SOFTWARE AND SERVICES FOR COMPUTERS

IN THE HOME

INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. 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.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs.

Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technically advanced companies.

Offices

NORTH AMERICA

Headquarters
1943 Landings Drive
Mountain View, CA
94043
(415) 960-3990
Telex 171407

Detroit
220 East Huron
Suite 209
Ann Arbor, MI 48104
(313) 971-0667

New York
Park 80 Plaza West-1
Saddle Brook, NJ 07662
(201) 368-9471
Telex 134630

Washington, D.C.
11820 Parklawn Drive
Suite 201
Rockville, MD 20852
(301) 231-7350

EUROPE

United Kingdom
INPUT, Ltd.
Airwork House
35 Piccadilly
London, W1V 9PB
England
01-439-8985
Telex 23116

France
La Nacelle
Procedure d'abonnement 1-74
2, rue Campagne Premiere
75014 Paris
France
322.56.46
Telex 220064 X5533

Italy
PGP Sistema SRL
20127 Milano
Via Soperga 36
Italy
Milan 284-2850
Telex 310352

Sweden
Athena Konsult AB
Box 22232
S-104 22 Stockholm
Sweden
08-542025
Telex 17041

ASIA/AUSTRALIA

Japan
ODS Corporation
Shugetsu Building
No. 12-7 Kita Aoyama
3-Chome Minato-ku
Tokyo, 107
Japan
(03) 400-7090
Telex 26487

K.K. Ashisuto
Daini-Suzumaru Bldg., 6th Floor
8-1, Nishi Shimbashi
3-Chome Minato-ku
Tokyo, 105, Japan
(03) 437-0654
Telex 781 26196

Singapore
Cyberware Consultants (PTE) Ltd.
2902 Pangkor
Ardmore Park
Singapore 1025
734-8142

INPUT
Planning Services For Management

SOFTWARE AND SERVICES FOR COMPUTERS IN THE HOME

M-CHO
1984 c.2

AUTHOR

Software and Services for Computers

TITLE

in The Home

DATE LOANED	BORROWER'S NAME

CAT. No. 23-108   PRINTED IN U. S. A

SOFTWARE AND SERVICES FOR COMPUTERS
IN THE HOME

CONTENTS

INPUT
M-CHO-741

SOFTWARE AND SERVICES FOR COMPUTERS
IN THE HOME

EXHIBITS

INPUT

I INTRODUCTION

I   INTRODUCTION

A.   PURPOSE OF THIS REPORT

- The purpose of this report is to examine and analyze the current use of micro-computers in the home, to determine future use, and to provide INPUT's recommendations for clients' activities in this market area.

- The use of computers in the home has developed rapidly since microcomputer technology allowed manufacturers to begin offering these inexpensive yet powerful personal computers. Whereas in the early years little software was available, during the last three years vendors have quickly filled that void; now there are thousands of products. These events and others have created a state of confusion that has, in turn, contributed to high client interest in this topic.

- One of the major factors in the development of the home market has been the rapid adoption of personal computers. The rate of adoption has been so high that it has created high media interest and, in turn, a high interest among consumers, which has resulted in rapid growth. This has became a circular pattern. Only very recently have vendors begun to ask what these personal computers in the home are really being used for. This is the primary issue clients need to understand in order to plan for future developments.

- 1 -

INPUT

B. SCOPE AND METHODOLOGY

- This report is part of the Market Analysis and Planning Service (MAPS) for the information services industry and is conducted on behalf of INPUT's clients. It addresses the following questions:

    - What are microcomputers being used for in the home, and what are the plans for future use or non-use?

    - What are home user plans for buying new products and services? Are there growth opportunities?

    - What are the growth contributions or inhibitors?

    - What are the relationships between business and home use, and do they indicate strategic redirection?

    - What ancillary services, like training, are needed?

- The scope of the report will include an examination and analysis of current product offerings as well as emerging significant new developments. Furthermore, this report will focus on:

    - Applications that are business related or home-management related.

    - Management and professional staff occupations.

    - Limited analysis of demographics, distribution, and pricing.

- The scope of this report does not extend to non-U.S. markets, education segments, entertainment segments, or a detailed examination of prospective users.

- 2 -

- The research for this report was conducted in October and November of 1984.

    - The research included 58 telephone interviews and two on-site interviews conducted with users having at least one microcomputer installed at home. Interviews were conducted almost exclusively with managers and professionals.

    - These interviews were used to gather primary data, plans, and opinions for purposes of performing the analysis for this study. A limited demographic analysis was performed from interview data.

    - The sample was not intended to be statistically valid but was intended to provide insight into the issues and trends affecting this market.

- In addition to the interview program, extensive research was conducted to explore the home market, the available products and services, the status of the market, and the status of related services like Videotex and Teletex.

C.   OTHER RELATED INPUT REPORTS

- Opportunities for Fourth-Generation Languages. This report examines opportunities for taking advantage of these emerging technologies. Micro-based versions of fourth-generation languages (FGLs) are among the tools used in business-related applications in the home.

- Pricing and Distribution of Personal Computer Software. This report analyzes issues on pricing and distribution of personal computer software and is considered important corollary data for the reader.

INPUT

II   EXECUTIVE SUMMARY

- This chapter summarizes key forecasts, issues, and trends discussed in greater detail in the remainder of the report.

- This executive summary is prepared in a presentation format. The exhibits are set in larger type for easy use with an overhead projector, and the text is in script form. The script for each exhibit is contained on the left-hand page facing the exhibit.

INPUT

A.   DYNAMICS OF THE INDUSTRY

- Early developments in the personal computer revolution are well known. Basically, this resolution was propelled by rapid growth companies. Several of these companies have already lost their early gains.

  - One fact that appears to have been misunderstood is the size of the early participants in this market.

  - These participants created the initial excitement over personal computers and established a base for today's dynamics.

- Over the past 12 months the industry has experienced a well-publicized "shakeout." The result is that the industry is currently dominated by IBM, by large computer retailers, and by large companies seeking to improve white-collar productivity.

- Most recently, the dynamics include intense competition, strong underlying demand within the installed base, and emerging demand from the small establishment market.

- For the immediate future the major buying criteria for home- and business-related microcomputers will be their work relatedness.

- 6 -

INPU

EXHIBIT II-1

DYNAMICS OF THE INDUSTRY

**IBM, Apple, Lotus
Selected Retailers**

Osborne, VisiCorp

| Competition | Industry Desire to Increase Productivity | Business Related Use in the Home | Demand from Small Establishments |

INPUT
MCHO
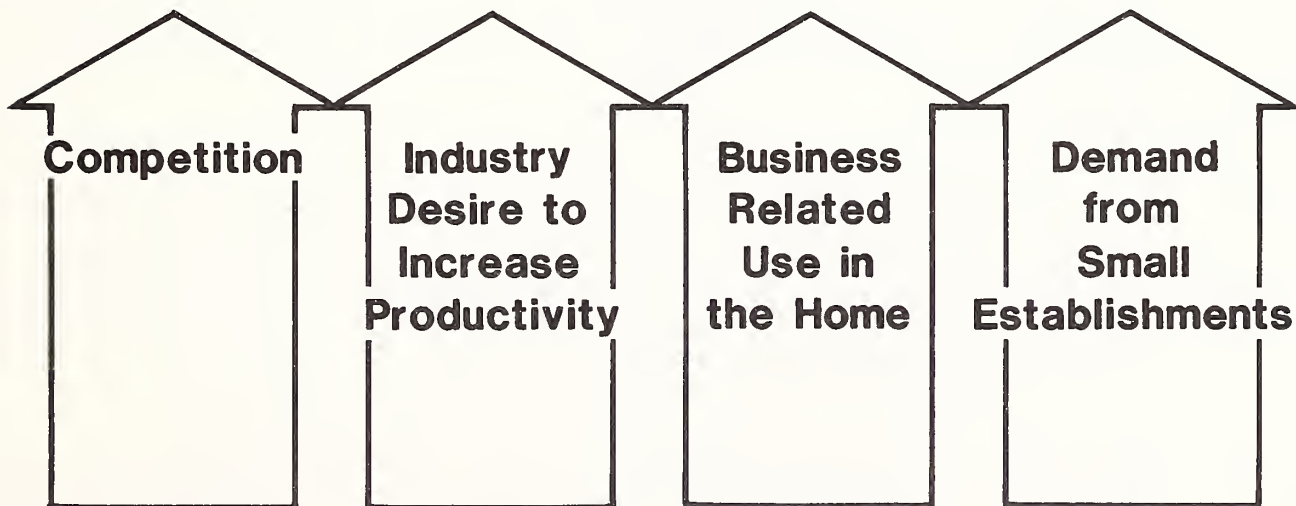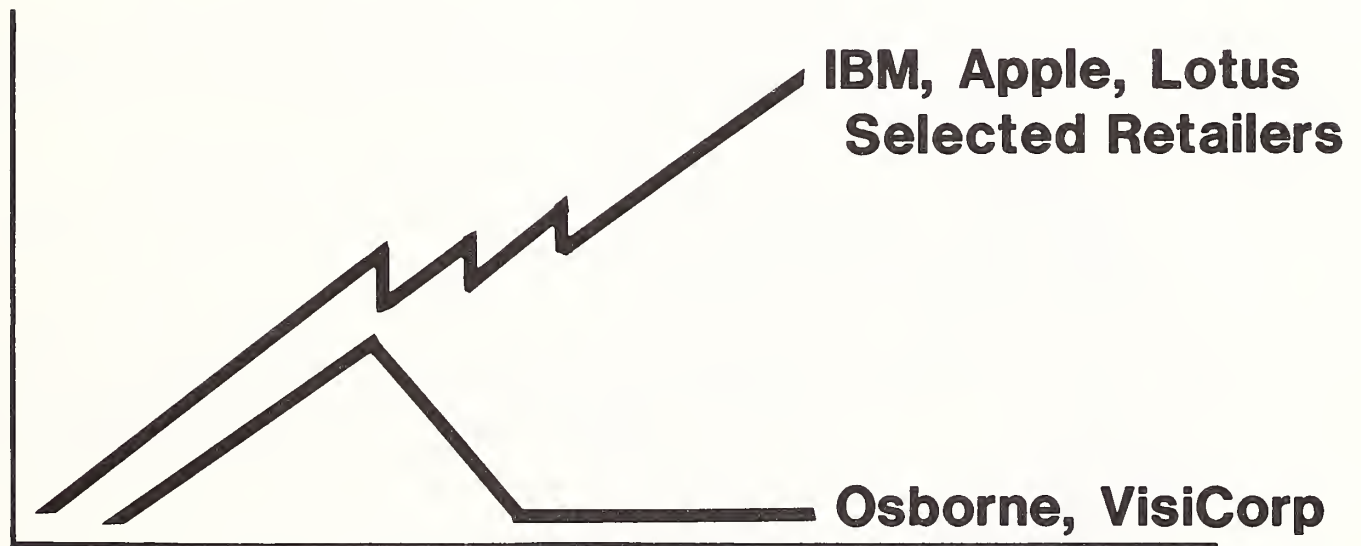
B.   ANALYSIS REVEALS WORK-RELATED APPLICATIONS

- This graphic demonstrates the dominance of work-related applications in the home.

- Respondent data shows that nearly half of all computer use at home is for work-related productivity tools.

    - Productivity tools comprise much more than 50% of business-related applications.

    - For home-related use, work-related productivity is still the most frequent application.

- The dominant tool is word processing, with respondents using a variety of word processing products for report writing, business correspondence, technical writing, and letter writing.

- The use of integrated software and spreadsheets by respondents is concentrated on applications for budgeting, financial analysis, and analytical projects.

- Just over 10% of home computer use is small business related. This pertains primarily to individuals operating small businesses from their homes. The most common small business application is general ledger, with the balance being primarily accounting related.

- Other work-related use is accessing company data and on-line data base use. These areas are expected to grow and contribute a larger share of total use.

- The pure home-related uses such as personal finance and shopping account for less than 25% of the total use. These applications appear to be "by-products" resulting from the computers' availability, rather than primary motivations for acquiring the systems.

- 8 -

INPL

EXHIBIT II-2

ANALYSIS REVEALS
WORK-RELATED APPLICATIONS

TOTAL BUSINESS- AND HOME-RELATED USE

Small Business 10.6%

Personal Productivity 13.4%

Personal Finance 11.1%

5.0%

On-Line Database 5.0%
Access
Company Data 5.0%

Other

Shopping 0.6%

Productivity Tools 49.3%
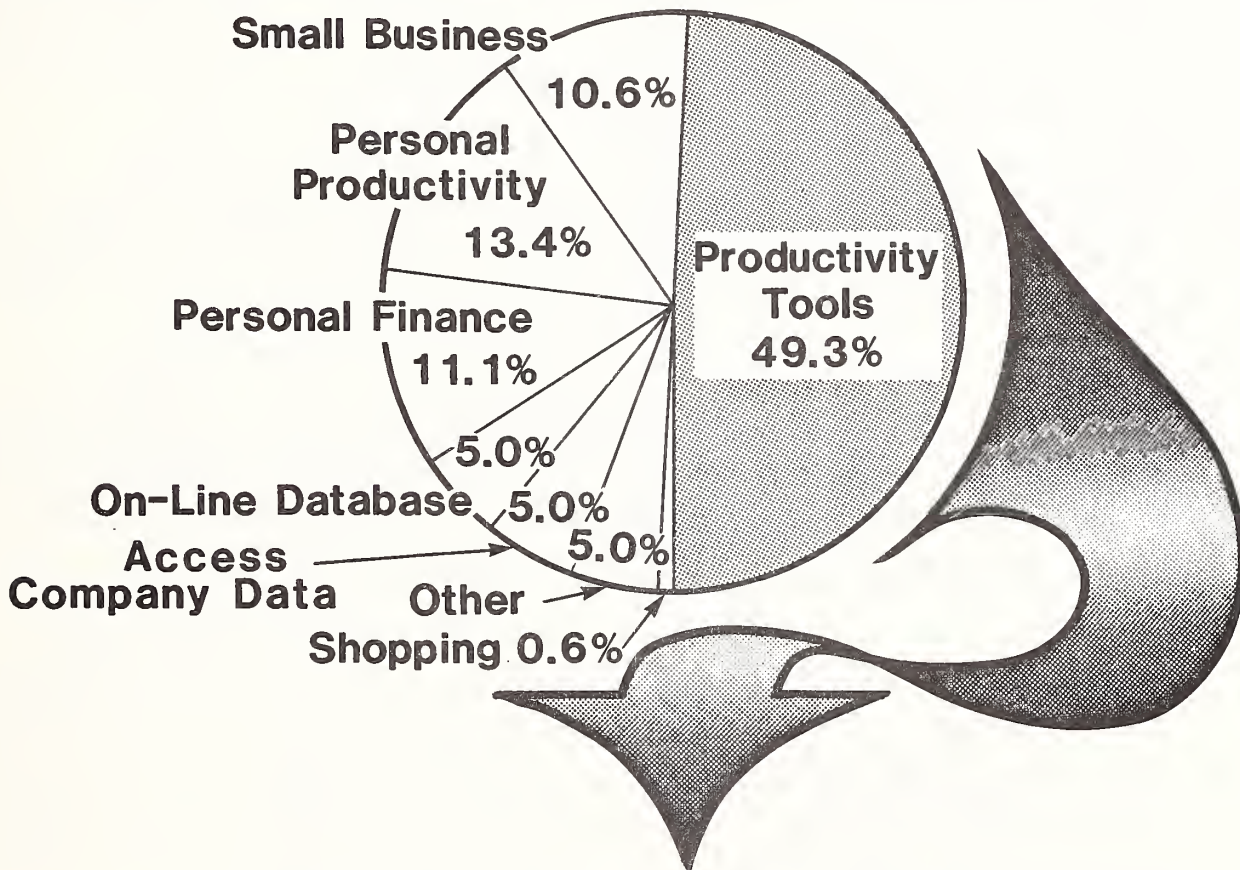
PRODUCTIVITY TOOLS USE	
Word Processing	46.7%
Integrated Software	25.2%
Data Base	11.2%
Spreadsheets	10.3%
Other	6.6%

INPUT
MCHO

C. HARDWARE EXPENDITURES CONTINUE TO EXCEED SOFTWARE EXPENDITURES

- This chart shows the average expenditures for personal computer hardware and software and the current hardware/software expenditure ratio of nearly four to one. For this group the ratio is nearly the same for their projected buying of add-on products.

- Ninety-two percent of the respondents use microcomputers at work. This is important since work-related applications are most common, according to the analysis of respondent applications at home.

- The segmentation reveals that individuals earning more than $60,000 spend 20% more than average on software. More pronounced is the segmentation by education level. The over-16-years education group spends 25% more than average on hardware and over 65% more on software.

- In terms of expenditures by segment, the expenditures for accounting systems are the largest. This is due to a pricing strategy that purports that application-specific software justifies a higher selling price than generalized products. Without the contribution of accounting software, the average software expenditure decreases to just under $1,000.

- 10 -

EXHIBIT II-3

HARDWARE EXPENDITURES CONTINUE TO EXCEED SOFTWARE EXPENDITURES

$4,148

Average Hardware Expenditure

$ Higher with Over 16 Years Education

$ Higher When Income Exceeds $60K

$1,192

Average Software Expenditure

Respondents Using Microcomputer at Work   92%

INPUT
MCHO
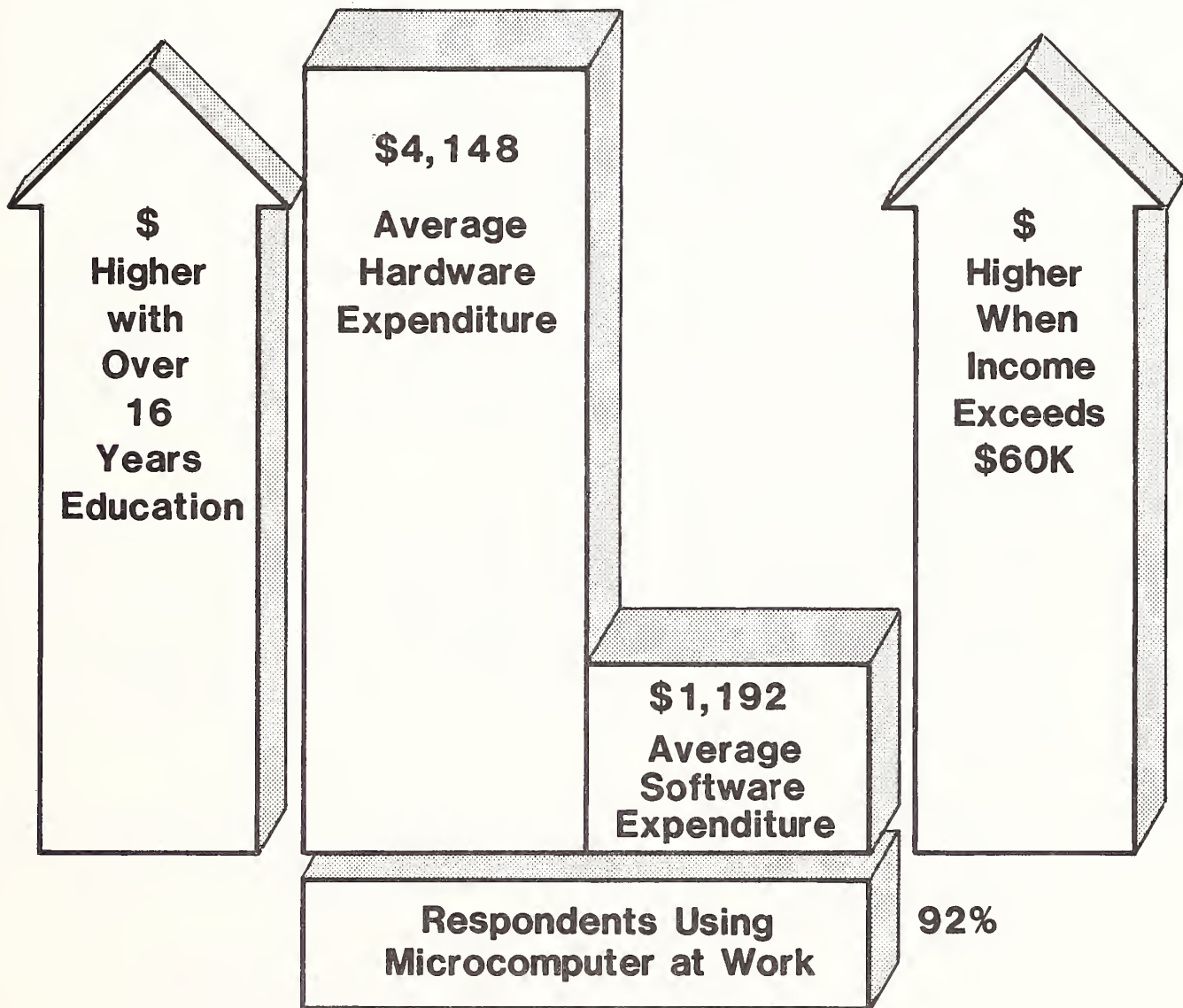
D. GROWTH FACTORS ARE HEAVILY INFLUENCED BY ATTITUDES

- This chart shows some of the contributors and inhibitors to growth.

- Although the inhibitors to growth are largely attitude related, they are also real in the users' minds. For example, unit cost is perceived as an inhibitor for getting add-on sales from the installed base.

- In many cases more receptive attitudes can be created either by showing these users new applications that will pique their interest or by training them to use the existing features of a product to make them more proficient.

- The biggest potential for software vendors will result from new hardware sales both to existing users and to new first-time users. This underpins what was demonstrated on the previous exhibit showing the 4-to-1 hardware/software expenditure ratio.

- The best potential for add-on software sales is in the work-related areas. Vendors that penetrate companies will generate business from work-place computer users who become prospects for home systems. Evidence of this is that nearly all respondents have the same products at home that they have at work.

- The potential contributors to growth in software are not yet in place. However, both work-related applications and the innovation of vendors should contribute to growth from the existing base.

INPL

EXHIBIT II-4

GROWTH FACTORS ARE
HEAVILY INFLUENCED BY ATTITUDES

Inhibitors to Growth

| Unit Cost Perceived Too High | Ability to Use Software Features | Single Application Users | Economic Condition Limits Some Home Business |

New $ Expenditures

| New Hardware Sales Pull Software | Innovative New Products | More Work-Related Applications |

Contributors to Growth

INPUT
MCHO
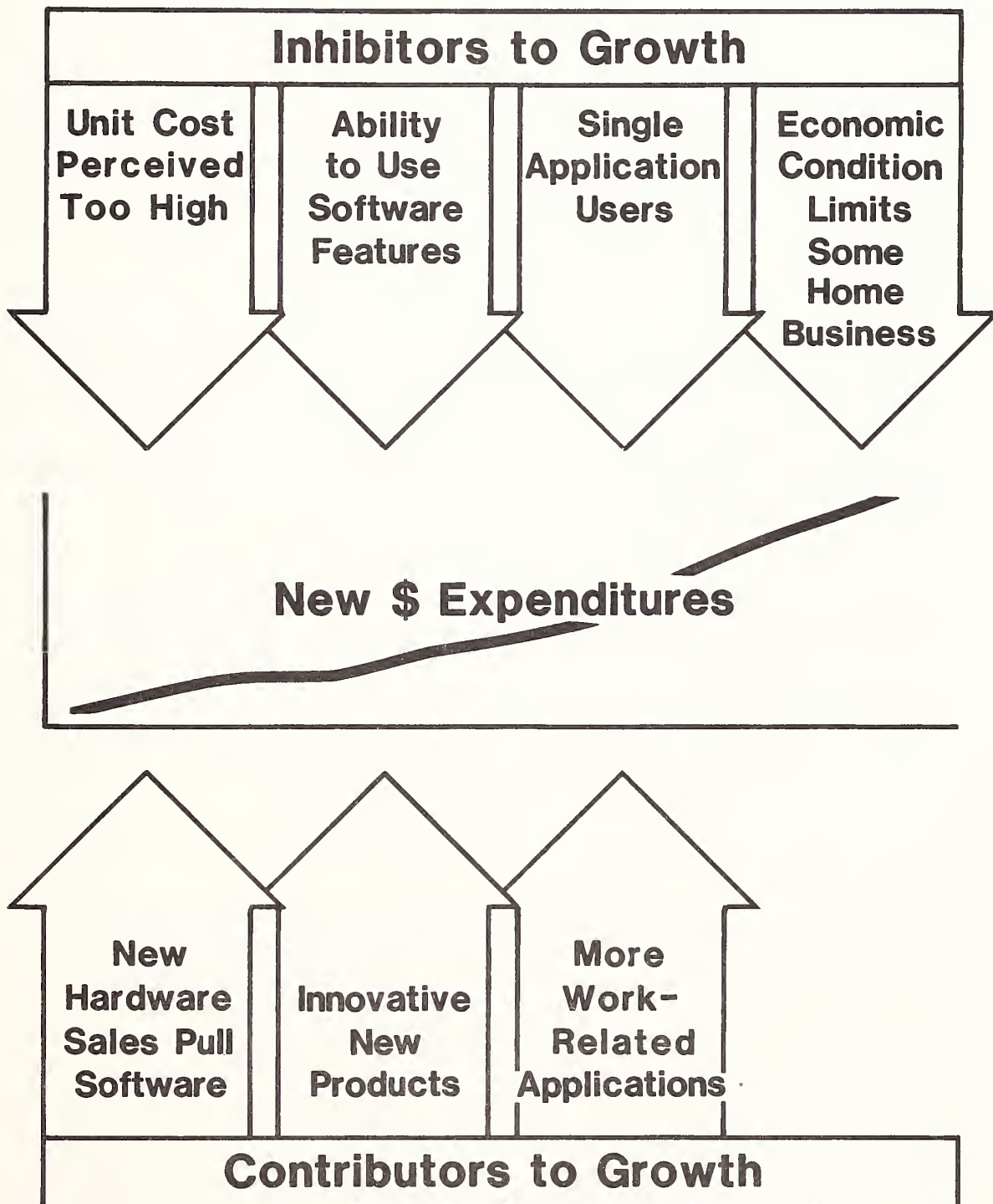
E.   HARDWARE WILL CONTINUE TO DOMINATE EXPENDITURES

- In terms of dollar expenditures, hardware continues to exceed software. More importantly the respondents have a clearer image of what they plan to buy in hardware than they do in software.

- However, planned growth in software expenditures by users is a healthy 35% for the next 12 months. Respondents are uncertain of their planned expenditures beyond 12 months. This is partly because users don't know or don't understand what will be available and partly because they don't know what they would do with more products.

- Respondents stated they would buy more at reduced prices, particularly the productivity tools. Sixty-three percent said they even had a specific product need they would fulfill if the price of the product were reduced by one-half. Most of the 63% also stated they would buy at least twice as much if prices were reduced.

- The services segment contributes less than 10% of the expenditures. INPUT believes there is real potential in services to the installed base of home computers, with products like home banking and shopping. However, these needs must be nurtured and created--that would require expensive market development by the vendors.

- 14 -

INPU

EXHIBIT II-5

HARDWARE WILL CONTINUE TO DOMINATE EXPENDITURES
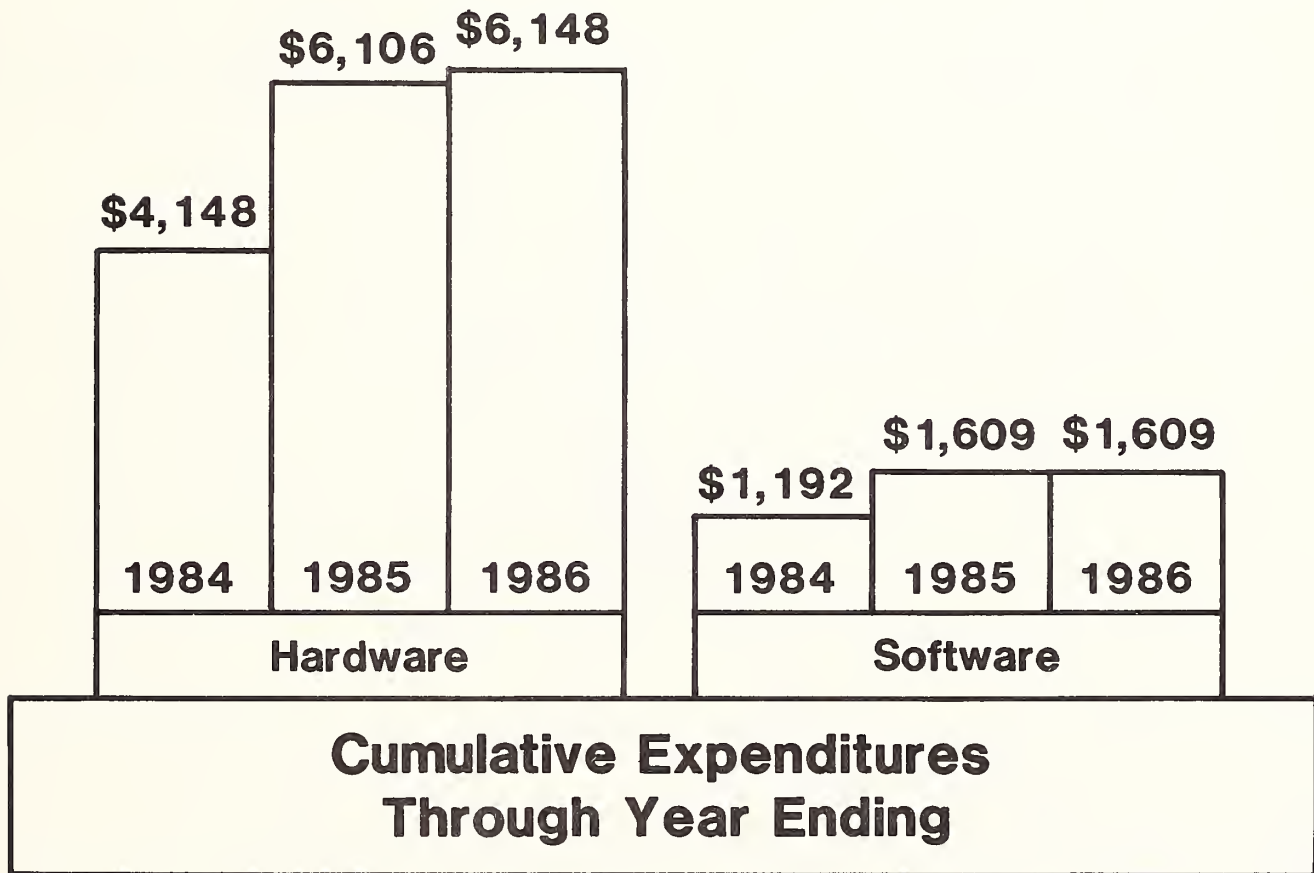
- **Respondent Data Revealed the Planning Window to Be 12 Months**

INPUT
MCHO

F.   THE DOORS OF OPPORTUNITY ARE READY TO OPEN

- As this graphic suggests, opportunities are available.

- However, market segmentation by vendors at a detailed level is critical in order to address new markets and to effectively allocate promotional and advertising resources.

- Innovative distribution and pricing strategies should be based on the premise of developing a long-term business, which means building and maintaining a customer base.

- Product strategies should include product line concepts like an upgradable product family. A product family allows for strategies like low-entry prices, which make it easy for users to buy and to become part of the customer base.

- Promotion strategies need to be targeted to the market segments identified as the highest potential market segments. This conserves budgets and results in a better yield from those budgets than promotion strategies that try to address global audiences.

- Currently, selling strategies are overly single-minded and aimed at building a retail structure. Vendors should look at independent sales organizations and telemarketing as alternatives to reach the markets they target.

INPI

EXHIBIT II-6

THE DOORS OF OPPORTUNITY
ARE READY TO OPEN

INPUT
MCHO
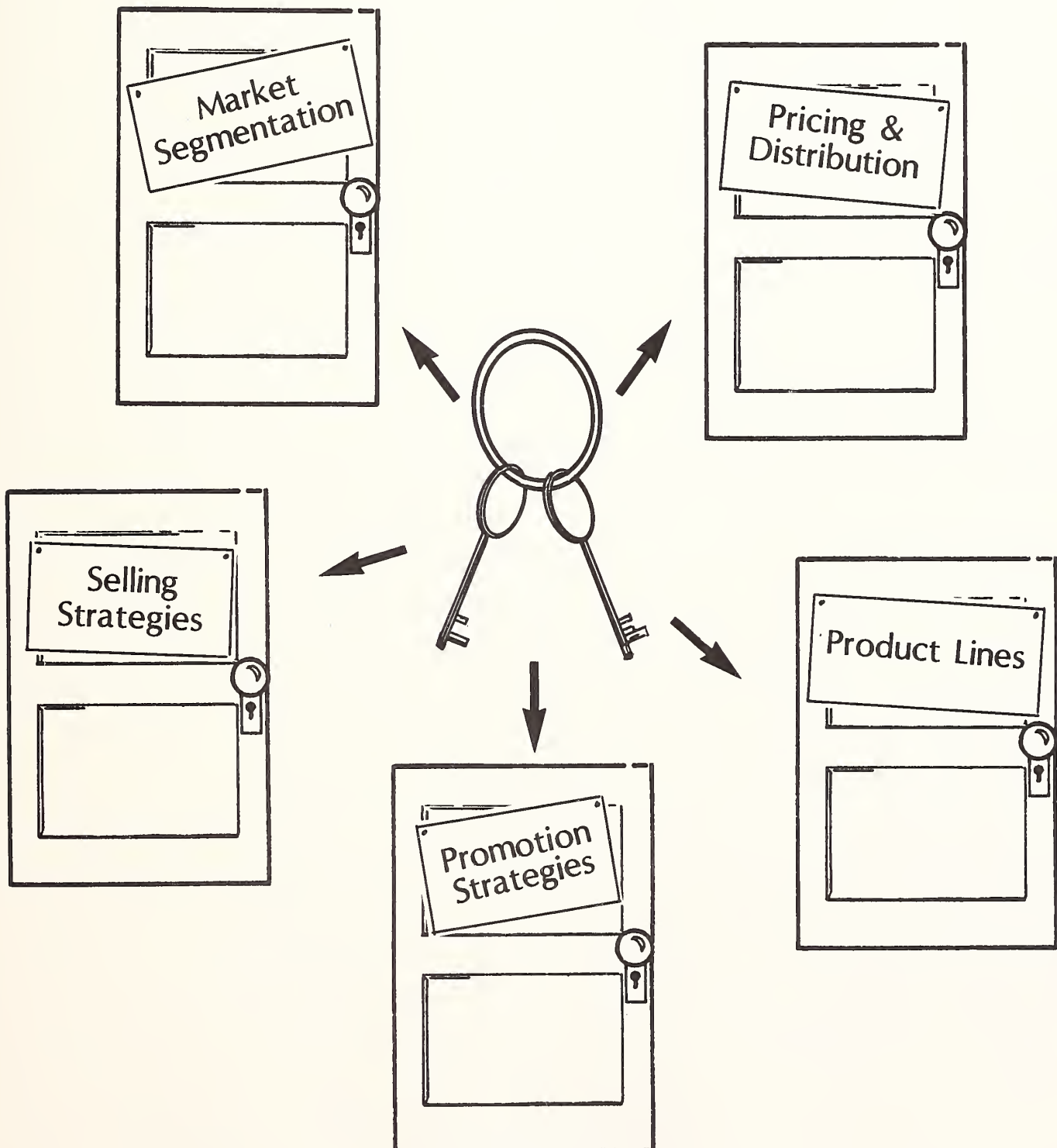
III STATUS OF THE HOME COMPUTER MARKET

III STATUS OF THE HOME COMPUTER MARKET

- The software and services segments of the home computer market offer add-on sales revenue opportunities to vendors that consider the significance of selling to an installed base. This section is intended to provide a current status of the installed base of home computers with a sales price greater than $1,000.

A. STAGE OF MARKET DEVELOPMENT

- In terms of hardware in the "serious" home computer market, the dominant supplier is IBM. However, that is where the dominance stops, particularly in the software and service segments. Of the products installed and in use, there is no dominant vendor but there are dominant applications.

- Exhibit III-1 shows the distribution of applications by major categories for both business-related and home-related applications. By far the most significant penetration is in the productivity tools category. This should not surprise anyone, since personal productivity has been the common promotional thrust of every vendor. This exhibit and supporting data also demonstrates the following:

    -   Of the dominant applications in productivity tools, the highest use is word processing, with 47% of the business-related applications re-

- 19 -

INPUT

EXHIBIT III-1

CURRENT USES OF MICROCOMPUTERS IN PERSONAL RESIDENCES

Business Related
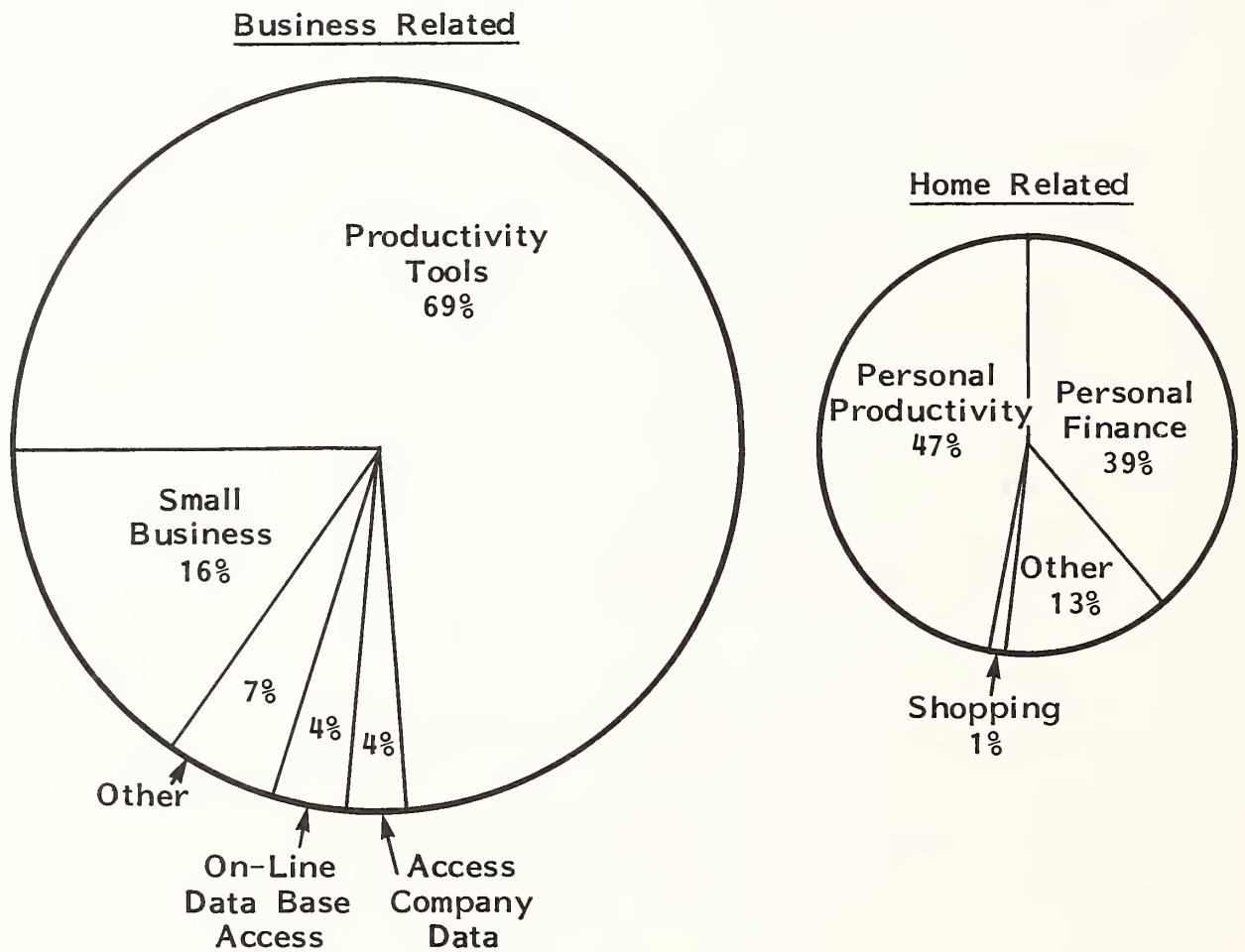
Home Related

- For personal computers priced in excess of $1,000.

- Excluding entertainment and education applications.

- Personal productivity includes productivity tools used for home-related applications.

INP
MCHC

portedly using 13 different products. Fifty-one percent of computer
time (hours per month) was dedicated to word processing.

- The second highest use reported was for integrated software products.
  This accounted for 25% of total use and 30% of the hours per month of
  use. These integrated software products, like Lotus 1-2-3, are used
  primarily for their spreadsheet facilities.

- Total use for data base tools was 11%; for spreadsheets, 10%; and for
  "other," 7%. Combined, these tools accounted for 19% of the hours
  spent.

- In the area of productivity tools alone, 38 respondents mentioned more than
  35 different products from more than 25 different vendors. The dominant
  vendors of these tools were MicroPro International and Lotus Development
  Corporation.

- For home-related applications the leader was also word processing, comprising
  62% of the user applications and 50% of the hours spent.

- The other dominant application area was in personal finance, in which Lotus
  1-2-3 was the most popular product. The second highest number of mentions
  is for personal financial applications; this shows some expansion of use in the
  home-related segment.

- The penetration in services applications, on-line data bases, videotex, etc. is
  nearly nonexistent. This has important current and future implications.

- Exhibit III-2 shows the percentage of current use for products in the various
  application categories.

  - Only 11.7% of the current use is involved with on-line data base access,
    although over 18.6% of the respondents have related products.

- 21 -

INPUT

EXHIBIT III-2

CURRENT USES OF MICROCOMPUTERS BY RESPONDENT
PRODUCTS INSTALLED

BUSINESS-RELATED APPLICATION PRODUCTS

On-Line Data Base	11.7%
Productivity Tools	63.3%
Access to Company Data	13.3%
Small Business	28.3%
Other	6.7%

HOME-RELATED APPLICATION PRODUCTS

Personal Finance	23.3%
Personal Productivity	35.0%
Shopping	1.7%
Environment	0
Other	3.3%

0   20   40   60   80   100%

TOTAL APPLICATION   PRODUCTS INSTALLED

- 22 -

INP
MCHO
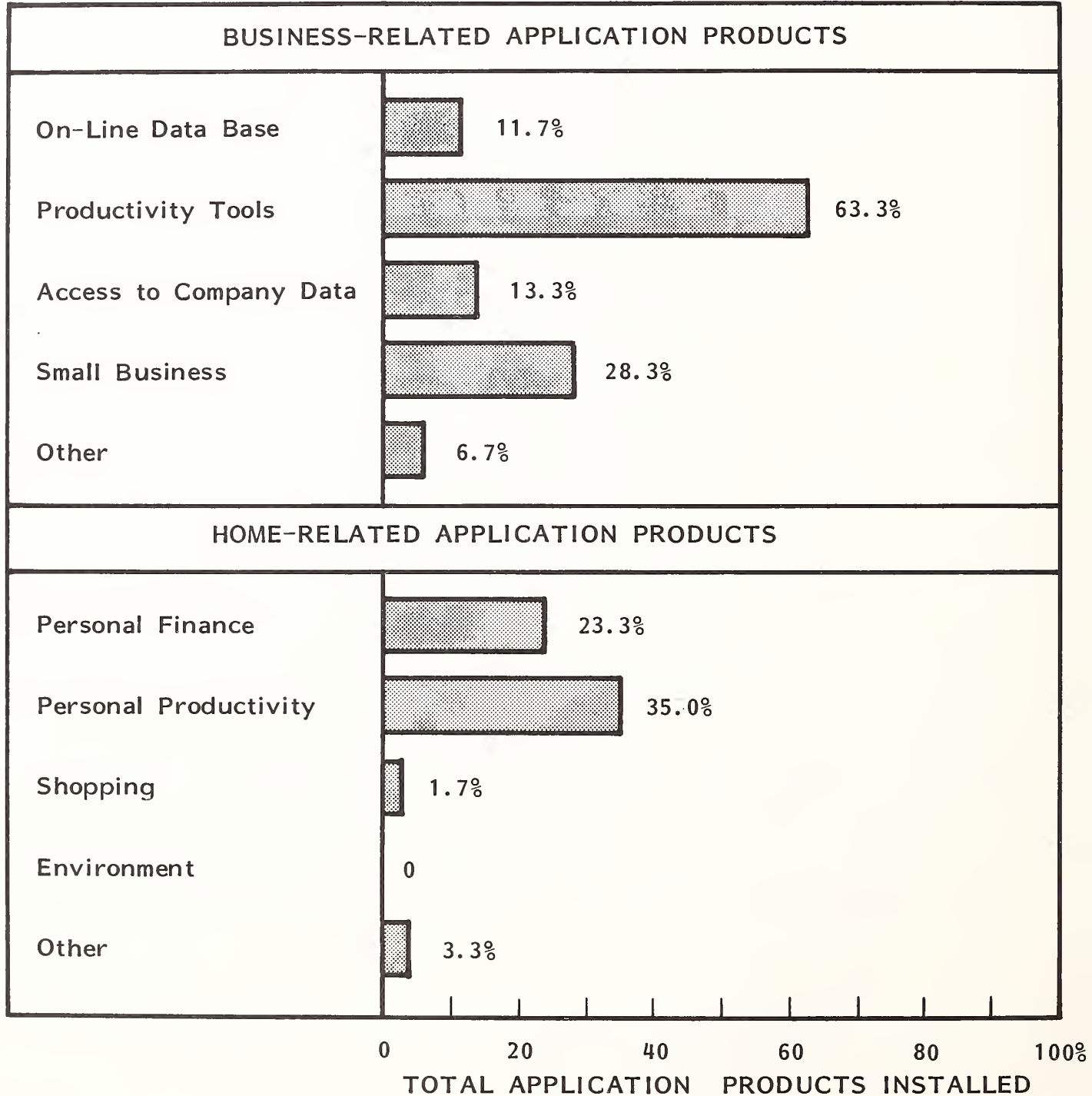
- Over 59% of respondents use their systems for more than one application. Nearly half the respondents have microcomputers they are using for one application. This implies that capacity is available to support more products and to run new applications.

- The business-related applications in the home are nearly double the home-related applications. This report will develop the importance of such a fact in greater detail in subsequent sections.

● Other observations on the status of this market include the following:

  - From a hardware point of view there appear to be only two bright spots in the installed base.

    . The users developing small business applications will probably need more capacity—or even additional systems—as their files and use grow.

    . As general use grows, users will require more peripherals.

  - The installed base is heavily penetrated by productivity tools, which is good news for vendors concentrating on new sales since the majority of users buy these tools. This does not sound encouraging for the many vendors of these tools trying to penetrate the installed base. However, most vendors trying to sell to the installed base have not concentrated their efforts.

  - The level of penetration of the available user base indicates the market is still in an early development stage. This is a key point and one that is very important for vendor strategies over the next two years. INPUT believes that vendor decisions on pricing, distribution, and product will have a tremendous effect on the rate of development of this market.

INPUT

- Another important aspect for vendors is the respective use of these home systems for business versus home applications. Currently the business-related uses are dominating the home-related uses. Although this may have many implications, a well-conceived, well-promoted home product could certainly have enormous potential. After all, the hardware is already in place to support such a product.

- One of the factors contributing to the heavy use of business-related applications at home is that 92% of the respondents reported that they use microcomputers at work.

  - Nearly all one of these respondents reported that their home computers are the same or similar to the ones they have at work. The fact that these systems are similar allows users to have a "portable" system by transporting floppy disks. This is important both from the standpoint of use and the available market for software.

  - It appears that much of the use in the home is directly related to applications the user is performing at work. This is another facet of the many pricing and distribution decisions facing the vendors.

B.   THE CURRENT MARKET: AN ASSESSMENT

- The personal computer market has evolved rapidly, with many vendors emerging and disappearing in short order. This includes both hardware and software vendors--e.g., Victor Technologies, VisiCorp, Osborne--that were at one time considered rising stars. Other developments, like MSA's acquisition and divestiture of Peachtree further demonstrate that even established,

- 24 -

INPL

successful companies have been frustrated by the roller-coaster structure of the microcomputer industry.

- Contrary to most observers' opinions from a couple of years ago, the majority of microcomputer hardware is being purchased by business, for business applications. This is important because software and services are acquired by business for business applications.

- Logically, the dominance of IBM is carried over from business computer purchases to home computer purchases. This is a great benefit to retailers who have IBM products, especially since the retailer has an opportunity to sell products to these users for their home computers.

- Home computer use also means that the smaller retailers have a chance at these sales since many of the dealers selling to industry sell only in volume from warehouses rather than from store fronts.

- Arising from this carry-over from business to home is the issue of where home computer users get their software. Do users "borrow" software from work? Does the company buy software for these users to use at home? These issues are analyzed in subsequent sections since many INPUT clients are concerned with the developments in piracy and its effect on software pricing.

  - INPUT's forecasts show that by the end of 1984 there will be 5.6 million personal computers installed in businesses.

  - The degree of copying could have a large impact on the number of these personal computers that are available to software vendors' products.

- With a few exceptions software and services seem to be lagging behind hardware sales. This is due to a number of factors; INPUT believes the most important ones are inadequately trained retail sales personnel and under-developed direct sales channels.

INPUT

- Another complaint by vendors is the high cost of "pull-through" advertising required to compete for shelf space in the retail establishments. INPUT believes this competition should trigger creative approaches that also require less investment. Such approaches might include telemarketing directly to the installed base or the use of independent sales organizations selling direct to a specific industry or to sets of users.

- Exhibit III-3 shows the relationship between the average expenditures for hardware and software by expenditure level.

    - On the average, users are spending $4,148 for hardware and $1,192 for software, representing a ratio of 3.5 to 1. INPUT believes the ratio will change as the hardware spending increases, due to more users purchasing hard-disk systems and 32-bit processors in the future.

    - The majority (50%) of users spend less than $1,000 on their software. Although many respondents say they would buy more if the prices were lower or if they could try products before they buy, INPUT believes the problem is deeper. The vendors have not captured the users' imagination with products that have a clear value for the individual user.

- In no instance has any individual respondent spent more for software than for hardware.

- INPUT believes that the low ratio of software expenditures to hardware and the low expenditures themselves demonstrate that the home market is not being exploited. This is directly related to corresponding success of selling software to industry. Given the number of vendors competing for the business market, INPUT believes vendors should try to understand the potentially lucrative home market and then to develop appropriate products. This strategy may even result in a "backdoor" approach to the corporate market. Conversely, vendors should have strategies that recognize that corporate sales are leading to home sales.

INPL

EXHIBIT III-3

AVERAGE EXPENDITURES BY USERS
FOR SOFTWARE AND HARDWARE

Average Expenditure Categories

Software   Hardware

INPUT
MCHO
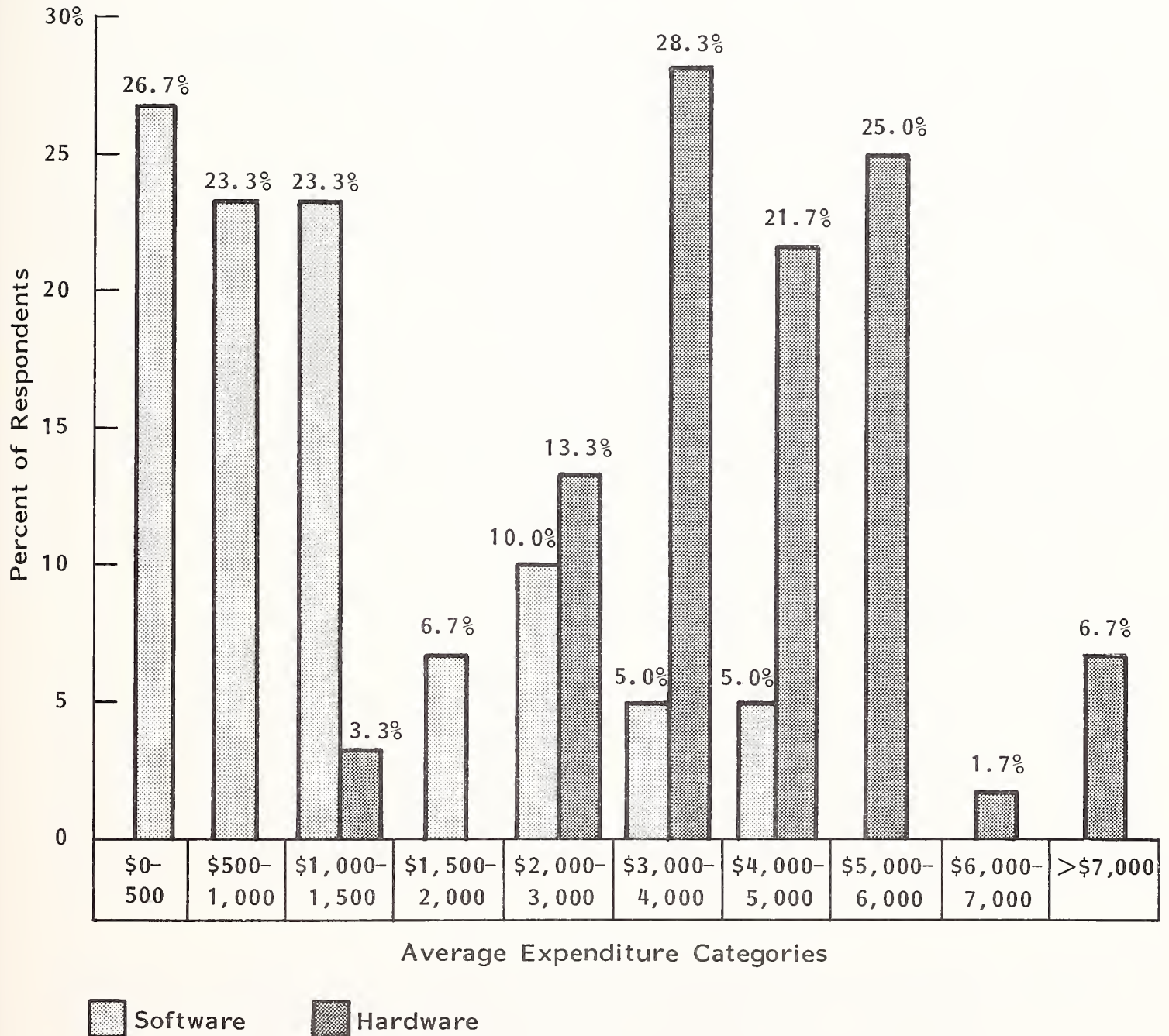
- The whole personal computer market, especially the software and services segment, is suffering from information overload. Much of the available information appears to be inaccurate, which complicates everyone's ability to understand the dynamics of the market.

  - Much of the published data INPUT reviewed as background for this study was confusing and often contradictory. Generally the data was based on filtered or misleading research.

  - The data for this report was gathered directly from actual users—not through any filtered sources like vendors or dealers. Therefore, it is as free as possible from contamination.

- Given the confusing information available, there is little reason to try to further analyze the conditions leading up to this report. In addition, there are as many opinions as players, so this report will look ahead to the driving forces in this market.

C.   DYNAMICS OF THE INDUSTRY

- The dynamics of this industry are contributing to continued difficulty in understanding the home computer market. Every tool available is needed to try to understand this market. The following section will deal with two aspects: the developments over the past two or three years and the developments that will emerge.

- Arising out of the early adopter phase of the home microcomputer market was an enormous wave of publicity that created a glamour market and lured many software developers to become involved.

INPU

- The early success of Apple, supported by VisiCalc, and the entry of IBM and its open-system strategy further fueled the fire of enthusiasm.

- The Lotus 1-2-3 success story and subsequent multimillion-dollar valuation of a single-product company furthered the image of personal computer product companies being instant successes.

- The anticipation of success in the home computer market attracted many new competitors, including major retailers and manufacturers that wanted to broaden their participation in the high end of the home market. This added even more congestion to an already crowded market area.

- These and other early developments almost overshadowed some equally important factors.

  - Industry overwhelmingly accepted the personal computer as a white collar productivity tool and backed its acceptance of these tools by buying them in large volumes. This has increased exposure to new users, many of whom have sufficient disposable income to acquire hardware and software for their own use.

  - Distribution channels have expanded both in retail stores and in value-added resellers, providing more alternatives to the buyers.

  - Although declining hardware prices help sell hardware, they put even more pressure on software pricing; there is little support for the existing price structure.

  - Discounting similar to the home electronics industry has seriously trimmed margins and taken away margins from vendors and retailers. These declining margins have discouraged suppliers from offering support and services required to attract first-time users.

INPUT

- A healthy capital market that existed one year ago has nearly dried up, putting new cash pressure on start-ups and contributing to a shakeout in software development companies.

- IBM has increased its emphasis on internally developed software, such as TopView, raising competitive issues for independent developers as well as discouraging new sources of investment for the independents.

- The following are emerging developments that further complicate the picture:

  - Comments from respondents indicate their expectations are increasing in terms of product functionality, support, training, and price performance.

  - "Try before you buy" attitudes are replacing the easy acceptance of well-promoted products. This attitude is a result of backlash to the practice of copy protection. Prior to the implementation of copy protection schemes, users could borrow software to try before purchasing the product and documentation.

  - Even with the comparatively low price of software products, users are seeking still lower prices or alternative pricing to justify additional procurements.

  - These buying criteria are further analyzed in Chapter V.

- Based on the interviews conducted, INPUT believes an important development is the increasing sophistication of the user. Users were eager to relate their wants and needs to the vendors and freely volunteered them during the interviews.

- 30 -

- INPUT also believes that videotex and home banking will develop as very powerful services. However, they must provide excellent interactive capabilities. Interaction via touchtone telephone will limit the acceptance of these services.

INPUT

IV RESPONDENT ANALYSIS

IV   RESPONDENT ANALYSIS

● This section includes user segmentation and analysis and INPUT's views of the emerging needs.

A.   SEGMENTATION

● The segmentation includes a detailed view by product type, by application type, by expenditures, by planned expenditures, and by home use versus business use. Also included is a more limited segmentation by key demographic factors, software purchases, and planned software purchases. Additional analysis of this data is contained in Chapter V.

● Exhibit IV-1 shows the family income, the business-related expenditures, and the application uses of the respondent group.

● The 60 respondents as a group used their systems for 155 different applications. Sixteen respondents, 28.6%, used their systems for three or more unique applications.

● The $40,000 to $60,000 group tended to spend the most for hardware. The over $60,000 group spent the most for software.

- 33 -

INPUT

EXHIBIT IV-1

RESPONDENTS BY INCOME
BUSINESS-RELATED APPLICATIONS

FAMILY INCOME	No. of Respon- dents	AVERAGE EXPENDITURE		USE MICRO- COMPUTER AT WORK	USE HOME COMPUTER FOR BUSINESS		
		Hardware	Software		One Appl.	Two Appl.	>Two Appl.
<$40,000	18	$3,944	$1,086	15	7	6	2
$40,000- 60,000	24	4,288	1,054	19	11	7	6
$60,000	16	3,969	1,367	15	5	4	8
Unknown	2	5,750	2,400	2	–	–	–
Total	60	$4,148	$1,192	51	23	17	16

INPU
MCHO

- Ninety-four percent of the respondents in the over $60,000 income range use a microcomputer at work. This represents the highest percent for any group.

- The over $60,000 group also comprises over 50% of the respondents using three or more applications.

- The over $60,000 group also demonstrated more activity by being the group with the lowest incidence of single-application usage.

- Exhibit IV-2 looks at similar data as Exhibit IV-1, with a segmentation by education level.

  - It appears there is a direct correlation between the average hardware/software expenditures and education: the higher the education level the greater the expenditures.

  - Education is also a contributor in activity level, with those of the highest education level being the most active (having 55.3% of the total uses).

- Exhibits IV-3 and IV-4 show the same breakdown for the home-related applications. As in the business segment, the expenditures and use increased in direct proportion with the education level.

  - The most active users, based on income, were those earning more than $40,000. They spent slightly more for their hardware and software combined, but they represented over 100% of the respondents using their systems for more than two home-related applications.

  - The over $60,000 group is spending 15% more than the average for software. This group also requests a high level of use, although the level is not as high as for the business-related segment.

INPUT

EXHIBIT IV-2

RESPONDENTS BY EDUCATION LEVEL
BUSINESS–RELATED APPLICATIONS

EDUCATION	No. of Respon-dents	AVERAGE EXPENDITURE		USE MICRO-COMPUTER AT WORK	USE HOME COMPUTER FOR BUSINESS		
		Hardware	Software		One Appl.	Two Appl.	>Two Appl.
<12 Years	3	$3,500	$ 800	3	1	0	2
12–16 Years	24	3,971	994	19	6	6	10
>16 Years	33	4,336	1,372	29	3	7	21
Total	60	$4,148	$1,192	51	10	13	33

INP
MCHO

EXHIBIT IV-3

RESPONDENTS BY INCOME
HOME-RELATED APPLICATIONS

INCOME	No. of Respon- dents	AVERAGE EXPENDITURE		USE MICRO- COMPUTER AT WORK	HOME-RELATED APPLICATIONS		
		Hardware	Software		One Appl.	Two Appl.	>Two Appl.
< $40,000	18	$3,944	$1,086	15	9	3	0
$40,000- 60,000	24	4,288	1,054	19	5	6	3
>$60,000	16	3,969	1,367	15	5	4	2
Unknown	2	5,750	2,400	2	-	-	-
Total	60	$4,148	$1,192	51	19	13	5

INPUT
MCHO

EXHIBIT IV-4

RESPONDENTS BY EDUCATION LEVEL
HOME-RELATED APPLICATIONS

EDUCATION	No. of Respon- dents	AVERAGE EXPENDITURE		USE MICRO- COMPUTER AT WORK	HOME-RELATED APPLICATIONS		
		Hardware	Software		One Appl.	Two Appl.	>Two Appl.
<12 Years	3	$3,500	$ 800	3	2	0	0
12-16 Years	24	3,971	994	19	6	4	3
>16 Years	33	4,336	1,372	29	12	9	2
Total	60	$4,148	$1,192	51	20	13	5

- The amount of total expenditures segmented by income and education is the subject of Exhibit IV-5. The data is similar to the previous exhibits, but important difference is that it is not averaged, so the reader may see the data from a different view.

- The income group with the highest expenditures was the $40,000-60,000 income group.

- The data also shows that the respondents having a post-graduate education level tended to spend more, which is consistent with the segment analysis in the average expenditures shown in the previous exhibits. The over-16-years education group accounted for 51.6% of the total expenditures.

- There was no discernible correlation among education level, income, and the level of expenditure.

- As shown in Exhibit IV-6, productivity tools accounted for 62.7% of the total for both home- and business-related applications.

    - The real significance of this is that users are getting comfortable with these tools.

    - As a result they will become candidates for more sophisticated applications, on-line data bases, electronic mail, and access to the corporate data bases.

- The small business segment is significant and will emerge as a very large market. This market will develop rapidly, primarily due to the low cost of entry and the emergence of more application software. Turnkey systems vendors are expected to dominate this market.

INPUT

EXHIBIT IV-5

EXPENDITURES BY INCOME AND EDUCATION

	NUMBER OF RESPONDENTS IN EXPENDITURE CATEGORY							
FAMILY INCOME	<$1,000	$1,000-2,000	$2,000-3,000	$3,000-4,000	$4,000-5,000	$5,000-6,000	$6,000-7,000	>$7,000
<$40,000	–	–	2	3	6	4	–	3
$40,000–60,000	–	–	–	9	6	3	3	4
>$60,000	–	2	–	–	3	3	3	4
Unknown	–	–	1	–	–	–	–	1
EDUCATION LEVEL								
<12 Years	–	–	–	3	4	–	–	–
12-16 Years	–	–	1	4	4	5	2	3
>16 Years	–	2	2	7	7	5	4	9

INPU
MCHO

EXHIBIT IV-6

TOTAL USE BY PRODUCT TYPE
BUSINESS AND HOME RELATED

Pie chart: Personal Productivity 13.4%, Small Business 10.6%, Personal Finance 11.1%, On-Line Database 5.0%, Access Company Data 5.0%, Other 5.0%, Shopping 0.6%, Productivity Tools 49.3%
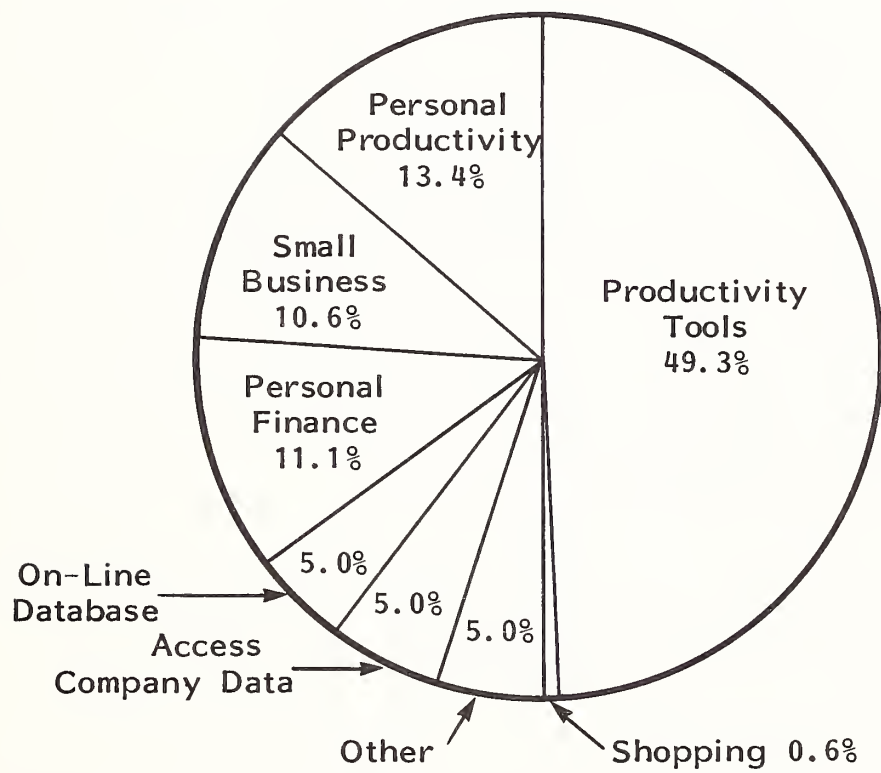
- Exhibit IV-7 shows the levels of computer use on a monthly basis of hours spent.

    - Productivity tools are even more dominant, accounting for 78.5% of the average available hours for business-related use.

    - Small business use is the only other category reflecting sizable monthly use.

    - Monthly use for home-related applications are divided fairly equally by product type.

- Personal finance applications were mostly simplistic checkbook balancing and home budgeting applications.   Only two respondents reported using home banking services.

B.   EMERGING DEVELOPMENTS

- The respondents cited a wide variety of factors that inhibit growth. The most frequently mentioned factors inhibiting growth were:

    - Cost for additional purchases.   Sixty-three percent of respondents stated they would buy if the price were reduced in half; over 75% of these had a specific product they wanted.   Also, nearly half of the respondents felt the reason for copying was cost related.

    - An inability to use the software.   This factor is too intangible to measure, however.   Many users cited poor ease of use, programs too complicated, documentation too hard to understand, lack of knowledge-able support available, and necessary training as obstacles to their use of the systems.

- 42 -

INPU

EXHIBIT IV-7

MONTHLY USE BY PRODUCT TYPE

Business Related

Productivity
Tools
78.5%

Other 0.3%

On-Line
Data Base 2.9%

Access
Company Data 2.0%

Small
Business
16.3%

Home Related

Other
26.8%

Personal
Productivity
39.7%

Personal
Finance
33.5%

INPUT
MCHO
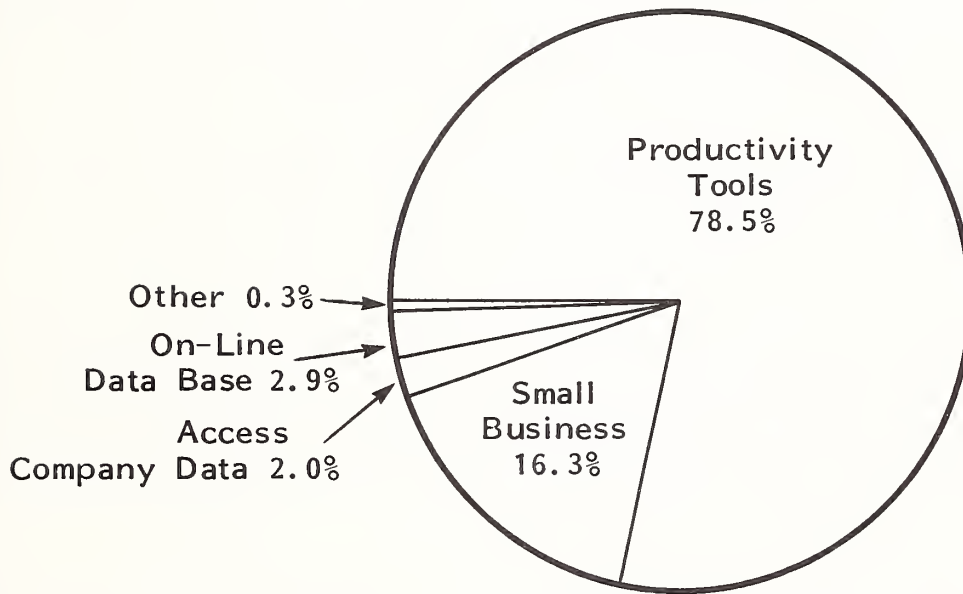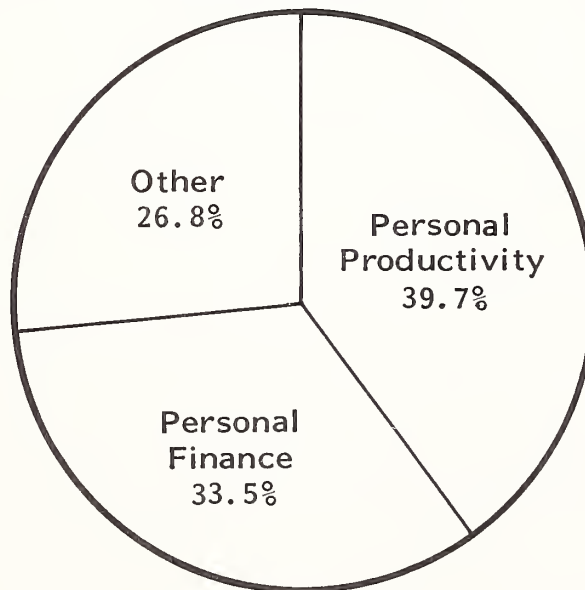
- Financial considerations. Among the small business users there is a link to economic conditions. Many of these users stated that they wanted to buy more but couldn't until their business increased.

- Uncertainty. Over 30% of the respondents would like to overcome this obstacle by being able to "try before they buy." Techniques like limited-function evaluation disks or in-store hands-on demonstration programs are possible approaches to this problem.

- Copy protection schemes. This is partly attitudinal but also partly due to true operational inconvenience.

- Since over 40% of respondents use only one application, INPUT believes another inhibitor is that many users simply don't know what other types of applications they could benefit from or aren't sufficiently knowledgeable to understand how to implement other applications.

- INPUT also probed for new areas of interest that would create new purchases and new opportunities for software and services vendors. The following lists some products that respondents said they would like to purchase but have been unable to find.

    - Macintosh-like products.

    - In-home training.

    - A low-cost financial package.

    - Encyclopedia software.

    - Catalogue shopping.

- 44 -

INPU

-     Simplified networking.

-     General ledger with history.

- Respondents also cited some interesting non-product areas on their wish lists:

  -     Customer support.

  -     Trained sales people.

  -     Usable documentation.

  -     User-friendly software.

- The respondents as a group had definite plans for software purchases during the next 12 months. However, few had any idea of their purchases beyond 12 months.

- The most frequently mentioned product types in their acquisition plans were word processing, accounting, and integrated systems. The highest planned expenditures were for the accounting software.

C.   RESPONDENT FORECAST

- The respondent data provides insight into the market for software and services for the installed base of home computers.

- This section will examine the current and projected expenditures against INPUT's projection of the addressable markets for software and services products.

INPUT

- Exhibit IV-8 shows the current and projected use by product types for business-related products. Also shown is INPUT's projection of the addressable market for these products. The delta represents the available market potential.

  - This analysis shows that word processing products have little room for growth within the respondent base. INPUT believes there will be room for growth when respondents upgrade as new products become available.

  - Assuming the 95% penetration is representative (current plus projected use), word processing vendors should enjoy substantial growth from new computer sales.

- The exhibit shows that the small business accounting segment is saturated. The fact is, there is substantial add-on potential available. For example, respondents can be expected to add application modules like accounts payable or receivable to their general ledger systems.

- Respondents plan to spend approximately $25,000 in the next 12 months. Also, these users should spend almost $37,000 beyond the 12 month period.

  - The available market, then, appears to be as large or larger than the initial market.

  - This view of the data supports INPUT's recommendation to concentrate on developing the respondent base.

- Exhibit IV-9 shows the market for home-related products, which, like the business-related sector, is also dominated by word processing and integrated software.

INP

EXHIBIT IV-8

PENETRATION OF RESPONDENT BASE — BUSINESS-RELATED USE

PRODUCT TYPE	PERCENT OF CURRENT USERS	PERCENT OF PROJECTED USERS IN 12 MONTHS	% Of Available Users	% Total Addressable Market
Product. Tools				
− Word Processing	83.3%	11.7%	3.0%	98%
− Integrated Software	45.0	13.3	21.7	80
− Data Base	20.0	5.0	15.0	40
− Spread-sheet	18.3	1.7	30.0	50
− Other	11.7	1.7	16.4	30
Small Business				
− Accounting	23.3	6.7	−	30
− Financial	10.0	3.3	11.7	25
− Management	3.3	0.0	6.7	10
− Other	1.7	1.7	6.4	10
Access to Company Data	18.3	10.0	16.7	45
On-line Data Base Access	18.3	10.0	31.7	60
Other	5.0	0.0	15.0	20

Current/Planned/Projected Expenditures by Respondent Group: 60 Respondents	
Spent to Date	$43,314
Planned 12 Months	$24,979
Projected Available from Group	$36,958

INPUT
MCHO

EXHIBIT IV-9

PENETRATION OF RESPONDENT BASE — HOME-RELATED USE

PRODUCT TYPE	PERCENT OF CURRENT USERS	PERCENT OF PROJECTED USERS/12 MONTHS	% Of Available Respts.	% Total Addressable Market
Personal Productivity				
– Word Processing	30.0%	5.0%	15.0%	50%
– Data Base	6.7	1.7	11.6	20
– Integrated Software	8.3	0.0	11.7	20
– Other	3.3	1.7	15.0	30
Personal Finance				
– Integrated Software	23.3	3.3	3.4	30
– Data Base	3.3	0.0	6.7	10
– Spreadsheet	3.3	0.0	6.7	10
– Word Processing	3.3	0.0	11.7	15
– Other	6.7	10.0	13.3	30
Shopping	1.7	1.7	16.6	20
Environment	0.0	0.0	10.0	10
Other	13.3	13.3	13.4	40

Current/Planned/Projected Expenditures by Respondent Group: 60 Respondents	
Spent to Date by Group	$ 3,955
Planned Within 12 Months	$ 3,725
Available Potential from Group	$18,092

INPU
MCHO

- The available market for home-related products will develop as respondents become more sophisticated users and begin to see new applications.

- The "other" category under personal finance shows a large available market due to respondents' interest in application-specific software. This also applies to the primary "other" category.

- Although the respondent data does not support the development of the shopping services market, INPUT believes this will happen due to the apparent willingness of major companies to develop this market.

- This exhibit also shows that respondents plan to spend $3,725 in the next 12 months and are expected to spend over $18,000 beyond the 12-month period. The available market will develop as more users develop interest in application-specific software.

- Exhibit IV-10 demonstrates the effect of the respondent data extrapolated to the assumptions of one million and two million units installed.

  - Assuming that one and one-half million microcomputers exceeding $1,000 sales price are installed, the available add-on market is over $1.5 billion for software and services from the current installed base. This potential will increase as more units are installed in the home.

  - The respondent forecast for 1985 shows that the potential for software and services should exceed $500 million from the installed base of approximately 1.5 million home computers.

INPUT

EXHIBIT IV-10

SOFTWARE EXPENDITURES FOR INSTALLED BASE

Business Related ($ Millions)

UNITS INSTALLED	EXPENDITURES TO DATE	FORECASTED EXPENDITURES FOR 12 MONTHS	AVAILABLE MARKET BEYOND 12 MONTHS
1,000,000	$ 720	$310	$ 720
2,000,000	1,400	620	1,440

Home Related ($ Millions)

UNITS INSTALLED	EXPENDITURES TO DATE	FORECASTED EXPENDITURES FOR 12 MONTHS	AVAILABLE MARKET BEYOND 12 MONTHS
1,000,000	$ 65	$46	$315
2,000,000	130	92	630

● Forecasted 12-month expenditures are factored by 0.75 to reflect planned expenditures that will be delayed beyond 12 months.

V ANALYSIS OF HOME COMPUTER USE

V   ANALYSIS OF HOME COMPUTER USE

- This section includes INPUT's analysis of general computer use in the home, current applications, planned future applications, and the relationship between home and business use.

A.   GENERAL COMPUTER USE

- Since the primary emphasis of this report was on business-related applications, it is not surprising that IBM was the dominant vendor. Their rate of dominance, 83% of the installed base of home computers of the respondent group, is higher than expected.

- Of IBM's share, over 75% were PC-class machines, which means there is a large potential base to upgrade with hard disks or to more powerful configurations. Virtually all the respondents had room for significant expansion by adding memory, disk drives, and other peripherals.

- Respondents in general were more interested in talking about their software, but they knew more about their expenditures and planned expenditures for hardware. Respondents also had definite ideas for software vendors in terms of pricing, support, and other issues that will be covered later in this chapter.

INPUT

- Over one-third of the respondents condone copying of software. However, three-quarters of the respondents believe that most users have used copies.

    - Cost savings was cited as the rationale for copying by two-thirds of the respondents.

    - Other comments that explain why users might copy software included "(users) should be able to share," "it's the responsibility of the vendor," and "its too easy to do."

- The business-related applications outweighed the home-related uses by two to one. Similarly there were almost twice as many respondents performing business-related applications.

- Exhibit V-1 details the average expenditures and the average monthly use by each of the major product categories.

- Exhibit V-2 shows the major decision factors cited by the respondents.

- Key buying criteria for software and service products varied by level of expenditure.

    - Product capabilities were rated the most important factor in the buying decision, and documentation was rated third overall. However, for those who spent over $1,500 documentation became a factor of primary importance. The fact that documentation ranks so high suggests that it has high value and may be a weapon to combat the copying issue.

    - Since most respondents use their systems for work-related applications, the importance of a product being usable both at home and at work was not considered as important as expected.

- 52 -

EXHIBIT V-1

PRODUCT TYPES BY
AVERAGE EXPENDITURE AND AVERAGE MONTHLY USE

APPLICATION	AVERAGE HOURS PER MONTH	AVERAGE AMOUNT SPENT IN LAST 12 MONTHS
Business Related		
On-line Data Base Access	10	$ 559
Productivity Tools	24	382
Access Company Data	6	92
Small Business	23	576
Other	2	2,533
Home Related		
Personal Financial	10	$ 114
Personal Productivity	10	192
Shopping	0	0
Environment	0	0
Other	23	275

Average Hours Per Month scale: 0   5   10   15   20   25

- 53 -

INPUT
MCHO

EXHIBIT V-2

RESPONDENT RATING - MAJOR DECISION
FACTORS CONSIDERED BY HOME USERS

DECISION FACTORS RATED BY USERS	ALL RESPONDENTS		RESPONDENTS SPENDING > $1,500 ON SOFTWARE	
	RANK	RATINGS	RANK	RATINGS
Product Capabilities	1	4.5	1	4.5
Ease of Use	2	4.2	3	4.2
Documentation	3	4.0	1	4.5
Work Relatedness	4	3.9	2	3.8
Vendor Reputation	5	3.5	4	3.6
Customer Support	6	3.2	7	2.8
Training	7	2.9	6	3.0
Product Cost	8	2.8	5	3.2
Reference/Friend	9	2.6	8	2.7
Reference/Magazine	10	2.4	9	2.2
Reference/Advertising	11	2.1	10	1.9
Ref./Computer Store	12	2.0	10	1.9

Ratings: 1-5 Scale with 1 = Not Important and 5 = Very Important.

INPU
MCHO

- The fact that the work-relatedness category ranked in the top five is evidence that respondents represent the more serious home computer user.

- For the respondents spending more than $1,500, product cost moved up in significance, meaning this group will shop for lower price more than the overall set of respondents.

B. ANALYSIS OF CURRENT APPLICATIONS

- Exhibit V-3 shows the mix of products used for business-related applications, including the average amount of expenditures and the average hours of use per month. The average expenditures for productivity tools are not included for users who stated that products were supplied by their employers. However, hourly use is still included.

- Exhibit V-4 shows similar data for home-related applications.

- In terms of both expenditures and monthly use, business-related applications outpaced home-related applications by a wide margin, as was expected. This is partly due to 17 respondents having their small businesses in their home.

- As expected, there is a correlation between using microcomputers at work and buying them for use at home. It also appears that many of the applications are an extension of users' tasks at work or a result of users' bringing work home.

- Productivity tools contribute to the majority of applications for business use. Some further breakdown reveals that:

INPUT

EXHIBIT V-3

FREQUENCY OF USE FOR BUSINESS-RELATED PRODUCTS

PRODUCT TYPE	RANK	NUMBER OF USERS	AVERAGE DOLLAR EXPENDITURE IN LAST 12 MONTHS	RANK	AVERAGE MONTHLY USE HOURS/MONTH	RANK
Productivity Tool	1	107	$340	4	23*	1
– Word Processing	1	50	348	2	25	2
– Integrated Software	2	27	312	4	27	1
– Data Base	3	12	363	1	12	5
– Spreadsheet	4	11	316	3	20	3
– Other	5	7	125	5	13	4
Small Business	2	23	$641	2	22*	2
– Accounting	1	14	831	1	25	2
– Financial	2	6	209	3	12	3
– Management	3	2	325	2	8	4
– Other	3	1	80	N/A	0	1
Access to Company Data	3	11	$92	5	6	4
On-line Data Base Access	3	11	$559	3	8	3
Other	5	3	$1,300	1	3	5

*Average of the category.

- 56 -

INPUT
MCHO

EXHIBIT V-4

FREQUENCY OF USE FOR HOME-RELATED PRODUCTS

PRODUCT TYPE	RANK	NUMBER OF USERS	AVERAGE DOLLAR EXPENDITURE IN LAST 12 MONTHS	RANK	AVERAGE MONTHLY USE HOURS/MONTH	RANK
Personal Productivity	1	29	$213	2	9*	2
- Word Processing	1	18	340	1	8	3
- Data Base	3	4	125	3	18	1
- Integrated Software	2	5	125	3	10	2
- Other	4	2	198	2	5	4
Personal Finance	2	24	$133	3	9*	2
- Integrated Systems	1	14	150	3	6	4
- Data Base	3	2	0	N/A	6	4
- Spreadsheet	3	2	450	1	13	2
- Word Processing	3	2	0	N/A	11	3
- Other	2	4	200	2	20	1
Shopping	4	1	$0	N/A	0	N/A
Environment	N/A	0	$0	N/A	0	N/A
Other	3	8	$275	1	23	1

*Average of the category.

INPUT
MCHO

- The most common application reported was word processing, with 32% of respondents reporting such use. Average expenditures for word processing products was $348.

- Two and one-half times more users reported using word processing for business than for home applications.

- The average monthly use for word processing was 25 hours for business-related applications.

● Productivity tools and small business applications were the most heavily used products for business use.

- Productivity tools account for the most heavy use per month, with an average of 23 hours. The single largest product type in terms of monthly use is integrated software, responsible for 27 hours per month.

- The second largest expenditure by product type is accounting, with an average of $831. This includes one respondent with a $4,000 expenditure. Without this individual the average was $523. Accounting also ranked high in terms of monthly use, with an average of 25 hours per month.

- The largest expenditure was in the "other" category, which included large expenditures by respondents who are operating information processing service businesses in their homes.

● It is interesting that productivity tools ranked fourth in average expenditures and first in complaints about being too highly priced.

● The biggest differences between business-related and home-related expenditures are due to respondents' assigning the primary buying motive as being business related. This means that the average expenditure is not duplicated here and accounts for some product types showing zero expenditure. The

- 58 -

INPU

expenditures reflect only those respondents citing expenditures directly related to home applications.

- Productivity was a leader in home-related use, and word processing was again the dominant application, with 62% of the applications being word-processing related.

- Shopping and environmental applications were not significant and did not even generate much interest during the interviews.

- There are fewer respondents with expenditures for the home-related uses and their expenditures are significantly less than for the business-related applications. In most instances this reflects the purchase of products with lower selling prices.

- Overall, the hourly use for home-related applications is less than half that for business-related purposes, with the exception of data base productivity products, for which the home use is higher than the business-related applications, and word processing, which is high in both categories.

- The other product type category in Exhibit V-4 includes one industrious user who spent 135 hours per month using Turbo Pascal to develop software for his master's degree in computer science.
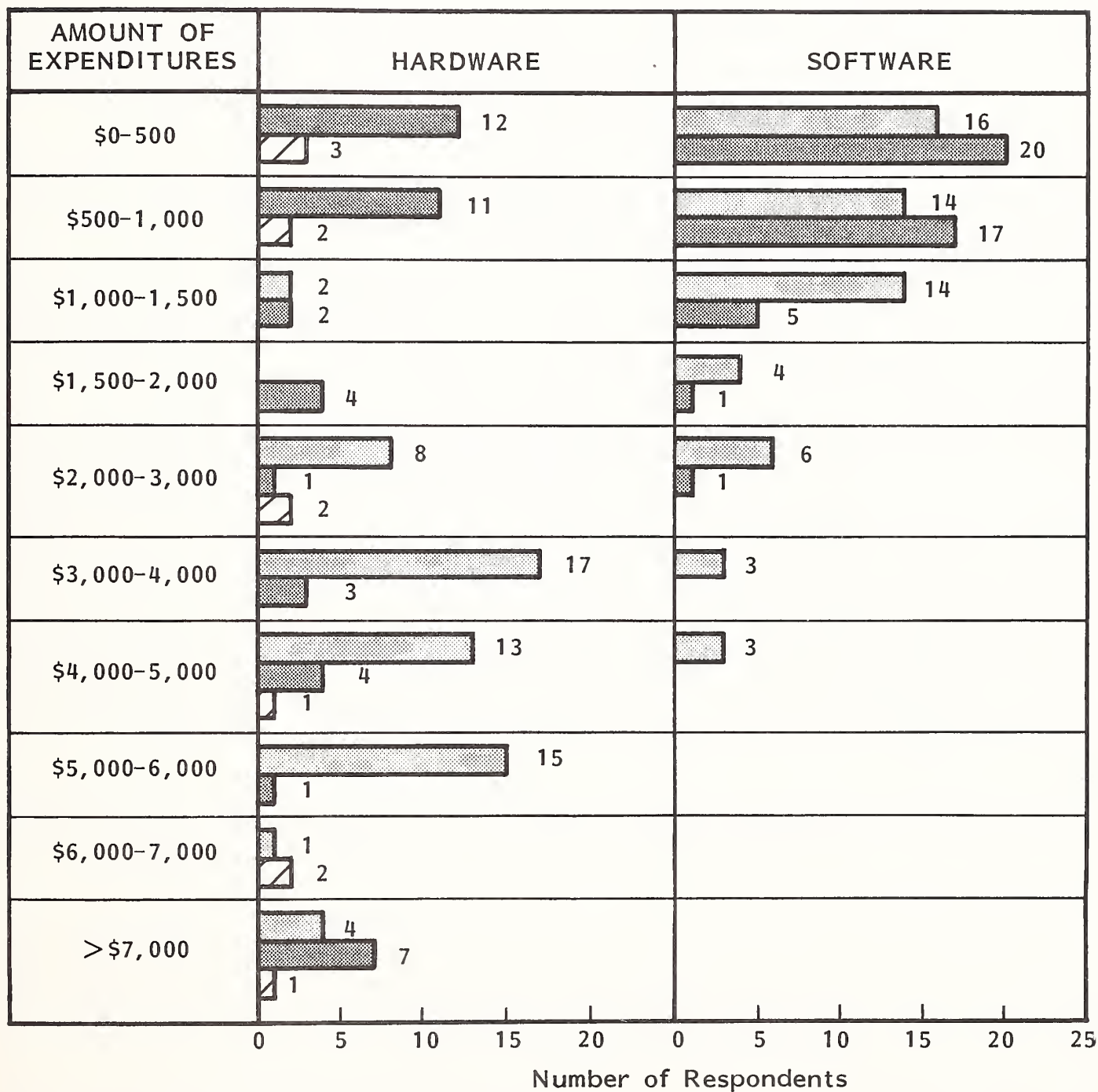
C. ANALYSIS OF FUTURE APPLICATIONS

- This report collected data on users' planned expenditures for both hardware and software for two time periods: 12 months and 24 months. More detail was gathered for software than for hardware.

INPUT

- Exhibit V-5 shows the current and planned expenditures for both hardware and software for the next two years. Over 70% of the respondents plan expenditures in next 12 months. Only 10% plan expenditures over the second 12 months--and then only for hardware.

- Respondents are planning to spend an average of $1,958 for hardware and hardware add-on products over the next 12 months.

  - Seventy-five percent of the respondents are planning hardware purchases in the next 12 months.

  - The best opportunities for hardware vendors are in peripherals, with printers being the most frequently mentioned.

- One reason the planned hardware expenditures shown in the exhibit are high is that eight respondents are planning to buy ten additional computers at an average cost of $5,650 within the next 12 months. These respondents also tended to be in the categories of higher expenditures for software as well.

  - Fifty-one percent of the current hardware falls in the $3,000 to $5,000 category. Although only 8.4% spent over $6,000, 16.7% of the respondents plan to spend over $6,000 in the next 12 months, primarily on IBM's AT.

  - Eight more respondents reported that they planned to buy additional systems in the 12-to-24-month period. Assuming that all respondents planning such expenditures do indeed buy additional systems, that would mean 27% of the respondents plan to buy additional systems within the next 24 months.

  - Removing the system purchases shows that users will spend an average of $608 on peripheral add-on hardware and that nearly 80% of the respondents will make these types of purchases in the next 24 months.

- 60 -

INPL

EXHIBIT V-5

CURRENT AND PLANNED EXPENDITURES BY RESPONDENTS

AMOUNT OF EXPENDITURES	HARDWARE	SOFTWARE
$0-500	12 / 3	16 / 20
$500-1,000	11 / 2	14 / 17
$1,000-1,500	2 / 2	14 / 5
$1,500-2,000	4	4 / 1
$2,000-3,000	8 / 1 / 2	6 / 1
$3,000-4,000	17 / 3	3
$4,000-5,000	13 / 4 / 1	3
$5,000-6,000	15 / 1	
$6,000-7,000	1 / 2	
>$7,000	4 / 7 / 1	

Number of Respondents

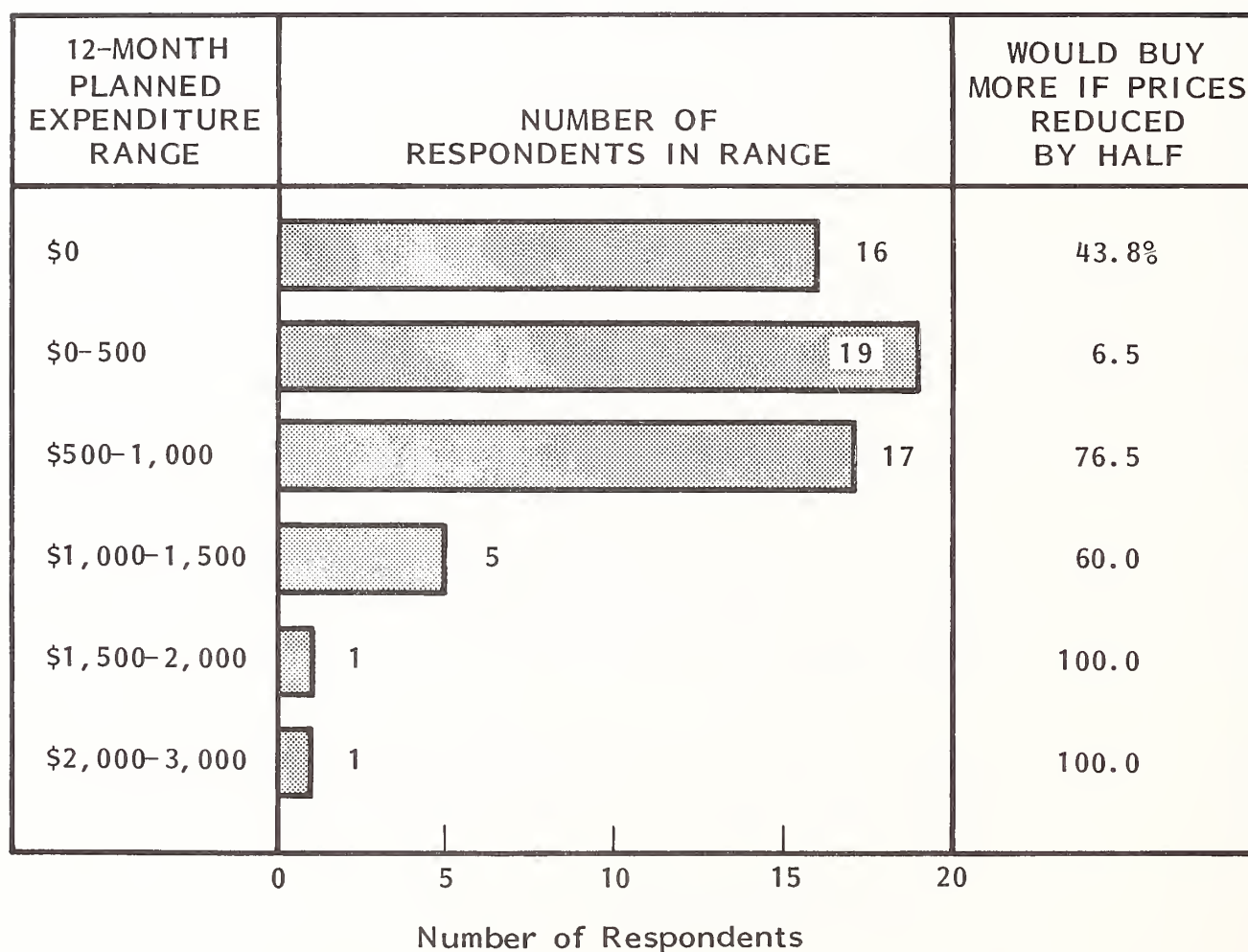|		HARDWARE	SOFTWARE
	Current	60	60
	12 Months	42	44
	24 Months	10	0

INPUT
MCHO

- Although many respondents had plans for hardware purchases beyond the next 12 months, none had ideas relative to their software purchases and very few planned to spend significant amounts for software, even in the next 12 months.

    - 81.4% of the respondents planning to buy software planned to spend less than $1,000, and 32.5% planned to spend less than $500.

- The ratio of hardware to software expenditures shifts from a 2.9-to-1 ratio in 1984 to a 2.5-to-1 ratio in 1985.

    - Deleting the expenditures for new computers and related software, ratio is 1-to-1 in 1985.

    - Deleting new computer purchases reveals that users will still increase their investment in hardware by 50% in the next 12 months. These hardware purchases do not appear to create significant software revenue.

- On the average, users plan to increase their total software expenditures from $1,192 to $1,609 within 12 months, a 35% increase. Products identified were primarily productivity tools and small business applications software.

    - Of these amounts, pure services account for 5.5% of the current total and will account for less than 3% of the total in 12 months.

    - INPUT believes the potential for services is much greater than indicated by the respondents. This potential is available to vendors who can demonstrate value to these users.

- INPUT believes that the results shown for software and services in this exhibit could be three to four times the expenditures planned. Whether these expend-

INPU

itures happen will be a result of the vendors' ability to educate the market for existing software and their willingness to develop new innovative products.

- The most successful products for home-related use will be designed so they are self-instructional and address problems and applications users can relate to.

- The other challenge in realizing the potential of the home market is to address the distribution issue and allow penetration of what appears to be a large market for software for the small business segment—people running businesses out of their homes. INPUT believes this is a major opportunity.

• Exhibit V-6 shows the planned expenditures for the next 12 months by expenditure range and the percent of respondents who would purchase software and services if prices were reduced in half.

- Although the statistics show some sensitivity, they do not reflect the comments of many respondents who said they would buy two to three times as much software at the reduced levels. They also felt the reduced prices would discourage piracy since users are willing to pay for documentation.

- Sixty-three percent responded with a specific product they would buy at the reduced price level. The most frequent mentions went to:

  . Integrated software.

  . Accounting packages.

  . Word processing.

INPUT

EXHIBIT V-6

PLANNED SOFTWARE AND SERVICES EXPENDITURES
CURRENT PRICES AND REDUCED PRICES

12-MONTH PLANNED EXPENDITURE RANGE	NUMBER OF RESPONDENTS IN RANGE	WOULD BUY MORE IF PRICES REDUCED BY HALF
$0	16	43.8%
$0–500	19	6.5
$500–1,000	17	76.5
$1,000–1,500	5	60.0
$1,500–2,000	1	100.0
$2,000–3,000	1	100.0

Number of Respondents

INPUT
MCHO

- In the $0-to-$500 category, only 6.5% said they would increase their expenditures if the price were reduced, implying that the "right" price is somewhere in the $250 area or lower. INPUT believes that software under $100 could result in real impulse buying, even responding to coupon-clipping type purchasing.

  - Of those responding, 43.8% who planned not to purchase said they would at the reduced price. This would yield an additional 12% to the addressable market.

  - There is a latent market that is addressable, since many of these respondents know by product what they would buy and they would like to buy in the next 12 months.

D.   RELATIONSHIP BETWEEN HOME AND WORK USE

- The respondents tended to assign their expenditures to the business-related activities. This confuses the overall relationship between home and business-related expenditures. On the other hand, the average hours used for each category was easier for them to identify and account for.

- The use for home-related activity underscores a previous statement that the demand from the home market is not strong. This may also be a result of the vendors' ability to develop products that users perceive as having value in the home.

- Exhibit V-7 shows the use and expenditures for home-related and business-related applications. The lower number for expenditures reflects the average of the total group, and the larger number reflects only those who have made purchases in the last 12 months. Presumably, the others purchased their software more than 12 months ago, but some respondents stated their software was provided by their employers.

INPUT

EXHIBIT V-7

HOME AND BUSINESS APPLICATIONS
MONTHLY USE AND 12-MONTH EXPENDITURES

APPLICATION	AVERAGE HOURS PER MONTH	AVERAGE TOTAL EXPENDITURES IN LAST 12 MONTHS*	AVERAGE EXPENDITURES BY ALL RESPONDENTS IN LAST 12 MONTHS
Business Related			
– On-Line Data Base Access	10	$559	$355
– Productivity Tools	24	382	229
– Access Company Data	6	92	17
– Small Business	23	576	471
– Other	2	2,533	1,900
Total		$ 495	$ 300
Home Related			
– Personal Financial	10	114	33
– Personal Productivity	10	192	66
– Shopping	0	0	0
– Environment	0	0	0
– Other	23	275	172
Total		$185	$ 66

0   5   10   15   20   25

* Reflects only respondents who made expenditures in the last 12 months.

- 66 -

INPU
MCHO

- The exhibit reflects that respondents spend nearly $60 per hour for on-line data base access services. More importantly, these are expenditures that can be expected to be ongoing.

- Over 80% of the heaviest home computer use is by respondents who also use microcomputers at work. They also tend to be among the largest home-related application users. This suggests that the more these systems are used, the more comfortable the user becomes, and the more they use them. The questions this raises for vendors are:

  - How do you educate users to make them more comfortable and consequently make them buy more software?

  - How can greater penetration of the corporate market be accomplished, and how can this be leveraged to increase sales to the home computer user?

  - What design criteria are appropriate as a model for the user interface? The vendors should study the most used business software to look for clues that would allow the user to get comfortable with the software prior to purchasing that software.

  - The business applications are so dominant that the overall average use drops from 21 hours for business-related use to only 19 hours for the total use as a group when home use is included. Exhibit V-8 shows the relationship between the home and business use as well as a view of the use of education and entertainment applications by the respondents.

  - The low end of the range is a reflection of the use being secondary or tertiary in the respondents' mix of use.

INPUT

EXHIBIT V-8

TOTAL HOME COMPUTER APPLICATION USE
BY RESPONDENTS

TYPE OF USE	RANK	AVERAGE HOURS/MONTH	RANGE (Hours)	
			Minimum	Maximum
Business-Related Applications	1	21	1	200
Home-Related Applications	2	11	2	135
Education and Entertainment Applications	3	9	2	32
Total Average Hours	–	19	1	200

INPU
MCHO

- The high end of the range reflects one respondent operating a technical writing business at home.

- INPUT believes that the business-related applications are almost a direct flow or extension of the workplace. The most important workplace, to date, has been the very large companies. There is no reason not to believe this same phenomenon won't carry over into all medium to large-sized corporations, since the need to improve productivity is not restricted to the very large companies.

- Another factor to consider is the ability for workers to work from their homes, either with standalone systems or with systems tied into corporate mainframes. Although little has happened to propel this consideration, INPUT believes there are other factors (such as the cost of transportation) pushing this consideration toward reality.

INPUT

VI CONCLUSIONS AND RECOMMENDATIONS

VI   CONCLUSIONS AND RECOMMENDATIONS

- This section provides recommendations for vendors on opportunities in an expanding market--the installed base of microcomputers in the home. This section will also cover what INPUT sees as some of the keys for success in the home computer market.

- The home market of working adults is a vast and diverse market. Segmentation such as that performed in this report is essential to understanding this market. INPUT believes that vendors need even more detailed segmentation to do an adequate marketing job.

- Marketing is the key to success; without solid marketing vendors will not succeed. This is most critical for vendors using nondirect channels of distribution.

- There are two distinct selling strategies for software and services vendors: targeting for selling products with the hardware purchase, and targeting for selling to the installed base. INPUT believes that every vendor needs to decide which of these will be the primary strategy and then must put the majority of its resources into executing that strategy.

- Vendors need to value price their products. In general the perceived value of a productivity tool is not as high as that of an application package.

INPUT

- Most vendors appear to be overcome by the urge for immediate results. This creates an opportunity for other vendors to capitalize on the former's largest asset--its installed base. INPUT does not know of any vendors formulating strategies designed to exploit the building and nurturing of a base of loyal customers.

A.   OPPORTUNITIES AND STRATEGIES

- With all the discussions in the media over the last year one might think the software business was a dead industry. INPUT believes that, although there has been some shakeout, the potential for software and service vendors continues to provide high growth opportunity. These opportunities are available in the market but are realizable only when vendors apply the keys to success listed below.

- The most obvious opportunities are for productivity tools that have a high degree of penetration in the installed base but continue to offer large potential from first-time microcomputer buyers.

    - The primary strategy for this market must be to concentrate on the first-time buyers at the point of purchase. This means that the primary distribution channel is the retail store, and that the vendor must compete for shelf space, must have programs to train sales personnel, and so on.

    - Other distribution strategies for vendors of productivity tools to consider are the over 3,000 resellers of microcomputers that could add to their sales with a product line of the vendor's tools. Since there are fewer layers in this channel, vendors may also be able to achieve higher margins.

- 72 -

INPU

- The next most obvious market is for accounting applications. This is really two markets, one for small businesses at home and another for CPAs and accountants working out of their homes. These applications offer add-on sales and offer vendors higher per-purchase sales as well as opportunities for support and training revenue streams.

- There should be numerous opportunities within the broad category of professionals who work at home or do work at home.

    - Vendors might consider offering data base products and services for specialized needs. For example, marketing consultants use research data ranging from general census data to specialized data for specific industries and need retrieval and data manipulation and statistical analysis.

    - Vendors might target a specialized group--for instance, corporate planners who are familiar with computer-based decision systems. In addition, this group would be a prime candidate for products that support access to company data.

- The fact that work use will lead to home use offers several strategies to vendors.

    - Target marketing strategies to the end-user computing department in large companies with the intent of capturing the user early in the cycle. Alternatives could include regular or demonstration copies of products to be provided on a trial basis, presentation and training for end-user groups, targeting one functional department for penetration to gain a foothold in the account, and targeting industry associations.

        . The premise is to get a foothold at the departmental level and to expand internally. The foothold allows vendors to build a base in the account to nurture and grow.

INPUT

. This can also be an alternative to retail distribution and a vehicle for distributing specialized products that require special training or support.

- Given the high penetration of productivity tools, the vendors of those tools could expand significantly by developing and selling "application templates."

  - These templates would also increase product acceptance by making the products more immediately useful.

  - By offering these templates, vendors may be able to reevaluate their pricing and offer a lower entry price to attract new users.

- Pricing and packaging offer opportunities to established vendors to extend their reach. Although price may not be the primary factor in product decision, INPUT feels it is one of the major inhibitors to new sales. A lower initial price may cause buyers to "buy before they try" and create new customers for add-on sales. Some plausible scenarios are:

  - Taking one product and packaging it into three by breaking it into modules, with the initial module having a low entry-level price. Subsequent modules could even be sold as upgrades or telemarketed directly to the base "disguised" as part of a service contract. This strategy could alienate retailers, however, unless vendors make cooperative arrangements, in advance, with their retailers.

  - Packaging integrated products in combinations of modules that would appeal to target markets. For example, the word processor, graphics, and communications modules could be packaged for executives or the spreadsheet and graphics modules could be offered for financial managers. The promotion program could be targeted to these groups, identifying that other modules were available for them to grow into.

- 74 -

INPU

This concept of upgradable products will become more important as a product strategy in the next two years.

- The office represents a major opportunity for software and service vendors since they already have a presence in these types of applications. Aggressive participation will require that vendors think big.

  - In planning the architecture, the key players to design for are professionals and white-collar workers. Secretaries will not be important as design targets, decision influencers, or users. The major design criteria will be productivity, responsiveness to business changes, and customer service.

  - INPUT believes that vendors wishing to penetrate the office market could "paraphrase" the business strategy of the timesharing vendors of the early 1970s and find a winning strategy. Essentially, that means focusing on high-yield end-user departments and selling, implementing, and supporting departmental systems.

    . These departments have needs and will spend money on solutions at the departmental level.

    . Often, these will start out as solutions for small, one-time needs but will grow into very large systems.

  - INPUT feels the practice of departmental computing is here to stay and that vendors should plan to leverage these opportunities.

- There are opportunities in alliances. For example, multiuser system vendors may need products to round out an industry-specific product line. Or software vendors may wish to extend distribution to a specific industry group. There are many possibilities for creative marketers.

INPUT

- Earlier in this report INPUT stated that home shopping services would need interactive interfaces to gain acceptance. The other critical need is low-cost communications. INPUT believes that service vendors, with their existing expertise in communications, have the ability to address this emerging opportunity. Properly executed, this type of program could become one of the compelling products that increases sales of home computers. Although this is potentially a high-risk strategy, it could also be very high reward.

- INPUT believes that the microcomputer base has developed in size so that it now offers a very large opportunity for services vendors to capitalize on the professional user, many of whom travel extensively for business.

  - Major airports are places where business travelers frequently spend more time than they would like. Therefore, if business travelers knew there was an airport computer center where they could go to work and to access their company computers for communications and data access, they would have "portable" computers merely by carrying one or two diskettes in their briefcases.

  - A similar scenario can be developed for hotels in major business centers where travelers could work in the comfort of their rooms. This could also be a selling tool for software since travelers could try out new programs without the software vendor having to worry about copy protection, demos, etc.

B.   KEYS TO SUCCESS

- This section revealing keys to success in the home computer market, will focus on issues of tactical marketing. The execution of marketing plans and programs based on sound marketing strategies will probably prove the difference between the winners and other competitors during the balance of the 1980s.

- 76 -

- Pricing and distribution strategies are closely tied and are critical for success. Therefore, INPUT offers the following suggestions:

  - Consider alliances mentioned earlier. This is especially good where a layer can be eliminated. Although the current distributor system may help start new products into the market, it also has created a discounting structure that tends to reward only the "hit" programs.

  - Consider regional independent sales organizations as a distribution channel. These localized groups may offer an excellent way to penetrate second- or third-tier markets.

  - All vendors, wherever possible, should have upgradable product lines-- i.e., an entry program, an intermediate program, and an advanced program with corresponding price structure. Pricing strategy should be designed first to provide a profit and then to build a customer base. The concept of an entry program is to take price out of the buying decision and to make it easy for the customer to get started with the vendor's product.

    . Once the customer is captured, consider offering programs like service contracts that allow the user to upgrade in increments. For example, provide an order blank for the next level product in the front of the documentation.

    . Maintain a mailing list and keep the customer base informed on product enhancements, new products, and the company success.

  - Pricing should also be based on the primary target. INPUT believes, for example, that pricing should be uniquely planned for selected market segments. For the home market, vendors should consider the following groups: work-related productivity, business in the home,

INPUT

entertainment, and education. The threshold price for an entry-level productivity tool is probably $100, but for an accounting package it may be $300.

- Market segmentation is a must, especially for vendors selling through retail channels. These vendors must segment at least by key demographics and primary business function. Industry segmentation is recommended. This segmentation is primarily needed to make effective use of advertising and promotional budgets.

- Product design has developed to the extent that vendors must have slick packaging. However, the real payoff will come from well-designed products that can get users excited about the product and it's user interface. For an example, vendors need only go to a retail computer store to observe the way Macintosh software captivates users.

- Micro-to-mainframe linkage, mostly at the application level, will become mandatory to attract the work-related user. These users will demand mainframe query on a selective basis.

- Vendors are advised to establish a marketing system that forces constant attention to the following three questions:

  - To whom should the vendor sell?

  - What should the vendor sell?

  - How should the vendor sell its products to the targeted customers?

- Although it may seem contrary to the emphasis on marketing in this report, vendors should constantly encourage innovative ideas and new concepts. As stated before, INPUT believes that really compelling products can create a wave of new first-time users and provide high growth opportunities.

INPUT

APPENDIX A: QUESTIONNAIRE

SOFTWARE AND SERVICES FOR HOME COMPUTERS
USER QUESTIONNAIRE

1. What computer(s) do you currently have at home? _____

   Approximate Price $_____

   What is the approximate price of your current software $_____

2. Do you use a microcomputer at work? Yes ☐   No ☐

   Is it similar to or the same as the one you have at home? Yes ☐   No ☐

3. We are interested in your Business-Related and your Home-Related use of your computer at home, in the following categories:

   a. Do you use your computer for any of the following Business-Related Applications?

Application	Y/N	Product Used	Average Hours/Month	$ Spent in Last 12 Months
On-Line Data Base Access				
Productivity Tools				
Access Company Data				
Small Business				
Other				

   b. Do you use your system for any of the following Home-Related Applications?

Application	Y/N	Product Used	Average Hours/Month	$ Spent in Last 12 Months
Personal Financial				
Personal Productivity				
Shopping				
Environment				
Other				

INPUT

4. How many hours per month is your computer used for Education and enter-
   tainment applications? _____

5. In the next 2 years what are your plans to acquire any of the following:

   a. Hardware – Another Micro _____ Brand _____ Cost $____ _____ 12 Months

   _____ 24 Months

   – Peripherals and Accessories

   _____ 12 Months Cost $ _____ 24 Months Cost $ _____

   _____ $ _____ $ _____

   _____ $ _____ $ _____

b. Software

	Product	Primary Application	12 Months	12 Months	Planned Expenditure
Business Related					
On-Line Data Base Access					
Productivity Tools					
Access Company Data					
Small Business					
Other					
Home Related					
Personal Financial					
Personal Productivity					
Shopping					
Environment					
Other					

INPUT

6. Please rate the following major factors in your software and service decision.
Rating: 1 = Not Very Important, 5 = Very Important.

Product Cost _____ Work Related _____ Ease of Use _____ Training _____

Production Capabilities _____ Documentation _____ Vendor's Reputation _____

Customer Support _____ Reference from Friend _____ from Magazine _____

from Computer Store _____ Other _____ (Specify) _____

7. In the product prices were reduced in half would you increase your purchases
of software and services? _____ By what percent would you increase your
purchases? _____ Why? _____

8. Are there any other factors that would result in your buying more or less
software or services over the next 2 years? _____

_____

_____

9. How do you feel about the issue of copying or borrowing software rather than
buying your own? O.K. _____ O.K. Because _____ Not O.K. _____

Do you think most people do this? If so, why? _____

_____

10. What products and services would you like to have that you have not found
to be available? _____

_____

11. Additional Information: Family Income < $40,000 ☐ $40,000–60,000 ☐ > $60,000 ☐
Education Level < 12 Years ☐ 12–16 Years ☐ More ☐

12. Do you have any additional comments or suggestions? _____

_____

_____

_____

_____

INPUT