLUG-COMPATIBLE PERIPHERALS	5.4	7.2	3.1
• TERMINALS	6.3	6.7	3.4
• SYSTEMS SOFTWARE	9.5	23.8	6.7
• APPLICATIONS SOFTWARE	12.1	36.6	7.0
B. REPAIR TIMES			
• MEDIUM/LARGE MAINFRAMES	3.4	2.7	1.6
• SMALL BUSINESS COMPUTERS	4.9	5.3	2.6
• MINICOMPUTERS	5.3	6.6	3.1
• PLUG-COMPATIBLE PERIPHERALS	4.3	8.5	2.7
• TERMINALS	5.2	5.9	2.7
• SYSTEMS SOFTWARE	23.7	58.8	10.6
• APPLICATIONS SOFTWARE	22.5	62.8	11.1

EXHIBIT VII-2

RESPONSE/REPAIR TIMES: UNITED KINGDOM, TOTAL SAMPLE AVERAGES

RESPONSE/REPAIR TIMES	USER RESPONSES		
	MINIMUM ACCEPTABLE	CURRENT AVERAGE	IDEAL
A. RESPONSE TIMES			
• MEDIUM/LARGE MAINFRAMES	2.2 HRS.	1.5 HRS.	1.1 HRS.
• SMALL BUSINESS COMPUTERS	4.3	4.4	2.2
• MINICOMPUTERS	6.1	7.0	3.7
• PLUG-COMPATIBLE PERIPHERALS	10.0	15.3	8.1
• TERMINALS	9.7	10.1	4.3
• SYSTEMS SOFTWARE	10.5	26	5.3
• APPLICATIONS SOFTWARE	14.4	52.7	5.9
B. REPAIR TIMES			
• MEDIUM/LARGE MAINFRAMES	4.4	2.4	1.7
• SMALL BUSINESS COMPUTERS	6.1	6.0	3.1
• MINICOMPUTERS	6.0	7.8	3.2
• PLUG-COMPATIBLE PERIPHERALS	11.6	26.5	6.3
• TERMINALS	8.1	8.1	3.7
• SYSTEMS SOFTWARE	35.5	82.0	5.3
• APPLICATIONS SOFTWARE	38.5	124.8	15.3

EXHIBIT VII-3

RESPONSE/REPAIR TIMES: WEST GERMANY, TOTAL SAMPLE AVERAGES

RESPONSE/REPAIR TIMES	USER RESPONSES		
	MINIMUM ACCEPTABLE	CURRENT AVERAGE	IDEAL
A. RESPONSE TIMES			
• MEDIUM/LARGE MAINFRAMES	1.0 HRS.	1.5 HRS.	0.75 HRS.
• SMALL BUSINESS COMPUTERS	3.0	4.5	2.0
• MINICOMPUTERS	4.25	7.25	3.5
• PLUG-COMPATIBLE PERIPHERALS	1.75	3.0	1.0
• TERMINALS	225	3.5	2.75
• SYSTEMS SOFTWARE	7.0	12.75	3.5
• APPLICATIONS SOFTWARE	11.0	17.25	6.25
B. REPAIR TIMES			
• MEDIUM/LARGE MAINFRAMES	1.75	2.0	1.25
• SMALL BUSINESS COMPUTERS	3.0	4.0	2.0
• MINICOMPUTERS	5.0	3.0	3.75
• PLUG-COMPATIBLE PERIPHERALS	1.5	2.5	1.0
• TERMINALS	1.75	3.25	1.0
• SYSTEMS SOFTWARE	14.25	40.5	10.25
• APPLICATIONS SOFTWARE	14.5	22.5	8.5

EXHIBIT VII-4

RESPONSE/REPAIR TIMES: FRANCE, TOTAL SAMPLE AVERAGES

RESPONSE/REPAIR TIMES	USER RESPONSES		
	MINIMUM ACCEPTABLE	CURRENT AVERAGE	IDEAL
A. RESPONSE TIMES			
• MEDIUM/LARGE MAINFRAMES	2.3 HRS.	2.3 HRS.	1.5 HRS.
• SMALL BUSINESS COMPUTERS	3.5	5.0	2.5
• MINICOMPUTERS	3.0	6.75	2.0
• PLUG-COMPATIBLE PERIPHERALS	3.25	3.5	2.25
• TERMINALS	4.0	5.3	3.0
• SYSTEMS SOFTWARE	10.75	40.0	12.0
• APPLICATIONS SOFTWARE	11.5	61.0	11.0
B. REPAIR TIMES			
• MEDIUM/LARGE MAINFRAMES	4.3	3.75	2.0
• SMALL BUSINESS COMPUTERS	4.3	6.0	2.0
• MINICOMPUTERS	4.3	5.0	2.5
• PLUG-COMPATIBLE PERIPHERALS	3.0	4.0	2.3
• TERMINALS	3.25	4.0	2.75
• SYSTEMS SOFTWARE	28.0	77.5	18.5
• APPLICATIONS SOFTWARE	17.6	55.5	13.75

EXHIBIT VII-5

RESPONSE/REPAIR TIMES: SCANDINAVIA, TOTAL SAMPLE AVERAGES

RESPONSE/REPAIR TIMES	USER RESPONSES		
	MINIMUM ACCEPTABLE	CURRENT AVERAGE	IDEAL
A. RESPONSE TIMES			
• MEDIUM/LARGE MAINFRAMES	1.6 HRS.	1.8 HRS.	0.9 HRS.
• SMALL BUSINESS COMPUTERS	3.8	3.4	1.8
• MINICOMPUTERS	2.5	3.0	1.6
• PLUG-COMPATIBLE PERIPHERALS	1.6	1.5	1.0
• TERMINALS	5.3	3.8	1.8
• SYSTEMS SOFTWARE	14.0	15.3	7.25
• APPLICATIONS SOFTWARE	15.0	17.6	7.0
B. REPAIR TIMES			
• MEDIUM/LARGE MAINFRAMES	2.2	2.3	1.25
• SMALL BUSINESS COMPUTERS	6.25	5.6	2.8
• MINICOMPUTERS	4.3	10.8	2.6
• PLUG-COMPATIBLE PERIPHERALS	2.5	1.8	1.5
• TERMINALS	12.0	10.25	4.75
• SYSTEMS SOFTWARE	10.25	26.5	6.25
• APPLICATIONS SOFTWARE	8.5	4.6	2.0

minimum acceptable. However, users are unanimous in their views of an 'ideal' service of response and repair: vendors must reduce current averages by 40%.

3. SMALL BUSINESS COMPUTERS

- Response times are substantially out of line (40% over) with the 'minimum acceptable', and more than twice the 'ideal' level.

- Repair times are also considerably above both the minimum acceptable and the ideal. It is not unreasonable for users to expect repairs to be effected in just over three hours.

4. PLUG-COMPATIBLE PERIPHERALS

- Response times for PCM peripherals are unacceptably high, nearly 'next shift' service, compared with a three- to five-hour requirement. This is surprising, given the highly competitive nature of this market.

- Repair times are also very high, twice the minimum acceptable and three times higher than the ideal 2.7 hours expected by users. It is unlikely that PCM peripherals will have sustained success in the European marketplace with this kind of post-sales service.

5. TERMINALS

- Terminals are increasingly the key I/O device, as applications across the board are converted to on-line/real-time/transaction processing modes as opposed to deferred/batch processing. Although the loss of a single terminal is rarely critical to an application run, nevertheless response times are twice as high as the ideal requested by users, which is a reasonable 3.4 hours.

- Current average response times are nonetheless acceptable, as are repair times, although here again the current average of 5.9 hours is over twice the ideal value sought by users.

6. SYSTEMS SOFTWARE

- Non-critical failures of systems software are the regular diet of all types of computer users. Each new release of systems software comes with its list of known errors, which users program around. It is therefore not surprising that 'next-shift' response is considered acceptable, 9.5 hours, but less than the ideal 'same shift', or 6.7 hours. Actual averages experienced are far higher.

- Repair times are naturally high, but out of proportion to a reasonable 23.7-hour minimum requirement. Users regularly have to wait two and one-half days for a fix. This contrasts with their 'ideal' requirement of 'next shift', or 10.6 hours.

7. APPLICATIONS SOFTWARE

- Nowadays applications software is always charged for separately and is sold as a separate product in its own right, very often from a separate vendor. Users are not unreasonable therefore in requesting a minimum response of 12.1 hours, as opposed to the one and one-half days they currently experience. Ideally they would like 'same-shift' service.

- Repair times are unacceptably high: nearly three times what is considered to be acceptable and over five times higher than the ideal.

- It should be stressed that over 40% of users declared themselves willing to pay additional fees for the higher level of service they are demanding across the board. 'Acceptable' price increases range from 10% to 30% (Scandinavia). There is thus a willingness to recognise the difficulties under which vendors are working, provided improved service results.

B. PERCEIVED RESPONSE AND REPAIR VERSUS ACTUAL

- It is important to recognise that there is a difference between the actual response time as defined in VII-1 and the perceived response time as defined by the user: in many instances it is adequate to call the DP after obtaining the head operator's diagnostic routine verdict, to inform him of who is coming, when, with what part, etc., and to estimate when he can expect to be back on the air. This is, after all, what the DPM cares about, and is associated in his mind with 'response'.

- In the case of repair time, it may be possible to put the system up immediately in a 'reduced-function' mode. If so, it should be systematically offered to the operator, who then must judge the usefulness of such a move and who becomes, by that decision, a party to the current state of the system and is likely to be less critical as a result.

C. VALUE FOR MONEY; REDUCING COSTS

- Users are conscious of the need to reduce their maintenance costs where possible, but still need to feel secure in their relationship with the vendor.

- Nevertheless, there is a small proportion of users who are examining the possibility of using T&M contracts for specific parts of their configurations, although at present the majority of them do not use this option.

- The principal targets for T&M coverage are terminals, given their non-critical status in a configuration, at least for multiple terminals. The full breakdown of user's preferences is given in Exhibit VII-6.

EXHIBIT VII-6

USERS' PREFERENCE FOR FIXED CONTRACT VERSUS T & M

EQUIPMENT TYPE	USERS' PREFERENCE									
	UNITED KINGDOM		WEST GERMANY		FRANCE		BENELUX		SCANDI-NAVIA	
	MMC	T&M	MMC	T&M	MMC	T&M	MMC	T&M	MMC	T&M
ALL HARDWARE	55.7%	5.7%	-	-	21.8%	1.3%	-	-	-	-
CPU	23.5	10.4	74.0%	12.4%	71.8	14.1	3.7%	2.5%	50.0%	16.7%
PERIPHERALS	17.9	10.4	51.9	12.4	37.2	12.8	2.5	2.5	37.5	8.3
MINIS, SBC	5.7	5.7	24.7	7.4	19.2	7.7	2.5	-	20.8	4.2
TERMINALS	-	21.7	30.9	22.2	25.6	23.1	4.9	-	16.7	50.0
OTHER	3.8	18.9	2.5	6.2	16.7	9.0	-	2.5	16.7	29.2

- Other ways of reducing costs are outlined in Exhibit VII-7, in which user self-help, ranging from installing equipment to carrying out maintenance of hardware and/or software themselves, is explored.

- In the case of hardware self-maintenance, users were mainly very large companies. Surprisingly, the cost savings anticipated are not very high: 15-20%.

D. WHO'S MY INTERFACE?

- Very few vendors offer the facility, to a multivendor site, of administering all of the maintenance contracts under an umbrella agreement where the vendor's interface is reduced to a single person.

- While the benefits accruing from this task are intangible, such as users' good will and account control, the real attraction will be the elimination of an opportunity for a third-party maintenance vendor to offer precisely this.

- The principle concern of users is the need for developing a stable, personal service relationship with the supplier through the field engineer. For this reason, swapping and changing of staff is disliked by users and is the main drawback of the support centre, where 'specialists' of one type of equipment, peripheral or model are dispatched according to availability.

- For the larger user sites, one answer to this problem, and an effective counter to the T&M, is the offer of a dedicated field engineer resident with spares on-site. This is the field service equivalent of the systems/software house provision of people.

- The normal threshold where this becomes feasible is where there is a significant saving (e.g., 30%) to the user over the cost of the FE, at 3.5 times

EXHIBIT VII-7

COST SAVINGS ACTIVITIES

ACTIVITY	COUNTRY (PERCENT USING)				
	UK	WG	FR	B/L*	SC
• USER INSTALLING OWN EQUIPMENT	21.1%	2.3%	7.7%	28.5%	8.7%
• USER-RUN DIAGNOSTICS	43.9	31.6	37.3	57.0	16.7
• USER MAINTENANCE (H/W)	13.0	4.6	9.1	14.0	4.2
• USER MAINTENANCE (S/W)	36.4	17.9	15.6	28.5	4.2
• DELIVER EQUIPMENT TO DEPOT	7.3	6.1	6.25	14.0	25.0

ACTIVITY	COUNTRY (PERCENT SAVING)				
	UK	WG	FR	B/L*	SC
• USER INSTALLING OWN EQUIPMENT	23%	10%	12.8%	NG	NG
• USER-RUN DIAGNOSTICS	4.0	22.5	25.4	NG	NG
• USER MAINTENANCE H/W	14.8	20.0	NG	NG	NG
• USER MAINTENANCE S/W	20.4	43.3	28.0	NG	15.0%
• DELIVER EQUIPMENT TO DEPOT	20.7	37.5	80.0	NG	50.0

*NOTE: BENELUX DATA PROBABLY DISTORTED BY LOW LEVEL OF RESPONSE
NG=NOT GIVEN

salary or greater. At today's FE average salary, this means a site where maintenance costs exceed $87,500 per year.

- The average revenue per FE is around $70,000, so that it is reasonable to charge out 'captive' FEs at, for example, $90,000 per year for the full-time support of $1.2 million-plus of installed equipment. The attractions are three-fold:

  - The user has first-class service, at 30% saving over normal rates.

  - The FE has the kind of job that he likes, 'his' equipment to maintain, steady relationships and the ability to organise himself as he wishes.

  - The TPM threat is dissolved. (Even if they are cheaper, the added security of the vendor's own staff is worth the extra cost.)

E. ESCALATION PROCEDURES

- It appears that the only country market where escalation procedures are regularly in use is the United Kingdom. In all other countries the majority of users appear to be unaware of the possibility. Certainly the procedures are available in all countries, but they are either not advertised or not required by most users.

- The summary of useage is as follows:

United Kingdom:	75%
West Germany:	19.2%
France:	15%
Benelux:	14%
Scandinavia:	33%

- Of those who are currently not making use of such procedures the following further analysis is of interest:

	UK	WG	FR	B/L	SC
Believe it would improve the service	19%	12%	19%	33%	21%
Believe it would not improve the service	59	64	70	50	79
Don't know	22	24	11	17	--

- The following are the principal comments in favour of the use of escalation procedures due to their effect on maintenance support:

  - 'It has reduced the repair time, through round-the-clock working.'
  - 'Faster, more efficient.'
  - 'Improved communications, better response on difficult faults.'
  - 'Excellent in severe cases.'
  - 'Provides higher level of engineering expertise without too much customer intervention.' (several)
  - 'Vital feature of support; on-site engineers tend to be GPs.' (several)
  - 'Assurance that sooner or later the problem will be fixed.'
  - 'Expert support flown in from the U.S.'
  - 'Guarantees that major excessive breakdowns do not cause excessive downtime.'

- Comments made against the use of such procedures relate to their not being followed:

- 'Rarely followed to the letter, so has little effect.'

- 'Does not work at all.'

- 'Very little effect; engineers don't follow it unless I encourage them myself.'

- 'Rarely required; found it not very effective.'

- 'No change; no real escalation.'

- 'Whole level of engineering is poor.'

- 'They have poor knowledge of H/W and S/W.'

- Clearly, if it is systematically followed, and is shown to work, then users are all in favour because they know they will get the right level of attention as the level of urgency grows.

F. THIRD-PARTY MAINTENANCE

- TPM has caught on only in the United Kingdom so far, with very low-level penetration in France and none elsewhere. This is lamented by a number of users who said, 'To my great regret, I don't have an alternative'.

- The principal reasons given for the use of TPM in the U.K. were as follows:

  - 'Because the TPM was the supplier of the equipment.'

  - 'For the system we have, no other maintenance service is available.'

  - 'Poor service from the previous supplier.'

- 'Cost saving.'

- 'Greater attention paid to I/0 devices, particularly printers.'

- 'Track record is better than the original vendor's.'

- 'Eliminates the interface between several suppliers.'

- 'For all non-mainframe units, cheaper, neater and more effective.'

- 'Few engineers know how to service this equipment.' (IBM 360)

- 'Not satisfied with manufacturer's response.' (terminals)

- 'Long-term security.'

G. MAINTENANCE COSTS: USERS' PLANS

- With the problem of ever-increasing maintenance costs, few users are prepared to sit back and accept things as they stand. The percentage of 'docile' users is as follows:

  - U.K. - 34%; WG - 17%; France - 38%; Scandinavia - 40%.

- The plans the remainder have vary enormously:

  - 'Consider TPM.' (U.K.)

  - 'Reduce coverage.'

  - 'Change equipment vendor.'

- 'Intervene through users club.'

- 'Reduce hardware.'

- 'Avoid the cost of S/W maintenance.'

- 'Do our own maintenance.'

- 'Complain, negotiate.'

- 'Change to machine with remote diagnostics.'

- 'Change equipment for a more modern system with lower maintenance cost.'

- 'Reduce dependence on one supplier for S/W.'

- 'More spares and in-house engineer.'

- 'Change to on-call maintenance.'

- Users were also asked at what point increasing maintenance costs became unacceptable:

  - 'When maintenance cost is 18% of equipment value.'

  - 'Real problem is not cost but speed and efficiency.'

  - 'Very soon, since maintenance costs are increasing more than the use of the equipment justifies.'

  - 'When rent + maintenance is greater than 45% of the budget.'

  - 'Beyond an increase of 7-8%.'

- 'When supplier puts pressure on user to upgrade by increasing maintenance costs.'

- 'When increase exceeds inflation.'

- 'When maintenance exceeds 15% per year.'

- 'When not compatible with the competition.'

- 'When there's a more cost-effective EDP solution.'

- 'If we're working within cost limits, when it impacts another element of service.'

- 'Already unacceptable.'

- 'When total EDP costs exceed 1.2% of turnover.'

H. REMOTE DIAGNOSTICS AND OTHER NEW TECHNIQUES

- Only between a third and a half of all users surveyed are aware of the availability of remote diagnostics service, although the majority of important vendors do in fact provide RD.

- The verdict on the improvement of quality of service remains in doubt for the moment:

Quality of Service	Percent UK	WG	FR	B/L	SC
Same (no improvement)	26.5%	60.7%	15.2%	20%	--
Poorer	8.8	14.3	4.3	--	25%
Improved	26.5	25.0	50.0	40	50
No response/no experience	38.2	--	30.5	40	25

- While few users felt the service had deteriorated, the combined 'poorer/no improvement' percentage is disturbingly high: from 20% to 75%. However, no doubt vendors will be satisfied with this result if RD has had the hoped-for savings in costs.

- The principal comments from users are predictable:

  - 'Immediate dispatch of correct parts.'
  - 'Maintenance more efficient.'
  - 'Improvement in time taken to act.'
  - 'Service is anonymous.'
  - 'Local service is better.'
  - 'Engineers lose site knowledge in the long run, which is very useful normally.'
  - 'Too early to pass judgement yet.'

- Among the 'new' maintenance techniques introduced by vendors, the following were sited, not all of them successful:

  - IBM Retain System - resulted in reduction in maintenance time.

- Improved test programs.

- IBM's S/W support centres - 'not particularly effective', 'not very positive', 'disaster, IBM S/W experts are no longer available on-site'.

- Better local availability of spares.

- Improved (computerised) calls logging, reported to FE management.

- Calls made by engineering supervisor prior to engineer's visit.

- Introduction of formal standby hours: 6.00-9.00, 17.30-24.00.

I. MAINTENANCE NEEDS NOT MET; SUGGESTED IMPROVEMENTS

- The principal 'groans' of the end users interviewed were as follows, in descending order of importance:

- 'Better trained/qualified engineers.' (very frequent)

- 'Better response time.'

- 'Local availability of spare parts.'

- 'Better management of engineers.'

- 'Availability of on-site engineers.'

- 'Lower sites/engineers ratio.'

- 'Greater/improved PM.'

- The above were quoted by all countries' user groups.
- Other interesting comments made were:
  - 'Better interaction in fault diagnosis between H/W and S/W.'
  - 'Standby team for complex or critical equipment.'
  - 'Specialists for certain types of equipment.'
  - 'Client training.'

APPENDIX A: DEFINITIONS

APPENDIX A: DEFINITIONS

- DISTRIBUTED DATA PROCESSING: The deployment of programmable intelligence to the site where the particular data processing function is performed. Computers and terminals are interconnected through a telecommunications network adapted to individual user's needs.

- ENGINEERING CHANGE NOTICE: Notice of improvements or corrections in a product after it has been released to production or has been installed at the user's site.

- ENGINEERING CHANGE ORDER (ECO): Instructions including bill of materials and parts required to effect the engineering change.

- FIELD ENGINEER (FE): Individual who responds to a user's call for service and repairs a device or system. FE is used interchangeably with customer engineer, serviceperson, maintenance person, etc.

- FIELD SERVICE (FS): The entire range of hardware and software maintenance services available from the supplier.

- MEAN TIME TO RESPOND: The elapsed time between a user's service call and the field engineer's arrival at the user's location.

- MEAN TIME TO REPAIR: The elapsed time between a field engineer's arrival at the user's site and the repaired device's return to full operation.

- MEAN TIME BETWEEN FAILURES (MTBF): The elapsed time between reported failures on a device or system.

APPENDIX B: USER QUESTIONNAIRE (GENERAL)

EUROPEAN FIELD SERVICE
1980 USER QUESTIONNAIRE

- CONFIDENTIAL -

COMPANY .....

ADDRESS .....

.....

.....

.....

QUESTIONNAIRE COMPLETED BY .....

TITLE/POSITION .....

TELEPHONE .....

INDUSTRY TYPE:

☐ DISCRETE MANUFACTURING	☐ UTILITIES	☐ INSURANCE
☐ PROCESS MANUFACTURING	☐ RETAIL	☐ GOVERNMENT - NATIONAL
☐ TRANSPORTATION	☐ BANKING	☐ GOVERNMENT - LOCAL
☐ MEDICAL	☐ WHOLESALE	☐ EDUCATION
☐ SERVICES	☐ OTHER	

PLEASE RETURN COMPLETED QUESTIONNAIRES BY 25TH JULY 1980 TO:

DAVID A. LYONS
INPUT LTD.
AIRWORK HOUSE (4TH FLOOR)
35 PICCADILLY
LONDON W1V 9PB

THANK YOU

EUROPEAN FIELD SERVICE ANNUAL REPORT
USER QUESTIONNAIRE

1. Please complete the table below and rate on a scale of 1-5 (1 = low, 3 = medium, 5 = high) the maintenance service you receive.

Equipment Classification	Predominant Vendor's Name	Maintenance Vendor's Name	Maintenance Contract or Time and Materials	Rating of Maintenance Service (circle your response)
a) Medium and Large Mainframes				1 2 3 4 5
b) Small Business Computers				1 2 3 4 5
c) Other Minicomputers				1 2 3 4 5
d) Peripherals (plug compatible)				1 2 3 4 5
e) Terminals				1 2 3 4 5
f) Software: Systems				1 2 3 4 5
g) Software: Applications				1 2 3 4 5

2. a) For how many hours per day have you presently contracted maintenance?

_____ Hours

b) For how many days a week do you have coverage?

_____ Days

c) Will this coverage change in the future?

☐ Yes ☐ No

Comments: _____

_____

_____

d) Does this coverage vary depending on type of equipment?

☐ Yes ☐ No

If yes, please comment:

_____

_____

_____

_____

e) What happens outside of contracted hours?

_____

_____

_____

_____

3. Please complete the table below in hours:

   - Respond time from placing fault call to engineer arriving on site.

   - Repair time from engineer arriving on site to machine being returned to you.

   - What percent increase in maintenance charges would you pay to move from your current position to your ideal position?

Equipment Classification	What Is Your Minimum Acceptable Level		What Is Your Current Average		What Is Your Ideal, Considering the Real World		Percent Willing to Pay
	Respond	Repair	Respond	Repair	Respond	Repair	
a) Medium and Large Mainframes							
b) Small Business Computers							
c) Other Minicomputers							
d) Peripherals (plug compatible)							
e) Terminals							
f) Software: Systems							
g) Software: Applications							

4. Rate the importance to you of the following field maintenance characteristics on a scale of 1-5 (1 = low, 3 = medium, 5 = high).

Factor	Rating (circle your response)
a) Mean Time to Respond (in person)	1 2 3 4 5
b) Mean Time to Repair (of equipment) (not including response time)	1 2 3 4 5
c) Regularly Scheduled Preventive Maintenance	1 2 3 4 5
d) Other (specify)	1 2 3 4 5

5. During the past two years have you or are you currently replacing any hardware due to poor maintenance?

a) Yes _____

b) No _____

c) If yes:

- Vendor _____
- Type of Machine _____
- Maintenance Vendor _____

6. Over the same period have you or are you replacing any software due to poor maintenance?

   a) Yes _____

   b) No _____

   c) If yes:

   - Vendor _____
   - Type of Software _____
   - Maintenance Vendor _____

7. During the past year how would you rate the quality of the field service engineers that service your installation compared to earlier years?

   _____ Same Quality

   _____ Poorer Quality

   _____ Improved Quality

   Please comment: _____

   _____

   _____

8. During the past year how would you rate the quality of the field service management that is responsible for your installation compared to earlier years?

   _____ Same Quality

   _____ Poorer Quality

   _____ Improved Quality

   Please comment: _____

   _____

   _____

9. As a result do you currently perform any of the following maintenance activities?

		Perform		Cost Saving Percent	Consider		Expected Cost Saving
a)	Install equipment	Y	N	_____	Y	N	_____
b)	Perform diagnostics before calling for vendor maintenance	Y	N	_____	Y	N	_____
c)	Perform maintenance on your hardware system	Y	N	_____	Y	N	_____
d)	Perform maintenance on vendor-supplied software	Y	N	_____	Y	N	_____
e)	Deliver equipment to vendor maintenance depot for repair or replacement	Y	N	_____	Y	N	_____

10. Do any of your vendors provide a remote diagnostic capability?

☐ Yes ☐ No

a) If yes, which vendor provides this service? _____

If yes, for which equipment type? _____

b) How long has it been provided? _____ Months

c) How would you rate the quality of your maintenance service with this remote diagnostic capability?

_____ Same Quality

_____ Improved Service

_____ Poorer Service

Please comment: _____

_____

_____

11. Has this remote diagnostic capability reduced your maintenance costs?

☐ Yes ☐ No

a) If yes, by what percent have your maintenance costs decreased?

_____% Decrease

12. If offered remote diagnostics, what would be your reaction?

_____

_____

_____

_____

13. Do any of your vendors provide a formal escalation procedure as part of their maintenance activities?

☐ Yes ☐ No Vendor _____

Equipment _____

a) If yes, what affect has this had on the maintenance support that has been provided to you?

_____

_____

_____

b) If no, do you believe that a formal escalation procedure would provide improvements over the present level of maintenance support you are receiving?

☐ Yes ☐ No

How would it help? _____

_____

_____

_____

14. Would you prefer to buy products from a vendor who provides a formal escalation procedure as a part of their maintenance activities?

☐ Yes ☐ No

15. What other new maintenance techniques have your vendors introduced in the past year?

_____

_____

_____

_____

a) How effective have they been?

_____

_____

_____

_____

16. What is your current budget for EDP? $_____

What portion of this is spent on: ($ or %)

	1980	1982	1985
a) Hardware			
b) Software			
c) Personnel			
d) Hardware Maintenance			
e) Software Maintenance			

17. How have your maintenance costs changed in the last 12 months compared to earlier years?

	More (%)	Less (%)	Same
In absolute $			
Relative to Value of Equipment			

18. What do you plan to do about rising maintenance costs?

19. At what point does this become a problem?

There have been some recent changes in the manner vendors charge for maintenance services. These changes have been primarily in providing an incremental pricing structure where individual maintenance activities are billed separately.

20. For which types of equipment would you prefer maintenance to be billed as a:

a) Fixed monthly maintenance charge? _____

_____

_____
(equipment type)

b) Incremental maintenance charge based on service provided? _____

_____

_____
(equipment type)

Why? _____

_____

_____

21. Would you be willing to pay for on-site spares for your installation?

☐ Yes ☐ No

a) If yes, what advantages?

_____

_____

_____

b) If no, why not?

_____

_____

_____

22. For what percentage of cost saving in your maintenance contract would you eliminate preventive maintenance (PM)? (encircle)

a) Would Not Consider Elimination of PM

b) < 5% of Contract Cost

c) 5-10% of Contract Cost

d) 11-20% of Contract Cost

e) 21-30% of Contract Cost

f) >30%

23. If currently using a third party for maintenance, please state the reasons.

_____

_____

_____

_____

a) What is the percent savings?

_____%

24. If you are not currently using a third party for maintenance, would you consider it?

a) Yes _____

b) No _____

If no, why not?

_____

_____

_____

_____

c) If yes, please state the reasons for using a third party for maintenance.

_____

_____

_____

d) What is the expected savings (if any)?

_____%

25. What, in your opinion, would improve your maintenance service? How important are these?

	High	Medium	Low
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐

26. What maintenance needs or service requirements do you have which are not now being met?

_____

_____

_____

_____

27. In the next two years, do you expect to see your quality of maintenance improve, stay the same, or decline?

☐ Improve ☐ Same ☐ Decline

- All information is treated in strictest confidence.
- A photo copy of your current maintenance agreement would greatly assist our survey.
- Thank you for your cooperation.

APPENDIX C: VENDOR QUESTIONNAIRE (GENERAL)

FS MARKETING

Q.1 Are your Field Services marketed to users in any way ?

Q.2 Are product reliability and FS response sold by salesmen as a feature of the product ?

Q.3 A. Who is responsible for FS contract renewals ?

a) FE c) FE Mgr e) other
b) Salesman d) Sales Branch Mgr

B. Who do you think should/could be responsible ?

Q.4 Do you systematically analyse the competition's.....

a) product reliability
b) FS

If yes, how is this carried out :

If no, why not ?

Q.5 When was the last time you reviewed the packaging of your Field Services ?

Q.6 How are price increases communicated to end users ?