IBM'S DP SUPPORT POLICY

ABOUT INPUT

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INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing ind ustries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services

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IBM'S DP SUPPORT POLICY

VENDOR WATCH REPORT # 2

JUNE 1979

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I. INTRODUCTION

I. INTRODUCTION

- When IBM launched the 4300 range of processors earlier this year, it also announced changes in policy affecting the charges raised for its mainframe software products and the procedures for servicing those products.

- Not publicly announced but equally important, there could be observed a definite shift in marketing posture in the market area served by the 4300s -the small to medium mainframe sector. This shift is:

    - away from the low-volume, high-cost approach to mainframes, and

    - towards the high-volume, multiple-system approach associated with Distributed Data Processing (DDP).

- These two changes were dealt with in outline in the first Vendor Watch report of this series, issued in March this year. Taken together they will have a lasting impact on IBM and its customer base. This impact will not take effect across the whole user base at once, but will be operable immediately on new 4300 installations and will progressively come into force across the whole of IBM's small and intermediate mainframe base, as older systems are replaced.

- This report examines the detail of these changes, and compares and contrasts the policies of the Data Processing Division (DPD) with those of General Systems Division (GSD).

- The report is issued as part of the European Market Intelligence, Distribution and Analysis Service (MIDAS/EUROPE).

- Comments and enquiries from clients regarding the information presented here are both invited and welcomed.

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II. EXECUTIVE SUMMARY

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A. IBM'S CURRENT POLICY STATUS

- IBM is pursuing a policy of overlap between the different ranges of its hardware products. This policy extends to the overlap between:

  - DP Division products, - mainframes and DDP processors, and
  - GS Division products, - small business, desktop and mini-computers, and key-entry equipment.

- This policy is dictated by:

  - the need to encourage competition within "the giant",

  - the need to control the rate of introduction of new technology products,

  - the need to "back all the horses" in the technology race,

  - the requirement to have a grand strategy for the information systems of the future.

- General Business Group (GBG) was formed in 1976 to bring together General System Division (GSD) and Office Products Division (OPD). One motive behind this move was:

  - DPD as the largest revenue earner in the corporation required a counter-weight with a central interest in small systems; neither GSD nor OPD alone carried sufficient weight to provide the necessary balancing force.

- The IBM policy of 'unbundling' software has continued progressively from its inception at the time of the release of the 370 range. The policy is not applied uniformly across the divisions for a mixture of commercial or "historical" reasons.

- The policy has reached its peak of sophistication with the present structure of DPD's software charging mechanisms. The structure comprises:

    - charging separately for software license and software support,

    - classifying products according to the type of support available,

    - repackaging system software sets into preferred and chargeable operating system 'bundles', the System IPO/Es.

- By contrast GSD's policy is a straightforward one of:

    - 'unbundled' license fees for software products,

    - 'bundled' product support for current unaltered control programs and application products,

    - chargeable application support by hourly rate for SE time.

B.   IMPACT ON SUPPORT ORGANISATIONS

- Unlike some of its competitors, IBM has always managed to resolve contention for its software support resources.

- This has been achieved by defining two types of support staff with different functions, titles, career paths and reporting structures:

    - Systems Engineers (SEs) - responsible for support to the Sales/Marketing force,

    - Customer Engineers (CEs) - responsible for hardware maintenance and the support of operating systems and other software products.

- SE Managers and CE Managers at different levels - Branch, Region, etc. - report to general managers in their day-to-day line management functions but also have a technical reporting function to their own specialty's District or Regional Managers (dotted line responsibility). The structure is illustrated for DP Division in Exhibit II-1.

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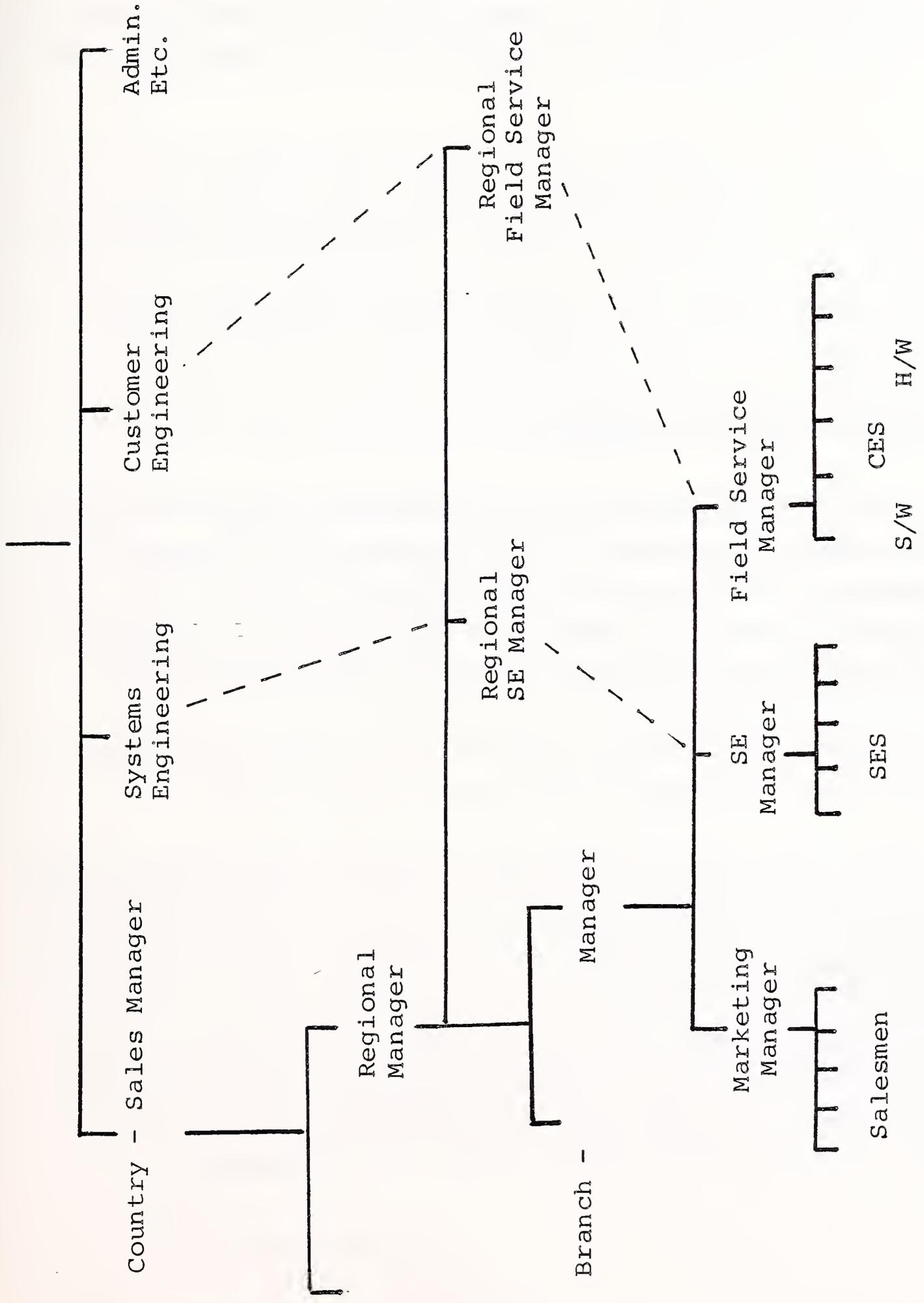
NOTIONAL DP DIVISION ORGANISATION CHART

EXHIBIT II - 1

- The latest (1979) DPD announcement - the launch of the 4300 Processors - has been accompanied by organisational changes affecting both Marketing and Software servicing functions. These changes do not impact the reporting or career structures; they affect mainly the way in which DPD does its business, and its profile to both the professional DP staff and the end-users within customer organisations.

- GSD has essentially the same reporting hierarchy and functions for its support staff as DPD. The same titles of SE and CE are used and they refer to the same activities. However it has not rejigged their support policies in recent product launches and has therefore not needed any organisational changes.

C.   THE MAIN CHANGE - DP DIVISION

- DPD's recent revision of its software services changes the way the company provides programming services for selected System Control Programs (SCPs) on suitable IBM machines and for selected Licensed Programs (LPs). The changes were designed to improve IBM responsiveness to programming problems while offering users a choice of optional Local Program Support.

- A new support organization lies at the heart of this more modular approach to software service which comes into full effect on January 1, 1980.

- If users encounter problems with the selected SCP's or LP's and wish for IBM assistance, their first action under the new scheme will be to telephone the new IBM Support Centre currently being established for each national market. Software CEs at the Centre, who will include product specialists capable of giving authoritative advice and assistance, will have direct access to the data base in IBM's RETAIN (Remote Technical Assistance and Information Network System). The RETAIN data base contains information on fault symptoms and 'fixes', service techniques and tips, and recent engineering changes.

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• With the telephoned assistance of software CEs in the Centre, users should be able to diagnose problems and determine available solutions in the majority of instances. So users taking advantage of the Centre's telephoned support, which is free and available anywhere in the country area served, should benefit from speedier service by avoiding CE travelling time.

• Users can also enlist the help of IBM maintenance and service aid programs when trying to resolve software problems. Several new programs in this category were announced with the 4300 Processors.

• If the user cannot resolve his problem by telephone he can still get help - through the service called Local Program Support. With the user's agreement, the Centre will despatch an IBM software CE to his premises when needed. This part of the total service is chargeable.

• Users wishing to avail themselves of this service can enter into a support agreement, for which they will pay a fixed monthly charge. Alternatively, users can elect to be billed at an hourly per-call rate. The approach the user chooses will no doubt depend upon which one is likely to contribute most to minimising his total system costs. It is also possible to opt for fixed charge support on certain products only, with the remainder being serviced on an on-demand basis.

D. SYSTEM SOFTWARE IMPLICATIONS

• The impact of the new policy is greatest on system software because:

- the products selected for the new maintenance service are system software routines, i.e. the new Releases of DOS/VS, VM/370 and OS/VS1, and their associated language processors, utilities and service routines.

• The main effects are:

- software license and maintenance charges will form a larger percentage of users' expenditure. Rises of from 100% to 300% of previous charges have been calculated by observers, and result in software's percentage of total system costs changing as follows:

  . 3% rising to 13%, for full-function systems,
  . 8% rising to 14% for entry level systems.

- more easily controlled obsolescence of software, versions only being supported if current,

- increasing dependence of users on IBM for support, with possible chaos among certain semi-educated users,

- dissatisfaction among IBM software specialists due to the deskilling of their work and its progressive reliance on on-line computer assistance,

- blanking-off of the PCM opposition,

- increased flexibility available to IBM for future manipulation of software tariffs.

E. APPLICATION SOFTWARE IMPLICATIONS

- The new software maintenance service does not at present apply to any IBM application software products, since none are included in the list of Designated Licensed Programs, see Exhibit II-2. There is, however, nothing to prevent new application modules being added as they are issued. IBM's present policy is designed not to harm existing business relationships by making a charge for anything that was previously free.

- All Licensed Products on the list are either new products or were chargeable previously. Software support services are continuing as before for all products outside the revised scheme.

LICENSED PROGRAMS FOR WHICH THE
REVISION FOR IBM SOFTWARE SERVICE WILL APPLY

LP NO			LP NAME	FEATURES AFFECTED
5735	-	D16	SPPS II	
	-	XR1	Host Command Facility	
	-	XX2	NOSP	
	-	XX3	SSP for ACF/NCP/VS	
	-	XX6	NCCF	
	-	XX8	NPDA	
5736	-	CB2	ANS COBOL/DOS Compiler	
	-	LM2	ANS COBOL/DOS Library	
	-	LM4	PL/1 DOS Resident Library	
	-	LM5	PL/1 DOS Transient Library	
	-	PL1	DOS PL/1 Optimising Compiler	
	-	PL3	DOS PL/1 Optimising Compiler & Library	
	-	RC3	VIDEO/370 DOS	Various CICS Features Nos 6038, 6039, 6040
	-	RG1	RPG II DOS	Various Auto Reports Nos. 6017, 6018, 6019, 6020 6021, 6035, 6036, 6037
5740	-	XR5	VSPC - OS/VS1	
5746	-	AM2 *	VSE/VSAM	Space Management Features Nos. 6073, 6074
	-	CB1	COBOL DOS/VS Compiler & Library	
	-	LM3	FORTRAN IV DOS Library	
	-	LM4	COBOL DOS/VS Object Library	
	-	RC3	ACF/VTAM for DOS/VSE	Multi-Network Feature No. 6059
	-	RC5 *	BTAM-ES	
	-	RC7 *	ACF/VTAM-E	
	-	RG1	RPG II DOS/VS	
	-	SA1 *	VSE/IPCS	
	-	SM2	Sort Merge DOS/VS	
	-	SU1 *	14XX EP	
	-	TS1 *	VSE/ICCF	
	-	UT3 *	VSE/DITTO	
5746	-	XC4 *	DMS/CICS/VS	Application Generator
	-	XE2	Advanced Functions DOS/VS	
	-	XE3 *	VSE/POWER	RJE Feature Shared Spool Feature
	-	XE6 *	Job Entry Program	
	-	XE7 *	VSE/Access Control (LOGREP)	
	-	XE8 *	VSE/Advanced Functions	
	-	XR3	VSPC DOS/VS	

EXHIBIT II-2

INPUT

o   No new application products were issued at the start of the new scheme.

o   However, there has also been an accompanying major shift of emphasis in the way DPD expects to sell mid-range mainframes - 4341 and below; and this it is which will affect the application software market for IBM mainframes. We refer to the change from the policy of selling high-cost, low-volume systems to one of selling low-cost, high-volume.

o   IBM expects 4300s to be installed in one of the following three ways:

     -     IBM provides SCP and utility software, and something called "application enabling" software.

     -     IBM provides standard systems software as above plus application "code" modules fully coded and documented, but requiring customer implementation and integration, if destined to run alongside other applications.

     -     IBM provides dedicated "application machines" comprising system software and off-the-shelf application products.

o   "Application enabling" software remains a somewhat ill-defined concept. IBM has not given any examples of it. At its minimum, it could be taken to include languages, interactive development aids, and data management facilities.

o   "Code" modules mean fully developed application systems to run in a non-dedicated machine environment.

o   Whereas, the two methods already described both require some support from the DP department, the third and last does not. The "application machine" is the complete "black box" installed and commissiond by IBM.

INPUT

LP NO		LP NAME	FEATURES AFFECTED
	- XXC	DB/DC Data Dictionary	
	- XX1	DL/1 for DOS/VS	
	- XX3	CICS/VS	
	- XX7	DL/1 Entry DOS/VS	
5748	- AP1	APL/VS	
	- FO2	VSPC FORTRAN	
	- MS1 *	IPF for System IPO-E	
	- SAI *	VM/IPCS-E	
	- UT2	Utility Off-line 3800	
	- XE1	VM/System Extensions	
	- XE6 *	File Transfer Program	
	- XP1 *	VM/RSCS Networking	
	- XXB *	DMS/CMS	
	- XXC *	VM/Interactive File Sharing	
	- XXE	Document Library Facility	
	- XX1	BASIC/VS	
	- XX8	VM/BSE	
	- XX9	Document Composition Facility	* New Licensed Program

<u>EXHIBIT II-2 (continued)</u>

- In IBM's mind, the new market stance represents a major software opportunity for all types of service companies, as they have no intention to offer turnkey solutions on the 4300.

- IBM is prepared to sell, under licence, application systems developed by other organizations.

F.   IMPACT ON REVENUES

- At the time of announcing the separate software maintenance charges, IBM stated that the new policy would not result in a noticeable increase in overall cost to the customer.   This was justified by saying that equivalent new versions of Licensed Products would be priced such that licence charge and maintenance charge together were roughly equal to that for the replaced product. This statement needs to be looked at more closely.

- In order to examine the claim, it is necessary to set up a number of comparable situations, applying before and after the introduction of the new policy.   There are four ways of considering equivalence between the old and the new policies:

  - What is the impact on invariant installations as the introduction threshold date of 1/1/80 is crossed?

  - What is the effect on configurations of equivalent power e.g. a 370/138 compared to a full-function 4331 installation?

  - What is the effect on an installation making a typical upgrade e.g. an overloaded 370/138 offloading its development work onto a separate 4331 running under VM/370?

  - What is the effect on sets of configurations of equivalent revenue earning capacity to IBM?

  The first three of these are of interest to users; the last two are more of interest to IBM itself.

INPUT

REPRESENTATIVE SYSTEM PRICING IN THE USA

OF THE 4300 PROCESSORS AND THEIR DISPLACED PREDECESSORS

(Monthly Lease Charges)

| | Entry Level Systems | | | | Full-Function Systems | | | |
| | 370/115-0 | | 4331 | | 370/138 | | 4341 | |
	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total
Processor Plus Memory	$3,206	50.2%	$2,048	43.3%	$ 9,054	48.4%	$ 6,792	28.0%
Software	489	7.7	661	14.0	629	3.4	3,130	12.9
Peripherals	2,691	42.1	2,016	42.7	9,016	48.1	14,309	59.0
Total	$6,386	100.0%	$4,725	100.0%	$18,699	100.0%	$24,231	100.0%

EXHIBIT II-3

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- The table in Exhibit II-3, compares absolute dollar values and relative percentages of price between:

    -    370/115-0   vs.   4331
    -    370/138   vs.   4341.

- With no change of processor (first comparison) the user would experience a less than 1% increase in his monthly costs.

- By changing to a 4300 of equivalent capability (second comparison), a standard Model 138 user's software charges would increase by anything up to 200% i.e. from $800 per month to $2400. These figures represent 4% and 25% respectively of the total monthly lease charges. At the same time he would experience a 50% drop in his total bill.

- A user leasing a 4331 under VM to run beside his 138 (third comparison) would add 125% to his software bill, while adding 27% to his overall costs.

- Comparing total costs of 2 x 370/138 against 2 x 4331 plus 1 x 4341 at approximately $38,000 per month (fourth comparison), we see that IBM will draw at least 12% of its revenue from software, whereas it previously drew 4-5%.

G.   CONTRACT DIFFERENCES IN THE TWO DIVISIONS

- Standard contracts for hardware and software exist in both DPD and GSD.

- The major difference between DPD and GSD contracts for Licensed Programs is in the classification of support services provided:

    -    DPD classify Programming Services into A, B and C, and support into Central and Local,

    -    GSD offer Central Service, Local Service and Local Assistance.

- In certain European countries, this distinction has now disappeared and both divisions are currently using the GSD classification which is of later date, - 1976 as against 1972 for the earlier method.

- The two classifications can be approximately mapped onto each other as follows:

    - Programming Service A is equivalent to Central Service plus Local Service,

    - Programming Service B is equivalent to Central Service plus Local Assistance,

    - Programming Service C is equivalent, for a product which is initially classified C to Central Service only for a limited period (usually 6 months) after issue and no free service thereafter; and for products previously classified A or B, to all service being billable from the date of reclassification.

- DPD are about to introduce amendments to their software products agreement to cover the new charges for Local Support.

H. RECOMMENDATIONS

- The options open to competitive vendors in reviewing their own support policies can be summarised under two headings:

    - adopt a pragmatic "semi-bundled" approach to software support similar to that of GSD.

    - go for "progressive unbundling" with "rebundled" package systems, as evidenced by DPD's organisation.

- Under the first option, the advantages offered when compared to a "bundled" policy are:

- software products can earn their planned proportion of revenue,

- the growth of software services on an ad hoc basis can be controlled by correct local pricing, thereby ensuring that valuable resources are funnelled into activities which best serve to achieve the company's targets.

- Corresponding disadvantages are:

  - bundled presales support is increasingly going to need to be supplied on a more miserly basis, thus spoiling the image of the vendor organisation,

  - the use of a straightforward and simple software tariff limits the manoeuvrability for the future.

- Turning to the second option, advantages felt would be:

  - scarce software resources can be used most productively,

  - users can be as self-sufficient as they like,

  - there is plenty of room in the software tariff for future adjustments of price,

  - vendor control of upgrade can be maximised,

  - competition can be locked out from the customer base.

- The corresponding disadvantages are:

  - complexity of tariff; unless the customer base is as captive as IBM's there is a high probability of customer loss on introducing a complex scheme,

  - difficulty of maintaining the tariff - the complexity of DPD's structure and organisation requires substantial computer support,

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- high disruption factor on support staff if deskilling of software main-
tenance is carried to excess.

● Specific components of any new policy, which are recommended by INPUT for
inclusion, are:

  - design the tariff to distinguish products according to their function:

    . control program
    . utility
    . language processor
    . database handler
    . application product
    . subroutine.

  - configure and rebundle well-balanced and powerful software sets which
  can be sold by the direct sales force to the end-user,

  - encourage OEM and in-direct sales by designing a modular OEM
  software tariff which is lower-priced than that of and is not available
  to the end-user,

  - maintain adequate levels of bundled education/training,

  - develop a mobile in-house systems house effort for selective use in
  prestige accounts,

  - encourage the development of application-oriented software tools by
  promoting a user group for OEMs and end-users,

  - establish a sound policy with regard to systems/software houses,
  recognising the crucial role of the services industry in the placing of
  future installations of all sizes, right down to the micro-based very
  small business systems (VSBS).

III.   SUPPORT IN DP DIVISION

III SUPPORT IN DP DIVISION

A. 4300 AS THE VEHICLE FOR A POLICY SWITCH

- IBM had delayed the launch of the development 'E' Series for as long as was needed to assemble all the pieces of its strategy. When the 'E' Series was unveiled in the form of the 4300 Processors earlier this year, it became clear to observers that this was not just a tactical replacement of the 370/115 and /125, but a major rearranging of its policies to take the company into and a good distance through the 1980s.

- The launch and its accompanying announcements demonstrated that attention had been paid to:

    - revitalising IBM's slice of the mid-range mainframe market, hitting back at the plug-compatible mainframe vendors and attacking the concept of polarisation between large and small systems,

    - counter-attacking against the long-term erosion of its market caused by the success of the minicomputer and its vendors in the business DP sector,

    - addressing the problems of staffing the DP industry both for users and for IBM itself, with salesmen and support staff productivity high on the list of priorities.

- The industry had expected the advances in LSI technology to be applied to the new range, but no one was prepared for the dramatic increases in price/performance which 4300 represented. IBM could not afford to let the mid-range user down, since he has been the company's mainstay for so long. The 4300 has now therefore put paid to the argument that medium-sized processors are dead and that everyone will go for the small or the very large.

• Over the past five years the concept of DDP has steadily gained in accept-
ability. In spite of being somewhat hard to define and in spite of not up to now
having the blessing of IBM (because it appeared to threaten the large
centralised 370 sites with inroads from the mini manufacturers), it has gained
in popularity. People now believe that it is an idea which has reached its time.

• This winning of acceptance has been due to the success of the mini in
introducing "user-friendly" computing at the operational level within organis-
ations. IBM has had to bow to this trend, and with both the 8100 and 4300
processors now available has clearly fallen in with the fashion. In fact IBM
will both capitalise (now that it is ready) on the trend and give it even greater
impetus by being seen to have made it "respectable".

• But for IBM there are problems engendered by this change of tack:

  - How to sell the multiple systems that DDP implies,

  - How to avoid confrontation with the users' central DP management,

  - How to give support to an ever-growing number of installations with a
    finite support staff,

  - How to maintain the growth of its annual revenues, when the com-
    petitive environment is constantly forcing price/performance con-
    cessions.

• In answer to these challenges, IBM has initiated with the 4300 launch a
complete overhaul of its previous commercial postures.

• In the next phase of development in DP, it will not be possible to maintain the
levels of free support and service, to which customers have grown accustomed
without sweeping changes in organisation of both these components of the
total offering. Hence the new policies for:

  - pre-sales support

  - software packaging

  - service

  - application software.

• Throughout the accent is on productivity:

- Enable the branch salesman to reach a larger sales quota by giving him the back-up of a regional Customer Centre for:

  ○ seminars on particular topics of interest to users,

  ○ demonstrations for serious prospects,

  ○ specialist industry and product expertise,

  ○ trouble-shooting before and during commissioning.

- Split both sales and support staff (SEs) between Branch and Customer Centre so that the Branch can concentrate on existing account management and 'cold prospecting', while new business is directed to the Centres where the full range of sales support can be most productively organised.

B.   INTRODUCTION OF SOFTWARE SUPPORT CHARGES

• IBM watchers had forecast that eventually software licences would be levied on operating systems (SCPs) as well as on other system software products. In fact, this has now been introduced along with the new-versions of operating system announced with the 4300, but in an inobtrusive way. They did not, however, anticipate that a separate charge would be made for maintaining IBM software after installation, but to do so makes sense when viewed from the twin standpoints of:

- productivity   -   IBM's slogan, designed to some extent for external cosmetic purposes,

- organisation   -   the sheer practicality of running a servicing operation on a growing number of customer installations.

- Revenue enhancement is a lesser consideration in the introduction of the maintenance charge. It is achieved by:

  - the 'unbundling' of SCPs,

  - the System IPO/E (Installation Productivity Option/Extended) examined later in this section.

- Before describing the details of the new software support and maintenance facilities, we need to reminde readers of the previous support policy which has been subjected to these changes. It will then become clear to what extent the new policy cuts across the concepts of the old and to what extent it is merely another step in an evolutionary process. In changing direction IBM has had to be careful not to upset its present customer base. This need for caution has given rise to:

  - a complex grafting of the new policy onto the old,

  - inevitably, some confusion of terminology where different terms apply to similar, but not identical, concepts on the old and new systems,

  - a transition period where a mixture of the two policies can be in force.

- The glossary of terms contained in Appendix A may be read to assist the reader to follow the details of the support mechanisma.

PROGRAMMING SERVICES CLASSIFICATION

- The procedures in force, prior to the latest (30/1/79) notification of a change, were based on the type of programming service which was applicable to the three grades of licensed program products. These are known as:

  - Programming Services A, B and C.

- If a product is on Programming Service A:

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- central <u>Maintenance</u> is provided free of charge,

- local <u>Support</u> is also provided free.

The full responsibility is IBM's.

● <u>Maintenance</u> is here defined as the function of diagnosing and correcting design errors, the issuing of program temporary fixes (PTFs) and the provision of service updates to issued software. It is normally carried out at the laboratories and centres responsible for the development of the products.

● <u>Support</u> is defined as any or all of:

- assisting customers to diagnose problems and report on them (see APARs in the Glossary)

- helping customers update their installed software products if issued up-dates have not been applied,

- providing emergency corrections or bypasses to resolve problems and keep a customer "on-the-air".

● Products on Service B are:

- Maintained free of charge,
- Supported locally without charge, but only on user request, implying possible delay until service staff become available, and less onus on IBM to keep the user operational.

Products originally on Service A are downgraded to Service B once the level of APAR notification has fallen below a pre-set level. Notice of IBM's intention to regrade a product is normally given 6 months before the regrading date.

● Products on Service C are:

- not Maintained centrally, unless C is their original classification and they are within an initial Support Period (usually 6 months),

- Supported locally on a chargeable basis.

- Generally speaking:

  - A grade products are current,
  - B grade are obsolescent,
  - C grade are obsolete.

- Some products issued shortly before the 4300 announcement were not class-ified A, B or C, as happened in the case of the 8100 utilities and control programs. The classification still, however, applies to Licensed Products, for which grades have already been issued.

- Besides the A, B, C categories, three other levels of support were previously offered:

  - for SCPs, at the level A until discontinued by IBM at 6 months notice,

  - for CGPs, during their Testing Period at a level equivalent to free SE support on an ad hoc basis,

  - for IUPs and FDPs, on something called Extended Support requiring specification at branch level.

REVISED SCHEME FOR SOFTWARE SUPPORT

- The revised support scheme, which will be fully implemented by 1/1/80, now introduces two sources of support, the central and the local.

- The scheme is based on a centralised form of support provided at national support centres. A schematic of how the system will operate appears in Exhibit III-1.

- Appendix B contains IBM's detailed interpretation of how the facilities will be provided, as explained to its customers in April 1979.

- The salient factors to note are:

NEW SOFTWARE SUPPORT

ORGANISATION

DUE FOR IMPLEMENTATION 1/1/80
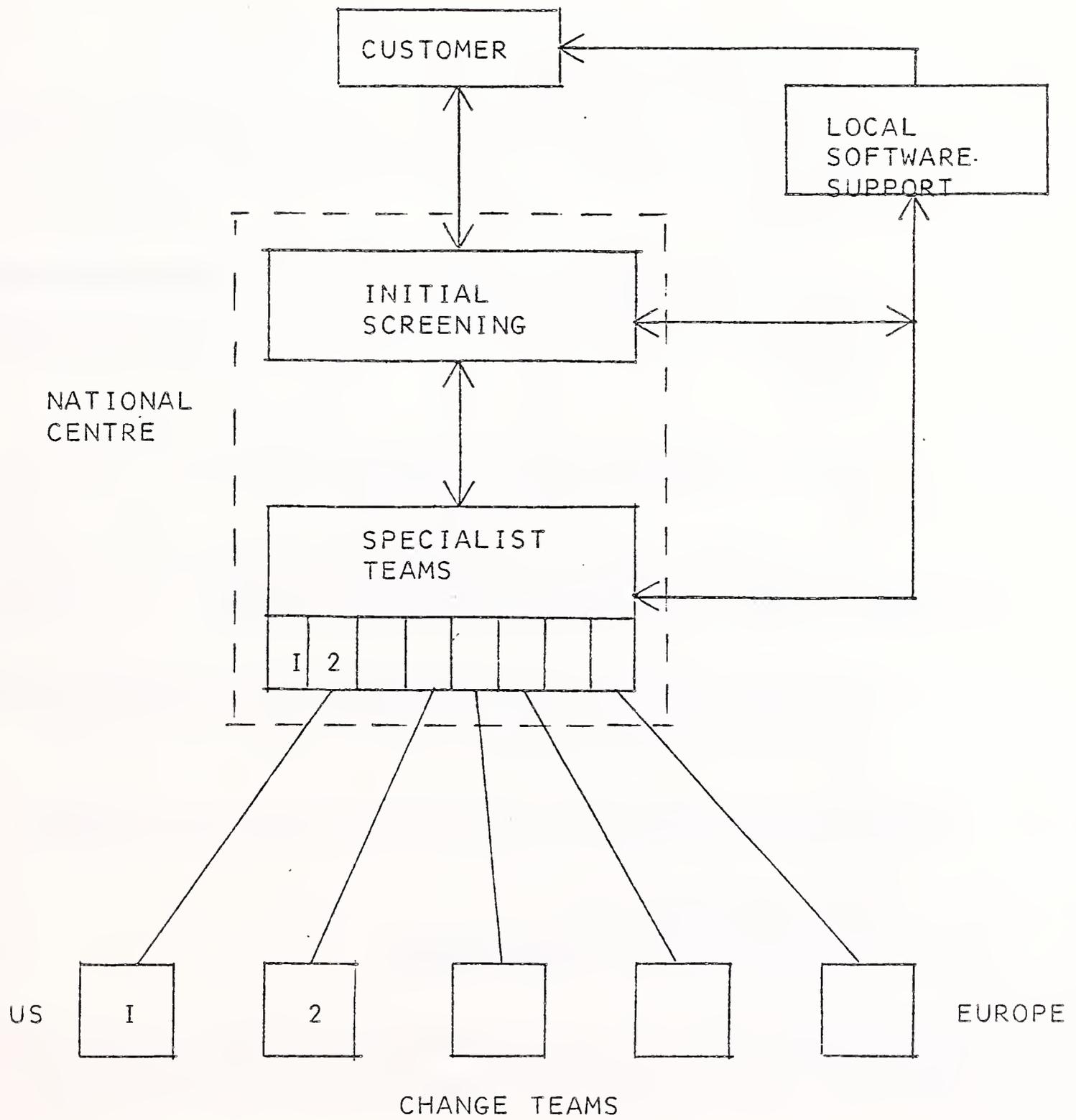
EXHIBIT III-1

- Problem Determination is formally the responsibility of the users, but IBM leaves the door open to give them the necessary free assistance. IBM's main objective in isolating this function is to allow it to refuse central support to PCM customers (this will no doubt be fiercely fought by the PCM vendors);

- One form of such assistance will come via diagnostic software aids;

- likewise Problem Source Identification is a user function,

- Local Program Support will only be incurred with the agreement of the customer,

- Local Program Support may be selected for certain LPs and not for others, which would then have to be supported, at an hourly rate on demand,

- Problem Diagnosis is strictly speaking an "IBM assists" function,

- the prescribed period for applying service updates is rumoured to be either 90 or 75 days; this is still to be determined,

- there is no mention of any special procedures for dealing with System IPO/Es; they will be handled as the sum of their separate parts.

● The new system introduces another classification of program products:

- Class I and Class II SCPs.
- Designated and Non-designated LPs.

● Class I SCPs are those which come under the revised scheme; Class II SCPs are those which continue to be supported under the previous arrangements.

● Designated LPs (those on the list in Exhibit II-2) come under the new scheme; the remainder (Non-designated) do not, and are therefore supported as before.

SUPPORT SOURCES FOR THE NEW
CLASSIFICATIONS OF PRODUCTS

CLASS - SCP or LP	SUPPORT SOURCE	
	CENTRAL	LOCAL
I or Designated	FREE	CHARGED
II or Non-designated	-	FREE
DECLASSIFIED	-	CHARGED

* CLASS I   -   VSE, VM/REL 6, VS1/REL7

* DESIGNATED   -   See Exhibit II-3

* CLASS II or NON-DESIGNATED -   OTHER PREVIOUSLY SUPPORTED PRODUCTS.

* DECLASSIFIED   -   PREVIOUSLY UNSUPPORTED PRODUCTS

EXHIBIT III-2

C.   COMPLEXITY OF THE SOFTWARE TARIFF

- Exhibit III-2 summarises the position with regard to the sources from which users can draw support, and defines which SCPs are currently Class I.

- Exhibit III-3, on the other hand, summarises the status of Program Products with respect to being free or charged for.

- Our category of Declassified products includes those in IBM's level C and those for which only third-party support can be obtained.

- Charges for programs may be made in a number of ways:

    - monthly without limit to period
    - monthly for a fixed period
    - a single charge
    - monthly for a fixed period, plus an initial process charge to cover each copy of the program documentation.

D.   DEVELOPMENT OF THE SYSTEM IPO/E

- The System IPO/E continues the concept previously available on 370 called SIPO (System Installation Productivity Option).

- It contains SCPs and LPs, and is configured at different levels of complexity, depending on the operating system, for:

    - Batch/Interactive (IA) environment - the simplest,
    - Batch/Interactive with Data Communications (DC),
    - Batch/Interactive plus DB/DC (Database/Data Comms).

- The modules are configured into a package which can be tested in factory conditions on an IBM Installation Support Centre machine.

INPUT

CHARGING STATUS OF IBM SOFTWARE PRODUCTS

UNDER THE REVISED SUPPORT SCHEME

CLASS	SCP		LP	
	LICENSE CHARGE	SUPPORT * CHARGE	LICENSE CHARGE	SUPPORT ** CHARGE
I/Designated	NO	YES	YES	YES
II/Not Designated	NO	NO	YES	NO
DECLASSIFIED	NO	YES	NO	YES

KEY: YES = Charged; No = Free

*   LOCAL SUPPORT UNDER

-    ALPS
-    ON DEMAND (HOURLY RATE FOR CE)

**   LOCAL SUPPORT UNDER

-    ALLPS
-    ON DEMAND

EXHIBIT III-3

INPUT

- It can then be shipped pregenerated on a single tape to customer site.

- At present System IPO/Es are offered in six packages

  - three are based on the new DOS - DOS/VSE
  - one is based on the new VM - VM/370 Release 6
  - two are based on DOS running as 'guest' under VM - VM/370/DOS/VSE.

- The VSE IPO/Es are:

  - Batch/IA   -   including the new ICCF as an interactive utility,

  - Batch/IA/DC   -   based on CICS for teleprocessing support,

  - Batch/IA/DB/DC   -   based on CICS, and DL/1 for database.

- The VM IPO/E is for:

  - Time-Sharing/Personal Computing i.e. IA.

- The VM/VSE IPO/Es also use CICS and DL/1:

  - Batch/IA/DC
  - Batch/IA/DB/DC.

- A user must be licensed for all the products contained in an IPO/E. The cost of the package includes an allowance for factory generation and is therefore higher than the sum of the constituent product prices.

- IPO/Es are being offered on all machines running the new operating system releases i.e. 4300s and 370s, but users may still obtain all IBM program products individually to do their own system generations on site.

- The advantages of having IPO/Es from IBM's own standpoint, are:

INPUT

- less support will be required if more of these standard systems get into the field,

- users' upgrades can be controlled by hardware/software pre-requisite synergy,

- the central DP department can be by-passed (since there is no requirement for system programmer support),

- the 'black box' application machine can be sold directly to the end-user,

- fewer 'specials' should be installed,

- the hardware/software/firmware interface in future systems can be moved about and still remain concealed.

The last is an important aspect as more operating system software is placed in micro-coded firmware routines.

E.   CONTRACTUAL CHANGES

- IBM is about to issue changes to the standard contracte i.e. to the "Agreement for Licensed Programs" or to the "Licence Agreement for IBM Program Products".

F.   SUMMARY

- IBM's DP Division has signalled a definite change of course, in the selling of mid-range mainframe systems:

  - this is a switch from being the company for low-volume, high-cost computing systems to the image of one selling high-volume, low cost.

- How long the change will need to take full effect depends on user reaction. INPUT estimates a period of at least two years and expects to see DP Division split into Intermediate and Large-Scale Systems divisions, in order to accommodate the two different commercial postures:

INPUT

- low-volume, high-cost applied to Large-Scale Systems,

- high-volume, low-cost confined to Intermediate Systems.

● Further unbundling of software products is one of the tactics employed to effect this change. It has been thought necessary because:

- multiple systems demand increased productivity on the part of all IBM marketing and servicing staff,

- IBM wishes to shake off the image of the company that will give unlimited free support.

● The chief features of the latest round of unbundling are:

- the establishment of a <u>central</u> support function, based on:

. a telephone trouble-shooting service,

. extension of the RETAIN data base concept to software,

- introduction of support charges for <u>local</u> support,

- a stricter attitude to the support of non-current versions of program products,

- introduction of license charges for those parts of the operating systems other than the executive 'kernel'.

● In order not to disrupt existing business relationships DPD is phasing in the new system in parallel with the lifetime of the old. Because of the different generations of IBM equipment still being serviced, there are elements of three generations of support policy at the moment in the field, all with partial applicability.

- At the same time as introducing software maintenance, DPD has extended the concept of the System IPO. This is an exercise in rebundling, which will give better control of the software 'jungle' as well as supplying additional revenue potential in future announcements.

- For the longer-term the System IPO/E has most chance of rescuing IBM from the morass of its own mainframe software.

IV. IMPACT ON SELECTED PRODUCTS OF DPD

IV   IMPACT ON SELECTED PRODUCTS OF DPD

A.   ON 4300 PROCESSOR SYSTEMS

● The two new processors in the 4300 series are the 4331, and the 4341.

● Both machines fall into the category of small to medium-size mainframes. They are provided with a selection of existing IBM systems and utility software, which has been issued in new releases.

● The range replaces the lower end of the 370 series, and has some overlap with the top-of-range product in GSD's 30 series, the System/38, but does not impact with DPD's previous announcement, the 8100 series. The 8100's are intended as satellite processors (to 370's or, now, to 4300's) for distributing processing power in a close-coupled mode.

● The 4331 replaces and obsoletes the 370 Models 115-2 and 125-2 and their earlier versions.

● The 4341 obsoletes the 370/138 and the older 135 and perhaps the 148.

● The 4300's also introduce a number of new disk drives. The new DASD's are:

-    3310 with 64.5 MB for the 4331 processor
-    3370 with 570 MB for 4331 or 4341.

Both use non-removable disks with a fixed block mode of recording data in 512 byte blocks.

● As a result of the price/performance improvements made possible by LSI technology, IBM is hoping to sell more processors to equal or better revenue budgets. Organisations will be approached as multiple targets, able to accommodate a range of processors at different corporate levels:

-      303X or large 370 system complexes as corporate data processing hosts,

-      multiple 4300's or mid-range 370s in operating companies and subsidiaries,

-      8100's, GSD systems and terminals in the factory, the office, workshop and storeroom.

- IBM wishes to forestall opposition to remote site 4300s from centralised DP departments fearing loss of control. For this reason 4300's have been designed to be more tolerant than previous generations to mainframe to:

  -      being sited at a distance from systems and programming staffs
  -      the normal office environment.

- 4300 software policy is designed to ease the implementation of advanced features that have been growing popular in recent years:

  -      interactive program development
  -      data communications (DC)
  -      database (DB).

The 4300's are claimed to make these facilities readily available without the lengthy periods of implementation reported by earlier pioneer users.

UNBUNDLING OF OPERATING SYSTEMS

- We have said that DPD has achieved the effective unbundling of operating system software, as part of the present revision of its policies. This has been accomplished by the "knock-on" effect of one of the other planks of the policy - the software support charge. The chain of cause and effect runs as follows.

- IBM introduces the concept of central software support at the same time making local support a chargeable item. Simultaneously, IBM reissues its three major mid-range operating systems -DOS/VS, VM/370, OS/VS1 - in new

INPUT

EFFECTIVE UNBUNDLING OF SYSTEM CONTROL PROGRAMMING (SCP)

ILLUSTRATION OF FUNCTIONAL EQUIVALENCE OF DB/DC UNDER DOS/VS RELEASE 34 AND DOS/VSE (RELEASE 35) AND THE IMPACT ON LICENSED SOFTWARE CHARGES.

- THEN -	VS 34 -	SCP -	DOS POWER VSAM VTAM	-	Were Free
	-	LP -	A F DLI CICS	-	Were Charged
	-	APPLICATION S/W		-	IBM or User
- NOW -	VSE -	SCP -	DOS	-	Is Free
	-	LP -	VSE/ADVANCED FUNCTIONS ++ VSE/ICCF VSE/POWER VSAM DLI VTAM/E CICS	- (VSAM)	Now Charged
	-	APPLICATION S/W		-	As before

++ = PREREQUISITE FOR DC OR DB

EXHIBIT IV-1

versions. The operating systems are available on 370 but more attractively as part of a much cheaper deal based on 4300. The new versions run more efficiently with the microcode assistance given on the 4300s, but are more expensive. The overall competitiveness of the 4300 package when compared to the equivalent power of the replaced 370s, more than offsets the increase in software costs.

● The software license costs are larger because:

   - parts of the operating system which have been pared away from the executive kernel, have become chargeable LPs.

● The policy of free SCPs has thus been retained; though as we have already seen even SCPs now command a local programming charge for post-sales support.

● The principal technique has been to charge for "non-essential" modules such as POWER, VSAM, VTAM/E. This technique also offers potential for future growth, by:

   - permitting further modules to be stripped off,
   - producing more modules for later tariff structure changes.

● This process we have termed the 'effective unbundling' of System Control Programming. An example of how it would effect a DOS/VS user working in a DB/DC environment is shown in Exhibit IV-1:

   - the important components of DB/DC software are DL1 and CICS, which were and are chargeable,

   - the peripheral parts of the SCP like POWER, VSAM were not and now are.

- Moreover these newly chargeable sections though not mandatory for every environment are certainly pre-requisite for anything like IBM's "full-function" programming; hence the impetus of the software synergy.

A1.   ON 4331 SYSTEMS

- The 4331 Processor is the entry-level system for DPD's mainframe host range.

- IBM expects users of 4331 to come from a number of sources:

    - System/360 users looking for replacement,
    - System/370 low-end users looking for growth,
    - first time users,
    - second and further locations of existing customers.

- Migration to 4331 from other IBM products can follow the paths from:

    - System/360 models 20, 25, 30 and 40

    - System/370 models 115, 125, 135, 138 and possibly 148,

    - less probably from System/3 (since these are GSD users open to the newly announced System/38).

- Migration from the 4331 is likely to be upwards to 4341 or to an intermediate processor (INCA 3) when one is announced later this year.

- Within the range of options allowed on 4331, the main enhancement is from a simple Batch/Interactive system based on DOS/VSE to a full-function system with DB/DC, also running under DOS, with database handling under DL/1, and teleprocessing under CICS.

- Exhibit IV-2 gives a detailed cost breakdown of an Interactive 4331 system running under VM/370 - for an in-house time-sharing application, for instance.

EXHIBIT IV-2

4331 CONFIGURATION PRICES

FOR A VM/370 TIME-SHARING SYSTEM

COMPONENT	MONTHLY LEASE COST (MLC)	PURCHASE
A. CPU		
4331 PROCESSOR-1MB	$1,775	$72,500
ADDITIONAL FEATURES	308	12,455
3278-2A CONSOLE	111	3,795
CPU SUB TOTAL	2,194	88,750
B. I/O		
3310-A2 DISK STORAGE UNIT (2)	1,196	43,060
3310-B2 DISK STORAGE UNIT (2)	1,046	37,660
8809 TAPE CONTROL AND DRIVE	290	10,440
3289 LINE PRINTER-400LPM	473	13,250
I/O SUB TOTAL	3,005	104,410
C. TERMINALS		
3278-2 DISPLAY STATIONS (13)	819	37,310
TERMINAL SUB TOTAL	819	37,310
HARDWARE SUB TOTAL	6,018	$230,470 OR $ 5,760/MO
D. SOFTWARE		
VM/370, VM/BSE, VM/RSCS DIRECTORY MAINTENANCE, VSE/VSAM, VM FILE SHARING, VM/IPCS EXTENSION, VS/APL	1,100	PLUS 1,100/MO FOR SOFTWARE LICENSE
SOFTWARE SUB TOTAL	1,100	AND MAINTENANCE
SYSTEM TOTAL	$7,118	$6,860

INPUT

●   Exhibit IV-3 shows a coarser breakdown of costs of the three commonest types of 4331 system:

-      simple Batch/Interactive under DOS/VSE,

-      Interactive Time-Sharing under VM/370,

-      'full-function' i.e. Batch/Interactive plus DB/DC again running under DOS/VSE.

●   Exhibit IV-4 is the result of analysis of the three previous configurations plus an additional configuration with DC but without database (DB). The table shows the percentages of total monthly outgoings on a purchase plan, which are contributed by the four major components of cost:

-      Hardware purchase, taken as the outright purchase price divided by 40, i.e. spread over 40 months,

-      Hardware maintenance, - Minimum monthly maintenance charge or MMMC,

-      Software Licence fees for all the licensed program products,

-      Software support charges for Local Program Support.

●   The table shows the hardware price component accounting for around 70% of costs, while software takes between 15% and 18%.

●   There is a slight tendency for software costs to rise as a function of configuration size, but this is not a significant change. Hardware is still the dominant revenue earner. Upgrading on the 4331 maintains roughly the same balance between hardware and software.

EXHIBIT IV-3

COMPARATIVE SYSTEM DOLLAR PRICING OF 4331 CONFIGURATIONS

4331/ MEMORY/ ENVIRONMENT	PURCHASE DEPRECIATION OVER 40 MONTHS	RENTAL PER MONTH	24-MONTH LEASE PER MONTH	HARDWARE MAINTENANCE PER MONTH	SOFTWARE LICENCE PER MONTH	PURCHASE TOTAL MONTHLY OUTGOINGS
½ MEGABYTE/ DOS/VSE Batch/IA	4,850	5,812	4,800	806	1,000	6,656
1 MEGABYTE/ VM/370 IA	5,760	7,000	6,018	960	1,150	7,870
2 MEGABYTE/ DOS/VSE Batch/IA/DB/DC	10,800	12,500	11,300	1,800	2,500	15,100

INPUT

A2. ON 4341 SYSTEMS

- The 4341 Processor is the system required for a growth path from 370 to IBM's future announcements.

- A user would move to 4341 from:

  - top-end 360s i.e. 360 models 50 and 65

  - mid-range 370s i.e. models /138 through /158

  - eventually, from 4331 or any processor shortly to be announced between the two current 4300s. (A 4336 is rumoured to be launched as a field upgrade of 4331 at the beginning of 3rd quarter 1979).

- Migration from 4341, (which must be some way into the future) would be to:

  - MAYA 2 (rumoured to be announced mid-1980 as the 4351),
  - bottom-end of 'H' Series (due to be unveiled sometime in 1980).

- The major upgrade possibility while on 4341 is the move to DOS/VSE running as guest under VM. This need not involve an attendant hardware upgrade but is most likely to be undertaken if migration to other equipment is anticipated, since VM is a useful tool for testing new environments.

- Detailed costs of a typical 4341 configuration are illustrated in Exhibit IV-5. The environment chosen is for DB/DC under DOS/VSE.

- An analysis of different 4341 environments shows that software contributes between 14% and 15% of costs, while hardware still occupies the lion's share at 75%. This is indicated in Exhibit IV-6, in which, similarly to Exhibit IV-4, Hardware Purchase is calculated as being spread over 40 months.

INPUT

TYPICAL 4331 CONFIGURATION COSTS

HARDWARE AND SOFTWARE AS PERCENTAGES OF TOTAL MONTHLY OUTGOINGS

OPERATING ENVIRONMENT	HARDWARE PURCHASE	MAINTCE. (MMMC)	SOFTWARE LICENCE	SOFTWARE SUPPORT
Batch/Interactive	72	12	14	1
Interactive	73	12	14	1
B/IA + DC	70	12	16	2
B/IA + DB/DC	71	12	15	2

EXHIBIT IV-4

INPUT

EXHIBIT IV-5

4341 CONFIGURATION PRICES

FOR A DOS/VSE FULL FUNCTION SYSTEM

COMPONENT	MONTHLY COST (MLC)	PURCHASE
A. CPU		
4341 PROCESSOR-2MB	$5,975	$245,000
3278-2A OPERATORS DISPLAY	67	2,680
4633 75 KEY OPERATOR KEYBOARD	14	560
CPU SUB TOTAL	6,056	248,240
B. I/O		
3380-1 STORAGE CONTROL	1,450	62,350
3370-A1 DISK DRIVE AND CONTROL	900	35,100
3370-B1 DISK DRIVE (3)	1,800	70,200
3411 TAPE CONTROL AND DRIVE	570	23,645
3410-1 TAPE DRIVE (20 KB) (3)	669	28,080
3203-5 PRINTER-1200 LPM	1,255	38,320
1416 PRINT TRAIN	101	2,665
I/O SUB TOTAL	6,745	260,360
C. TERMINALS		
3274-1A TERMINAL CONTROLS (SNA)	498	22,415
3278-4 3440 CHAR. DISPLAYS (45)	3,510	157,950
3274-1A TERMINAL CONTROL (SNA)	444	19,985
TERMINAL SUB TOTAL	4,452	200,350
HARDWARE SUB TOTAL	17,253	$708,950 OR 17,724/MO
D. SOFTWARE		
DOS/VSE, VSE:AF, VSE/POWER VSE/ICCF, ACT/VTAME, VSE/ ACCESS, VSE/IPCS, COBOL, CICS/ DOS, DLI/DOS	2,500	PLUS 2,500/MO FOR SOFTWARE LICENSE AND MAINTENANCE
SOFTWARE SUB TOTAL	2,500	
SYSTEM TOTAL	19,753	$20,224

TYPICAL 4341 CONFIGURATION COSTS

HARDWARE AND SOFTWARE AS PERCENTAGES OF TOTAL MONTHLY OUTGOINGS

OPERATING ENVIRONMENT	HARDWARE PURCHASE	MAINTCE. (MMMC)	SOFTWARE LICENCE	SOFTWARE SUPPORT
Batch/Interactive + DC	75	11	12	1
Batch Interactive + DB/DC	76	13	10	1
DB/DC + Timesharing	74	12	13	1

EXHIBIT IV-6

INPUT

B.   ON 8100 INFORMATION SYSTEMS

- The 8100 Systems were launched as DDP (Distributed Data Processing) Processors.

PRODUCTS AND STRATEGIES

- IBM's first foray into Distributed Data Processing dates back to late 1973 when it introduced the 3790 Communication System which offered remote users the processing capabilities of a machine at the low end of the System/370 family, but with a catch : i.e., the 3790 was completely dependent upon the host.

- Although billed as a DDP product, it was in reality a variation on the theme of centralized processing as all programs were written and supported at the host and frequently downloaded to the 3790 at the remote site. This served to leave the remote 3790 user vulnerable to the host becoming inoperative. It was (is) fully supported by IBM and is an integral element in the company's Systems Network Arthitecture (SNA).

- As the product moved into the marketplace a number of shortcomings soon surfaced. Subsequent 3790 upgrades have since enabled local programming and permitted remote 3270 terminals to be attached via suitable data links.

- Early user difficulties have contributed to a checkered reputation for the product with most of the marketplace regarding IBM (until recently) as only giving grudging support to the DDP concept.

- However, the above perspective has changed significantly over the last 18 to 24 months with the introduction of the Series/1, the Systems/34 and /38, and especially the 8100 a specific DDP processor with 3790 migration capability.

- It is possible that a combination of events may have contributed to IBM's recent and expected flurry of DDP related product introductions. These include:

- High growth opportinities in the minicomputer and small business computer market.

- "An idea whose time has come", i.e., DDP (which is probably closely tied to the user's desire to break or slow the mainframe upgrade cycle).

- Increasing competitive pressures by plug compatible and minicomputer vendors on IBM's traditional lines of business.

- Initiation of a long-term product/market strategy tying all of the above together and consistent with corporate revenue growth requirements in the post-1980 time frame.

PROJECTED STRATEGIES AND ORGANISATIONS

- IBM's past and current strategy can best be characterized as one of containment. This is in large measure due to the success of DPD in selling ever larger central processors in order to drive IBM software systems.

- However, the poor performance of IBM software for interactive and transaction processing is precisely what opened the door for distributed processing (both conceptually and economically). The underlined controlled distribution of this excessive large scale software burden must be the keystone of IBM's future DDP strategy.

- While it has appeared that IBM is less than enthusiastic about DDP, it is more a question of timing rather than failure to recognize the economic significance of DDP. INPUT's conclusions concerning the situation from IBM's point of view is as follows:

- In order to maintain traditional growth IBM must achieve revenues in excess of $30 billion by 1982, and in excess of $50 billion by 1987.

INPUT

- IBM's data processing revenues are currently heavily weighted towards central general purpose systems and associated peripherals (greater than 75%).

- Increasing proportions of data processing dollars are being spent for: minicomputer systems, terminals, data communications services (and hardware) and prgram products. These are areas in which IBM has not been traditionally strong.

● It appears obvious that IBM must increase market penetration in all of the areas associated with DDP. Moreover, no one questions the fact they have the resources (financial, management and technological) to be successful.

● This being so, why has IBM not pursued these markets more aggressively and with more success? Several answers come to mind:

  - They haven't had to because the sale of conventional systems has been adequate to achieve corporate revenue objectives.

  - Until the formation of GBG, they have not felt comfortable with marketing to small end users - a weakness intolerable to IBM management.

  - A vital ingredient in the overall IBM strategy is not yet available - communications. This missing ingredient of communications services (and products) was anticipated by IBM when they invested in Satellite Business Systems (SBS) - ostensibly because common carriers were not meeting the data communications requirements of IBM customers. When SBS services become available in the early 1980's, data transmission requirements will be satisfied for large IBM customers. IBM will then have enormous new markets available for graphic transmission, teleconferencing, electronic mail and integrated data and voice communications systems.

- Rapid pursuit of DDP would have resulted in significant offloading of large central mainframes and be self-impacting.

- While most executives think they would like to have IBM's "problems", the shift to DDP requires both imagination and courage on the part of IBM corporate management. While IBM may appear to "win them all", the last major technological strategy shift was the announcement of System/360, and that was not as smooth as it appeared to the outside world:

  - It is apparent that IBM has pursued <u>an interim</u> corporate strategy which not only controls the growth of DDP (including communications) but allows the time to prepare its entire organisation for major new business opportunities in the 1980's. <u>In order to achieve its growth objectives, IBM must embrace DDP on the broadest possible basis. It is currently in the process of methodically implementing a plan to accomplish this.</u>

- This interim period is now almost over. With its current products IBM can provision DDP systems well into the 1980s.

MIGRATION PATHS AVAILABLE FOR DDP USERS

- The 8100 systems fit into DDP's spectrum of products without overlapping at the top-end with 4300 Processors.

- The smaller model - 8130 - can be run under the DPCX operating system as a 3790 emulator, and thus provides a migration route for 3790 users.

- The larger processor - 8140 - provides fuller DDP capabilities running under the DPPX operating system. There are therefore migration possibilities within the range, from 8130 to 8140, and within the 8140 itself. These possibilities are necessarily restricted because the concept of DDP precludes the build-up of a large installation.

TYPICAL 8100 CONFIGURATION COSTS

HARDWARE AND SOFTWARE AS PERCENTAGES OF TOTAL MONTHLY OUTGOINGS

OPERATING ENVIRONMENT	HARDWARE PURCHASE	MAINTCE. (MMMC)	SOFTWARE LICENCE	SOFTWARE SUPPORT
Small System - 8130 as a 3790 Replacement running under DPCX	71	21	8	NA
Medium-sized System - 8140 under DPPX	75	21	5 *	NA
Full DDP System - 8140 under DPPX	78	18	4 *	NA

*   An allowance has been included for extra support software required at the host processor

EXHIBIT IV-7

PRICING AND SUPPORT

- Exhibit IV-7 indicates, in similar fashion to the analyses on 4300 Processors, how migration within the range affects the relative pricing of hardware and software:

  - hardware is still the major component

  - maintenance is considerably higher (at between 18% and 21%)

  - software licence charges drop in percentage terms from 8% to 4%, even when taking into account the extra LPs required at the mainframe host to support the 8100.

- No software support charges are incurred with 8100, because the system is not subject to the revised support scheme.

- IBM have indicated a wish to support the 8100s on a less remote basis than 4300s. An organisation called the Branch Customer Centre is being set up at each Branch. Its functions will be:

  - to introduce 8100 to its potential market
  - to troubleshoot for customers who have particular problems.

  This latter involves the use of a 'trouble clinic' to which users can bring their problems on a day-to-day basis.

- 8100s have the same component technology as 4300s (and System/38). IBM sees them as having a reasonable life-time in the product catalogue.

C.   ON 370 MODEL 158

- Though the 158 can still be bought as a uniprocessor configuration, its main role at present is to be installed as an attached processor for upgrading existing single processor configurations. This is an intermediate role designed to safeguard the loyalty of the 158 customers, at a time when there is uncertainty about where they have an upgrade path.

- MVS is the main operating system for 158 and above, but some older systems are using OS/VS1, MFT and MVT. MVS is now a Class II SCP, and does not come under the revised support scheme.

- No migration to 158s is now likely to take place, since the announcement of 4300s - with more to come. The model 158 is thus little affected by DPD's support policy change.

INPUT

V. SUPPORT IN GS DIVISION

V   SUPPORT IN GS DIVISION

- The General Systems Division of IBM (GSD) has been operating a less complex support policy than DPD. Reasons for this are twofold:-

    - GSD operates in a simpler sector of the market,
    - GSD does not have the enormous load of past software to support.

- During recent months, GSD has made product announcements, a number of which have been important:

    - System/38   -   launched 3rd quarter '78,

    - Series/1   -   handed over to the field sales force as from 1/1/79

    - 3370 Disks   -   first announced as part of 4300 launch, also to be made available on S/38,

    - 5260 Retail System   -   announced on 9/1/79,

    - Key entry/unit record equipment marketing and servicing responsibility taken over as from 1/5/79.

- During the same period, GSD has started to open a chain of 'computing stores' throughout Europe. These stores, or Business Computing Centres, as IBM calls them, are at present confined to selling the 5110 desk-top computer, the cheapest computer product in GSD's range.

- The most important announcement has been the System/38, because it allows GSD to offer its System/3 users an immediate growth path without handing them over to DPD.
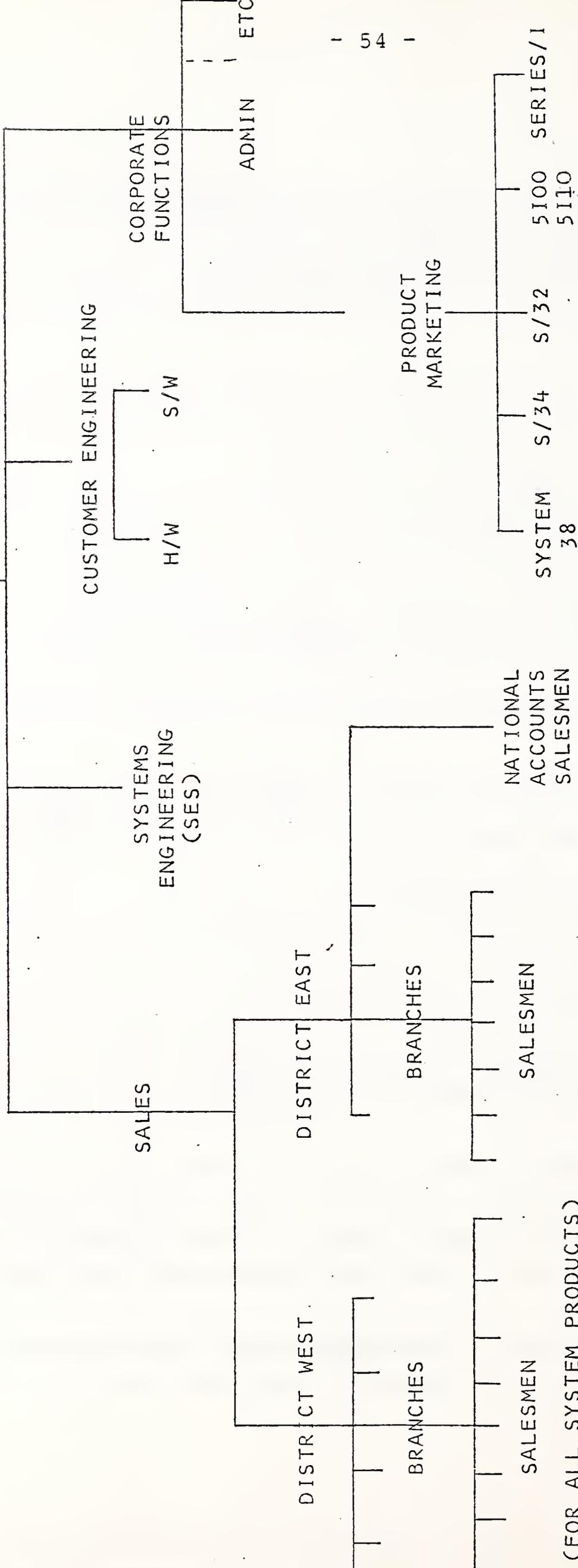
A.   SOFTWARE SUPPORT POLICY

●   GSD has continued with the same support policy as before and has not copied any of the recent changes introduced in DPD:

-   in particular, there has been no attempt to formalise the charging of software maintenance.

●   The division operates an unbundled software policy, though some elements of support remain bundled:

-   software products are normally chargeable as licensed products (LPs), whether in the system software or the application software area,

-   some earlier operating system products are not charged,

-   pre-sales application support is provided as part of the marketing function,

-   post-sales hand-holding is provided free up to an agreed level, which may vary according to product from zero up to a few days.

●   Except for the absence of the national telephone support centres, the servicing of software products is carried out in a similar way as in DPD, but the Programming Service Classifications A, B and C do not apply. Instead the service is built around three concepts:

-   Central Service
-   Local Service
-   Local Assistance.

Products are designated for one or more of these service levels.

INPUT

- Central Service indicates the provision of a central maintenance function to debug, correct and update software products already issued. Preparation of fault reports can still be the responsibility of the user, but a product on Central Service is a current product and IBM takes responsibility for fault corrections.

- Local Service means that the product will be supported by Branch SE or Software CE staff in the following ways:

    - implementing temporary fixes,
    - submitting fault documentation to the Central Service function.

- Local Assistance performs the same functions as Local Service, but all IBM activity is at the request of the user after he has attempted his own problem diagnosis. The response to a call for Local Assistance is subject to availability of staff.

- GSD has always been stricter on release currency than DPD. They have been able to enforce this point because fewer issues of products are being made from what is a smaller library.

- Warranty of Licensed Products is an optional item. Unless it is specified for a particular product, it will not be given.

- GSD reserves the right to charge for any of the support activities which are not specifically stated to be free of charge.

- The organisation structure which has responsibility for these servicing functions is similar to that of DPD. Exhibit V-1 illustrates the structure as it is for a single European country. The important point to note is that a distinction similar to that in DPD is made between SEs and software CEs.

- However, in GSD a customer is more likely to have a product serviced by an SE than would be the case in DPD. The reasons for this are:

INPUT

DIRECTOR
GSD

CUSTOMER ENGINEERING

H/W   S/W

CORPORATE
FUNCTIONS

ADMIN   ETC

PRODUCT
MARKETING

SYSTEM   S/34   S/32   5100   SERIES/1
38   5110

SYSTEMS
ENGINEERING
(SES)

SALES

DISTRICT EAST

BRANCHES

SALESMEN

NATIONAL
ACCOUNTS
SALESMEN

DISTRICT WEST

BRANCHES

SALESMEN
(FOR ALL SYSTEM PRODUCTS)

GSD STRUCTURE

EXHIBIT V-1

- there are more IBM-developed application packages in use, system software being a smaller component of the GSD program library,

- local service and local assistance to application products may be more economically provided in individual cases by an SE who knows the customer's environment and who can refer back to CEs or Central Service for resolution of really knotty problems.

B.   DIFFERENCES ACROSS THE PRODUCT RANGE

● GSD's current computer range includes:

- System/30 series,
- Series/1,
- 5110 and the older 5100 desk-top machines.

● Besides these products, there is the installed base of System/3 users on Models 8, 10, 12 and 15. These systems were installed over a number of years spanning the introduction of software unbundling. Some control programs are therefore still provided free of licensed charge but these are the exception.

● System/30 machines include:

- System/32, the first of IBM's small business machines,

- System/34, brought out in response to the small-end users' requirement for multi-terminal working,

- System/38, launched last year and offering the same type of facilities as the /34 but with very much greater capability; indeed, enough to take it into contention with the bottom-end of DPD's mainframes.

● IBM is spending a lot of time currently on familiarisation of its own staff with the capabilities of S/38. Support will require a well-trained set of SEs, as the potential prospects for the machine will demand good back-up from GSD before they put their name to the order.

- The desk-top computers do not require the same degree of support as the small business computers. The software catalogue is of a very restricted nature.

- The retail terminal system (5260) requires specialist industry support via national accounts branch.

- Series/1 is different from the other products in being offered on a completely OEM basis:

  - without any bundled support pre-sales,
  - but with a fairly extensive licensed software catalogue.

  To avoid difficult commitments when selling directly to end-users, GSD is limiting the number of Series/1 operating systems which will be offered to one (EDX). Other operating systems (e.g. RPS) require third-party implementation support from a software or systems house.

C.   SOFTWARE TARIFFS

- Software is normally licensed on a monthly charge basis, but there are options available:

  - to make a once-off payment or one-time charge (OTC),

  - to bank 50% of licensed monthly payments towards paying for the licence in a lump sum at any time during its duration,

  - to have further charges waived after so many consecutive monthly payments have been made.

- Initial and/or Process charges (see Glossary) may be raised in addition on certain product types; usually this is done on the less-used classes of product.

INPUT

●   Program products may be classified as:

-        CP or Control Programs
-        LP or Licensed Programs
-        PRPQ or Program RPQs
-        CGP or Country Generated Programs
-        FDPs and IUPs

See the Glossary for definitions of these terms.

●   The CP classification when used is reserved for a non-chargeable product.

●   LPs may be charged:

-        on a One-Time Charge, or

-        by monthly Licence Charge with the 50% credit scheme,

-        by monthly Licence with charges being waived after 24 or 48 consecutive payments, in certain instances.

●   PRPQs are charged for:

-        by OTC, or

-        by Licence Charge with charges being waived similarly, but usually only after only 24 consecutive payments.

●   CGPs are charged for:

-        by monthly Licence Charge with an Initial Payment, with payment waivers after as little as 12 months.

●   FDPs may be licensed:

-        by OTC,
-        by Licence Charge with waivers after 24 or 12 months.

INPUT

- IUPs are charged for in the same way as FDPs but with the emphasis being placed on getting paid-up.

- The tendency is for products to be licensed on a continuous monthly basis if they are standard IBM products on full Central Service maintenance. As we proceed through the spectrum of product types to those that are least standard, the desire is to get a once-off payment for providing the product and to forget about ongoing support.

INPUT

VI. IMPACT ON SELECTED PRODUCTS OF GSD

VI. IMPACT ON SELECTED PRODUCTS OF GSD

A. ON SYSTEM/34 SMALL BUSINESS COMPUTER

● System/34 is a workstation - oriented business computer, offering facilities for a range of business sizes, from the smaller ones requiring single terminal batch-style operation up to a medium-size enterprise using a multi-programming environment. The maximum number of workstations which can be attached is:

- 8 on direct (local) attachment, and
- 64 over remote lines under SNA.

● The S/34 therefore takes over from the S/32 which was typically a batch environment system with optional remote batch communications facilities.

● IBM has been slow to advocate the on-line work-station approach to small business machines, and it has been some time in getting S/34 orders going after the announcement in 1976. This reflects the traditionally conservative IBM approach to on-line working, an approach which has been inherited from its long involvement with complex mainframe systems over a period when operating software did not have the robustness and resilience against data and program corruption which is current today.

● This tardiness on IBM's part has allowed the competition to establish itself in the form of:

- the European small business machine vendors,
- the mainly US-owned minicomputer vendors.

● Price ranges for the three System/3X machines are given in Exhibit VI-1. System/32 prices have taken into account the recent cuts of around 30%.

SYSTEM/3X CONFIGURATION PRICE RANGE - DOLLARS

PROCESSOR		HARDWARE PURCHASE	HARDWARE MAINTCE. PER MONTH	SOFTWARE LICENCE PER MONTH	TOTAL MONTHLY OUTGOINGS
S/32	- from	29,000	242	125	1,092
	- to	45,000	375	400	1,900
S/34	- from	55,000	275	180	1,830
	- to	200,000	1,000	600	6,600
S/38	- from	143,000	572	300	4,447
	- to	500,000	2,000	1,800	16,300

EXHIBIT VI-1

- IBM's policy towards application software for small business systems has been based on a mixture of:

  - standard programming languages,
  - generalised application packages.

- RPG II has been the company's favourite language in this sector, with COBOL being second string. System/34 offers:

  - RPG II
  - FORTRAN IV
  - COBOL
  - basic assembler.

- Applications packages have been provided for standard accounting and commercial DP applications. In the European environment portability of programs across national boundaries is limited. IBM's latest UK sales accounting package (DMAS II) is a CGP (Country Generated Program). Another more generally applicable product is the latest manufacturing package for S/34, MAAPICS.

B.   ON SERIES/1 MINI-COMPUTER

- The Series/1 is sold now on both an end-user and an OEM discounted basis, though in the latter case the discounts are not high enough to encourage any but the large volume sales channels, such as some of the West German systems houses surveyed by INPUT last year.

- Discount structure was introduced recently as follows.

  - 0 - 49 systems - 0
  - 50 - 99 systems - 5%
  - 100 - 149 systems - 10%
  - thereafter - 15%

- Discount applies to peripherals and licensed programs as well as to processors, and is calculated on orders installed in an 18-month period.

- For an analysis of the revenue produced by the Series/1, it is necessary to examine the product from the users viewpoint. A good basis for this is through the series of IBM "typical" configurations, comparing the revenue produced by each major charge category over a five year period (this eliminates the distortion introduced by one-time charges etc).

- In Exhibit VI-2, although systems and applications costs are a low percentage of the revenue, it must be remembered that single application charges only have been included. It is not possible to cater for a wide variety of application mixes that can be found on each configuration at actual user sites. It is highly probable that the share of revenue produced by systems/applications software will be up to double the 9% indicated. Where application software was available (Facility Control/Power Management) the programming contribution to revenue jumped to 20%.

- Series/1 has an increasing library of software products. These are now such as to provide reasonable growth possibilities without changing to another machine. Recent additions to the software catalogue include:

  - COBOL, MTM and sort/merge under EDX,

  - DTPM, a storage management module, for use under the new version of RPS - Version 4B,

  - communications support for SNA.

- The power and flexibility of Series/1 make it a serious rival to 8100 on its technical merits as a DDP processor. However, S/1 is not supported with any amount of bundled support. SE services are incurred at a fee even if a user requires his initial software on diskette to be reloaded because of some transient error.

INPUT

EXHIBIT VI-2

REVENUE BREAKDOWN OF "TYPICAL" SERIES/1 CONFIGURATIONS

Application	Percent of Revenue (5 years)			
	Processor and Main Memory	Features and Peripherals*	System/Applications Programming	MMMC
Small Energy Conservation	16%	24%	29%	31%
Standalone Business (Small)	12%	43%	13%	32%
Multifunction Work Station	16%	40%	8%	36%
Intelligent Terminal	20%	38%	3%	39%
Communications Concentrator	20%	39%	-	41%
Process Control**	19%	42%	3%	36%
Average	17%	38%	9%	36%

*   Including Terminals
**   Excluding RPQ's

D. ON THE 5110 DESK-TOP COMPUTER

- The 5110 is the new 'baby' of the GSD family of products. It supercedes the earlier 5100 which was IBM's first desk-top machine.

- The concept of the desk-top computer is an attempt to capitalise on two simultaneous industry trends: ·

  - the falling price of calculators has not so far impacted on the top-end of the range, the fully programmable calculator offering BASIC as an application language,

  - the microcomputer-based hobbyist and personal computing sector where configurations are being dressed up and sold without adequate service as systems for the small businessman.

- The 5110, after recent price cuts, is now sold just above the threshold price for these personal computing/Very Small Business Systems (VSBS). This threshold lies at $10,000.

- 5110 is a single-station computer to which may be added a limited complement of peripherals:

  - disks
  - diskette
  - printer
  - optionally, other devices via separate I/O attachment units.

- It is sold for office computing use on both scientific and business applications, but has a restricted software library, consisting of:

  - An SCP called 5110 SCP,
  - BASIC and APL high-level languages,
  - Utilities for sorting and business applications.

- Bundled support is limited since it is planned to be sold mainly through the new computer stores i.e. as an off-the-shelf product, but with induction courses and demonstrations provided on IBM premises.

VII.   COMPARISONS BETWEEN DIVISIONS

VII. COMPARISONS BETWEEN DIVISIONS

- There are some marked differences between the software support policies of IBM's two major divisions marketing computer products. There is therefore no such thing as a single IBM policy for software support. Instead, we see the continuing evolution of these policies to suit the company's overall commercial posture, and the necessary delegation of software strategy formulation to individual divisions serving largely distinct market sectors.

A. APPROACH TO PRODUCT SUPPORT

- Data Processing Division has inherited both the backlog of products (hardware and software), and the bulk of the customer base, which has remained with IBM since it entered the field of manufacturing computer equipment in 1953. Since the late 1950s IBM has been the market leader in this field with over 50% of the world-wide installed base by value. This is a large inheritance, providing stability as well as inertia to the organisation.

- DPD's current policy can be summarised as:

    - moving towards totally unbundled system software products, unbundled application software products and unbundled systems engineering services,

    - continuing to provide central maintenance facilities for all these products free of charge,

    - starting to charge for local product support on user sites, as distinct from central support provided in the new national centres, which remains free of charge,

- encouraging users effectively to contract their system generation tasks back to IBM, by taking a packaged System IPO/E directly from the factory with their hardware.

● By contrast, GSD's policy is at once more old-fashioned and more straight-forward:

- by and large, however, its products are equally unbundled.

The differences lies in two areas:

- product support activities are not distinguished by source, central vs. local; the one free, the other charged,

- the concept of the system software package, being the sum of a number of optional elements, i.e. the System IPO or IPO/E, has not needed to be introduced.

● GSD's posture is the classic one of the unbundled small business machine vendor:

- to provide the equipment and the software tools with which the user can construct his own system, with further chargeable help if needed.

● The underlying reason for this posture is the need to optimise the use of marketing resources in a fiercely competitive market place. There is a recognition that support impacts on other activities.

B.   TARIFFS

● . Though we have not been able to provide full price lists of the software associated with all of the hardware models examined, we have analysed in sufficient depth to show and to quantify the trend towards an increase in IBM revenues from software.

- IN DPD, software has changed from providing less than 10% of installation costs (typically 6% to 8%), to providing around 15% on the latest announced range, the 4300. Of course, this trend will take time to become established across the total spectrum of DPD products. INPUT estimates a time-lag of two years for this to happen.

- GSD has not taken any other steps to gain more revenue from software, but as its installed base rises it will face the same servicing problems as DPD. By this time, INPUT expects to see similar postures and attitudes to support being adopted in GSD and in an Intermediate Systems Division, (handling the mid-range mainframe products of the present DPD).

C. CONTRACTS

- Our findings from examination of contracts for Program Products and Licensed Programs is that they are important in defining IBM's fall-back position in the licensing of programs. It is important to remember that IBM retains the rights in all their software products, but that they cannot restrict their use if the contract terms are met.

- DPD and GSD contracts for software differ chiefly in:

  - the definitions of the Programming Services provided,

  - the complexity of their structures; GSD being simple, DPD having had to extend its contracts with Supplements and Amendments to keep pace with the increasing sophistication of its policies.

D. DRIVING FORCES

- Two driving forces can be isolated from behind the welter of detail of IBM policy:

-   the imbalance between the company's expansion plans and the supply of good trained support staff,

-   the need to grow the mid-range mainframe customer base, as the corner-stone of IBM's total policy for the 1980s and beyond, and the logistical requirement for productivity to achieve its aims.

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VIII.   APPENDICES

APPENDIX A : GLOSSARY

INPUT

APPENDIX A :   GLOSSARY

APPENDIX A: GLOSSARY

KEY (1) D = DPD, G = GSD

TERM (or ABBREVIATION)	DEFINITION	RELEVANT DIVISIONS CODE (1)
PROGRAMMING SERVICES PROGRAM SERVICES	IBM's maintenance and support services for software.	D G
PROGRAMMING SERVICE CLASSIFICATION	The types of service in force from time to time.	D,G
SUPPORT CENTRE	The new telephone answering centre available as first contact for fault correction as a non-billable part of the services.	D
LOCAL PROGRAM SUPPORT	The new billable service provided by local software CEs.	D
DESIGNATED CPU	The equipment, not necessarily of IBM manufacture, on which a Licence to run a Program is granted.	D
CUSTOMER SERVICE MACHINE	The IBM equipment on which Local Program Support is provided to Program Products.	D
S C P (System Control Programming)	The basic sections of an Operating System, including the executive kernel.	D
L P (Licensed Program)	Any software product issued by IBM for a monthly license charge except FDP, CGP, IUP.	D,G
PROGRAM PRODUCTS	A generie term for items of software developed by IBM, often taken to include SCPs and LPs.	D,G
LICENSE CHARGE	The charge raised by IBM for the use of a software product.	D,G
PROBLEM DETERMINATION	Deciding whether a fault is in hardware or software.	D
PROBLEM SOURCE IDENTIFICATION	Deciding in which software product/module a fault lies.	D
SERVICE UPDATE	Issue by IBM of a new software library incorporating corrected versions of products with reported faults.	D

TERM	DEFINITION	RELEVAN DIVISION!
APAR (Authorised Programming Analysis Report)	The formal written report of an acknowledged software fault.	D
PTF (Program Temporary Fix)	A correction for a fault in an individual product, issued on a temporary basis prior to its permanent correction in a Service Update.	D,G
ALPS (Agreement for Local Program Support)	An Agreement for Local Support of SCPs.	D
ALLPS (Agreement for Local Licensed Program Support)	An Agreement for Local Support of LPs.	D
PROBLEM DIAGNOSIS	Pinpointing the exact cause of a fault once the failing component has been identified.	D
VERIFICATION	Checking that a Program Product after installation functions correctly	D,G
PRESCRIBED PERIOD	The period within which the customer must install a Service Update.	D,G
TESTING PERIOD	A period during which an LP is issued for non-productive use to permit a user to check its suitability.	D,G
PITA (Pre-Installation Test Allowance)	Free allowance of machine time for testing user-developed programs on IBM - owned equipment.	D
CURRENT RELEASE	The latest issued version of a software product which becomes 'current' after the Prescribed Period.	D,G
MAINTENANCE CHARGES	IBM's charges for Local Program Support under ALPS or ALLPS.	D
FDP (Field Developed Program)	A program developed for a user by IBM and later issued generally as a Licensed Program	D
CGP (Country Generated Program)	A program developed by IBM for issue on a country wide basis under special Licence.	D,G
IUP (Installed User Program)	A program developed by a user and later issued with limited support by IBM.	D,G
LICENCE	Permission to use a Program Product under a Licence Agreement, on a Designated CPU.	D,G

INPUT

TERM	DEFINITION	RELEVANT DIVISIONS
CENTRAL SERVICE CENTRAL PROGRAMMING SERVICE	Facilities for problem correction and issue of corrected code, provided by IBM as a common service.	G D
LOCAL SERVICE	Facilities provided by local CE/SEs for problem correction for an individual customer.	G
LOCAL ASSISTANCE	Similar to Local Service, but subject to availability of personnel and implying customer involvement in the activity.	G
DESIGNATED MACHINE	IBM equipment for which Service has been agreed under a Licence Agreement.	G
INSTALLATION LICENCE	"..Applies" extends a Licence to any other machine in the same suite of computer rooms.	G
LOCATION LICENCE	"..Applies" extends a Licence to any other machine on the same customer site.	G
LICENSED PROGRAM MATERIAL	A generic term including the Licensed Program and any documentation provided with it, whether an integral part of its issue medium, or separate and optional.	G
WARRANTY	Implies that an LP will conform to its issued specifications.	D,G
CONTROL PROGRAMMING	An Operating System (e.g. SSP for System /34).	G
SPECIAL PROGRAM	A program product subject to a contract amendment for Special Programs e.g. CGP.	D
CHARGING PROCEDURE	IBM's method of charging for Licensed Programs.	D,G
MONTHLY CHARGE	A charge for a Licensed Program raised by invoice each month; it may require a fixed number of consecutive payments before being discontinued, or be continuous during the lifetime of the Licence.	D,G
SINGLE CHARGE ONE-TIME CHARGE	A single payment for a Licence raised at the beginning of that Licence.	D G
INITIAL CHARGE	A single payment raised at the beginning of a Licence in addition to monthly charges.	D,G

TERM	DEFINITION	RELEVANT DIVISIONS
PROCESS CHARGE	A single, usually nominal, charge made for preliminary delivery of documentation or for a licence for a CGP.	D,G
REFRESH	The GSD equivalent of a Service Update.	G
PRPQ (Program Request for Price Quotation)	A program which has been specially developed, or individually customised, by IBM and is then made available and, perhaps, maintained centrally, under licence.	G
SE (Systems Engineer)	The member of the marketing team responsible for sales support and/or application product assistance.	D,G
CE (Customer Engineer)	The local member of the Field Engineering function responsible for hardware or software product servicing but not both.	D,G

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APPENDIX B: SUMMARY OF IBM PROGRAMMING SERVICES

IBM PROGRAMMING SERVICES FOR CLASS 1 SYSTEM CONTROL PROGRAMMING ON IBM MACHINES, PROGRAM SERVICES FOR DESIGNATED IBM LICENSED PROGRAMS AND LOCAL PROGRAM SUPPORT

All IBM System Control Programming is classified as either Class 1 or Class 2.

The purpose of this bulletin is to summarize the way in which IBM will provide services and local support for current releases of Class 1 System Control Programming on IBM machines for which it is announced ("SCP") and for current releases of Designated IBM Licenced Programs ("LPs").

1. NON-BILLABLE SERVICES

    IBM will offer, at no additional charge

    a) Installation Planning

    b) Problem Correction Activities

        These include processing Authorised Programming Analysis Reports (APARS), defect correction and distribution of Program Temporary Fixes (PTFs).

    c) IBM Support Centre Assistance

        If problems occur, the Centre is the first point of contact with IBM for Customers. The Centre will provide assistance over the telephone. However, before calling the Centre, the Customer is expected to have performed Problem Determination and Problem Source Identification activities, as appropriate. ("Problem Determination" is deciding whether a malfunction arises from hardware or from software. Assis-

INPUT

tance in problem determination is provided as part of the maintenance coverage by IBM for IBM machines which have been purchased or which are under rental or lease from IBM. "Problem Source Identification" is determining the source of a suspected software problem).

Centre personnel will help Customers to identify problems and determine if corrections are available. The Centre will assist Customers in their selection and application of PTFs and Service Updates supplied to them by IBM. If a problem has not been previously identified, the Centre will assist Customers to prepare APARS. APARS will be accepted directly from Customers after problems have been discussed with the Centre.

2. BILLABLE LOCAL PROGRAM SUPPORT

If the Customer cannot resolve a problem or define it for APAR submission despite having discussed it with the IBM Support Centre, the Centre will, if agreed by the Customer, arrange to dispatch an IBM representaive to assist the Customer in the resolution of the problem. This Local Program Support is available either at the applicable hourly rate or, as appropriate, under the "Agreement for Local Program Support for System Control Programming on IBM Machines" (ALPS) or the "Agreement for Local Licensed Program Support for IBM Licensed Programs" (ALLPS) for monthly charge. Under both agreements a machine designated by the Customer as one on which Local Program Support will be provided is called a Customer Service Machine. Under ALPS the customer obtains Local Program Support for all "SCP" running on a Customer Service Machine. Under ALLPS, the Customer obtains Local Program Support for all eligible "LPs" running on a Customer Service Machine. If the Customer wishes to have Local Program Support for fewer than all eligible LPs on that machine he may submit a request for price quotation to delete any program from the Agreement. Local Program Support is optional for "LPs" during their applicable testing period.

3. MAIN PROVISIONS OF ALPS AND ALLPS

    a) Local Program Support Activities

        The Customer receives assistance from IBM when required,

        .   with Problem Diagnosis ("Problem Diagnosis" is the pinpointing
            of the exact cause of a problem once the failing software
            component has been identified).

        .   in preparing and submitting APARs

        .   in applying a local fix, or bypass

        .   for problems associated with applying Service Updates.

        ALPS also provides for assistance in Problem Source Identification.

    b) Local Program Support For Multiple Machines

        Local Program Support may be obtained by a Customer on a Customer
        Service Machine for problems arising with "SCP" on that machine and
        on a number of other, additional machines.   The same facility is
        available for "LPs" provided they are the same as those used on the
        Customer Service Machine.

        This Local Program Support is available within a Customer enterprise
        for additional machines located only in the same country as the
        Customer Service Machine.

    c) Customer Responsibilities

        The Customer will be required to apply Service Updates to his "SCP"
        and "LPs" within a prescribed period and will be asked to take actions
        recommended by the IBM Support Centre before an IBM representative
        is sent to his installation. If it is discovered that a correction exists for
        a reported problem, the Customer will be expected to apply this
        correction before the dispatch of an IBM representative.

Where the Customer is receiving Local Program Support for multiple machines he may be asked to recreate problems on the Customer Service Machine.

(Note that the installation and verification of "SCP and "LPs" are not the subject of either agreement and remain a Customer's responsibility.)

d)   Term

There is an Initial Support Period of twelve months for Local Program Support under each of the Agreements. · With some exceptions, a termination charge will apply if the Customer discontinues Local Program Support within the Initial Support Period. Thereafter, Local Program Support may be discontinued upon 30 days written notice to IBM.

After the Initial Support Period, the Customer may extend Local Program Support for additional twelve month periods (Program Support Extension Periods) at the then current monthly charges. With some exceptions, a termination charge will apply if the Customer discontinues Local Program Support during a Program Support Extension Period.

e)   Charges

Local Program Support is subject to monthly charges for each Customer Service Machine and to lower monthly charges for each additional machine if the Customer has elected to take the multiple machine support option. Charges for "SCP" support depend upon the machine on which the "SCP" runs. The charge for "LPs" is the sum of the monthly support charges for individual "LPs" run on that machine.

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IBM can change monthly charges on the three months' notice but increases announced during an Initial Support Period or during a Program Support Extension Period will not take effect during such periods.

Additional charges, at current hourly rates, may be made if additional Local Support effort results from altered "SCP" or "LPs"; if the Customer fails to meet his obligations under an Agreement; or if Local Program Support activities are caused by problems originating from machines not covered by an Agreement.

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