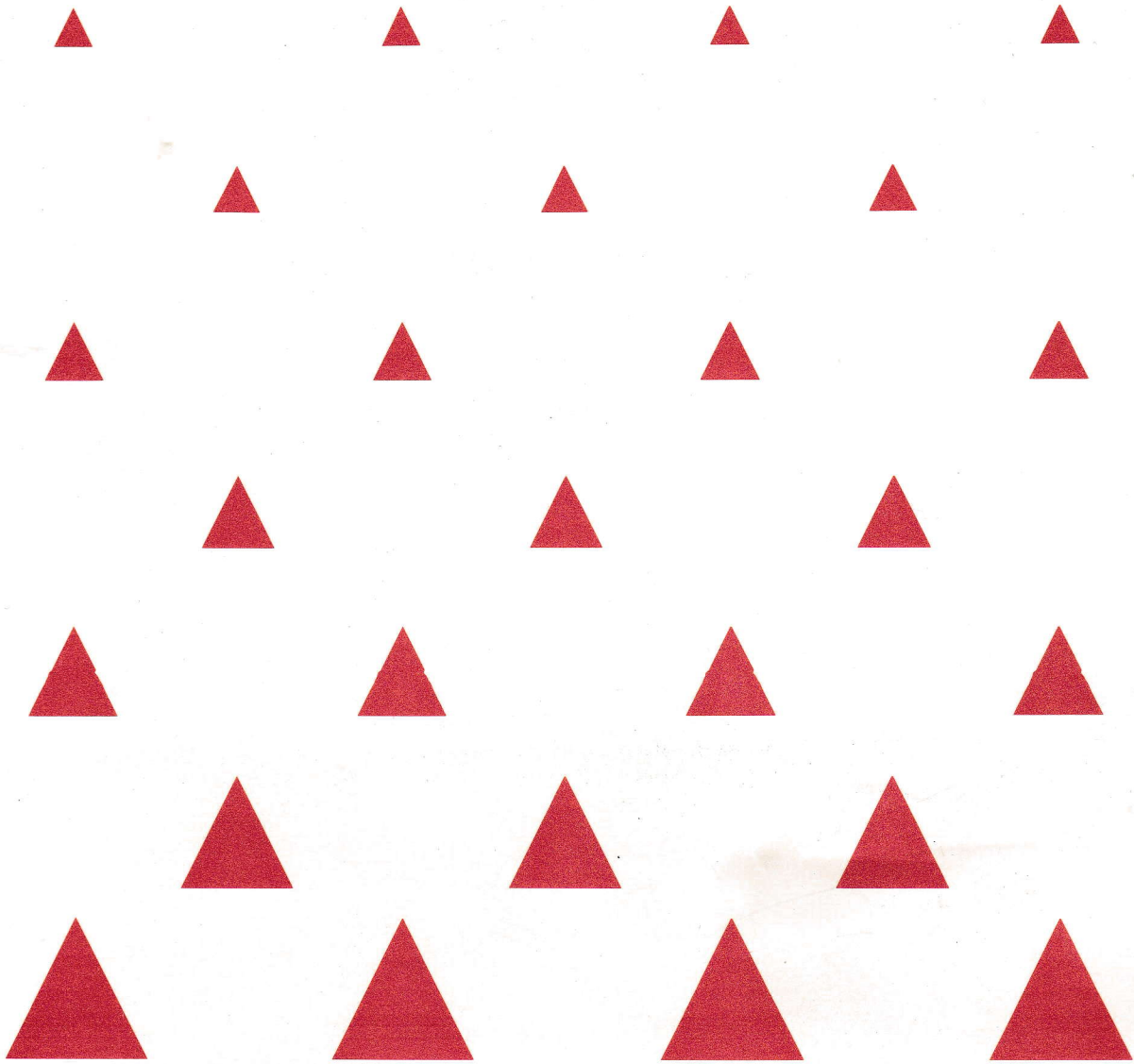




Second Annual Home Computer Market Forum

August 29-31, 1983
The Mark Hopkins, San Francisco

**FUTURE
COMPUTING
INCORPORATED**



Second Annual Home Computer Market Forum

August 29-31, 1983
The Mark Hopkins, San Francisco

For information about current seminars
and market research publications,
contact:

Future Computing Incorporated
900 Canyon Creek Center
Richardson, Texas 75080
214 783-9375
TELEX 80-4294

**FUTURE
COMPUTING
INCORPORATED**

Second Annual Home Computer Market Forum

Future Computing's Model requires 256K IBM PC
or PC-compatible VisiCalc™ for use with the IBM PC,
Columbia Data MPC, COMPAQ, or Dynalogue Hyperion.
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INCORPORATED**

Agenda

Future Computing's Second Annual Home Computer Market Forum

Monday, August 29, 1983

8:00 - 9:00 A.M. Registration

9:00 - 10:15 A.M. Session 1: The Home Computer Market

- Dr. Portia Isaacson, Dr. Egil Juliussen, and Bill Ablondi; *VP PC Alice Brown VP Retail GP*
Ben Ward, VP PC Tech GP
An analysis of the home computer market.
How big is it?
Who are the current leaders in hardware and software?

10:15 - 10:30 A.M. Coffee break

10:30 - 12:00 P.M. Session 2: Hardware Manufacturers

- Don Kingsborough, President, Sales *& Distribution* Division, Atari Products Company
- Chris Bowman, ~~Vice President~~ Home/Education Marketing, Apple Computer
- Myrddin Jones, Vice President Marketing, Commodore Business Machines
- Dan Ross, Vice President, Timex Computer Corporation

12:00 - 1:30 P.M. Luncheon Speaker: Ed Auer
President
CBS Software

1:30 - 3:00 P.M. Session 3: Software Publishers

- William Bowman, Chairman, Spinnaker Software
- Ben Tenn, Vice President, Walt Disney Personal Computer Software
- Roger Buoy, Executive Vice President, Scholastic, Inc.

3:00 - 3:15 P.M. Coffee Break

3:15 - 5:00 P.M. Session 4: Home Computer Retailing

- Linwood A. Lacy, Jr., Senior Vice President/Merchandising, Best Products
- Darrol Davis, Computer Buyer, Pacific Stereo
- Gene Younger, Senior Computer Buyer, LaBelle's Distributing

5:00 - 6:00 P.M. Hosted Reception for attendees and speakers

Tuesday, August 30, 1983

8:30 - 9:00 A.M. Continental Breakfast

9:00 - 10:15 A.M. Session 5: Advertising

- Bruce Silverman, Executive Vice President, Executive Creative Director, Bozell & Jacobs, Inc.
- Peter Bates, Senior Vice President, Ally & Gargano, Inc.

10:15 - 10:30 A.M. Coffee break

10:30 - 12:00 P.M. Session 6: Software

- James Levy, President and Chief Executive Officer, Activision
- Ted Gillam, President, T. G. Products
- Ken Williams, President/Chief Executive Officer, Sierra On-Line

12:00 - 1:30 P.M. Luncheon speaker: John Rowley, President/Chief Operating Officer, Digital Research

1:30 - 3:00 P.M. Session 7: Software Distribution

- David Blumstein, Executive Vice President, Softsel
- William Mitschrich, President, Service Software
- Bob Brownell, General Manager, Senior Vice President, SKU

3:00 - 3:15 P.M. Coffee break

3:15 - 5:00 P.M. Session 8: Software

- Ken Grant, Executive Vice President, Synapse Software
- David Gordon, President, Datamost
- Jerry Jewell, President, Sirius Software

5:00 - 6:30 P.M. Hosted Reception for attendees and speakers

Wednesday, August 31, 1983

8:30 - 9:00 A.M. Continental Breakfast

9:00 - 10:15 A.M. Session 9: Software

- Trip Hawkins, President, Electronic Arts
- Malcolm E.A. Kaufman, President, Malcolm E.A. Kaufman & Associates
- Sat Tara Singh Khalsa, President, Kriya Systems, Inc.

10:15 - 10:30 A.M. Coffee break

10:30 - 12:00 P.M. Session 10: MSX Home Computer Standard

- Harry Fox, President, Spectravideo
- Kazuhiko Nishi, Chairman, ASCII Group (Japan) and Vice President of Planning, Microsoft, Inc.

12:00 - 1:30 P.M. Luncheon speaker: Regis McKenna, President
Regis McKenna Public Relations

1:30 - 3:00 P.M. Session 11: Software

- Ted Morgan, President, HES
- Paul Terrell, President, Romox
- Doug Carlston, President, Broderbund

3:00 - 3:15 P.M. Coffee Break

3:15 - 4:45 P.M. Session 12: Home Computer Market - Future Trends

- Dr. Portia Isaacson, Dr. Egil Juliussen, and Bill Ablondi

Market projections. Future trends in technology, distribution channels and requirements for success. The role of de facto standards; likely candidates.

4:45 P.M. Adjourn

FUTURE COMPUTING'S SECOND ANNUAL HOME COMPUTER MARKET FORUM
Speaker List

Dr. Portia Isaacson
President & Chief Executive Officer
Future Computing Incorporated

Dr. Egil Juliussen
Chairman & Senior Vice President, Market Research
Future Computing

William F. Ablondi
Vice President
Personal Computer Market Group

James Levy
President
Activision

Peter Bates
Senior Vice President
Ally and Gargano, Inc.

Christopher Bowman
Vice President Home/Education Marketing
Apple Computer

Don Kingsborough
President, Sales Division
Atari Products Company

Linwood A. Lacy, Jr.
Senior Vice President Merchandising
Best Products

Bruce Silverman
Executive Vice President
Executive Creative Director
Bozell & Jacobs, Inc.

Doug Carlston
President
Broderbund

Ed Auer
President
CBS Software

Myrddin Jones
Vice President Marketing
Commodore Business Machines

David Gordon
President
Datamost

John Rowley
President and Chief Operating Officer
Digital Research

Trip Hawkins
President
Electronic Arts

Ted Morgan
President
HES

Malcolm E. A. Kaufman
President
Malcolm E. A. Kaufman & Associates

Sat Tara Singh Khalsa
President
Kriya Systems Inc.

Gene Younger
Senior Computer Buyer
LaBelle's Distributing

Kazuhiko (Kay) Nishi
Chairman, ASCII Group
Vice President, Planning
Microsoft

Darrol Davis
Computer Buyer
Pacific Stereo

Regis McKenna
President
Regis McKenna Public Relations

Paul Terrell
President
Romox

Roger Buoy
Executive Vice President
Scholastic, Inc.

William Mitschrich
President
Service Software

Ken Williams
President & Chief Executive Officer
Sierra On-Line

Jerry Jewell
President
Sirius Software

Bob Brownell
General Manager
Senior Vice President
SKU

David Blumstein
Executive Vice President
Softsel

Harry Fox
President
Spectravideo

William Bowman
Chairman
Spinnaker Software

Ken Grant
Executive Vice President
Synapse Software

Ted Gillam
President
T.G. Products

Dan Ross
Vice President
Timex Computer Corporation

Ben Tenn
Vice President
Walt Disney Personal Computer Software

FUTURE COMPUTING'S
HOME COMPUTER MARKET FORUM - SAN FRANCISCO
AUGUST 29-31 1983

Attendee List

Paul Anderson	RCA Corporation •
John Antonchick	Apple Computer
Pat Ashworth	Curtis Mathes
Marcia Auclin	IBM Corporation
Ed Auer	CBS Software •
Gale Baker	Tax Management
Mark Barbeau	Disc Washer
Peter Barron	Texas Instruments
Douglas Bate	Parker Brothers
Peter Bates	Ally & Gargano Inc. •
Andi Benjamin	Activision
Sue Berman	Apple Computer
David Blumstein	Softsel
Colin S. Boettcher	Agency De L'Informentique
George Borkowski	Transaction Technology
Jim Boudreau	Child World •
Christopher Bowman	Apple Computer •
William Bowman	Spinnaker Software •
Richard Brayden	Wicat Systems •
Marty Brochstein	HFD-Computerware
Bob Brownell	SKU
Peter Bud	IBM Corporation
Roger M. Buoy	Scholastic •
Bill Campbell	Softpak Incorporated
Doug Carlston	Broderbund •
James R. Carter	R 2 E of America
Kathy Casper	American Bell
Michael F. Cavanagh	Cavanagh Associates
Ed Coffee	IBM Corporation
Roy Cohen	Child World •
Barbara Cole	Video Library
Taylor Coleman	Software Land Corp.
Roger B. Collins	Xante Corporation
Gary Crader	McDonnell-Douglas Automation Co.
Carlton Crosier	X O R Corporation
Darrol Davis	Pacific Stereo •
Fred N. Davis	Xante Corporation
Logan Davis	G.T.E. Business Comm. Systems
Robert DeMarzo	Computer Retail News
Al Diekmann	American Bell
Mike Dishman	Microtel •
Paula Doe	Electronic Business
Robert Donohue-Evans	Computer Retail News

Mark Duchesne
Bill Dunn
Dave Dunwiddle
Esther Dyson

J. Christopher Early
John Emanuelson
Kenmore Emerson
John R. Ervin
Gordon Eubanks
James Evans

Bill L. Fairfield
Jerry Falstrom
Robert B. Field
Ken Flowers
Harry Fox
Adriano Franchitti
Jack Freedman
Robert Freeman

Angel Garcia
Michael W. Garone
Artur Gazdowski
Rick Gibson
Ted Gillam
Henry C. Goldenberg
Greg Golian
David Gordon
Phillippe Gotschell
Bob Graham
Ken Grant
Tom Gross
Fred Gruber
Armagan Gurbuz

John Hagel
Doug Harvey
Nancy Hawkins
Trip Hawkins
Bill Hawthorne
Jeff Heimbuck
Jeff Hoff
Douglas Holt
Darrell Howard
Joe Howell
Cynthia Hudson
James Hunter
Robert Hyde

Steve Irving

Arlene Jaffe
Joyce Jennings
Jerry Jewel

Koala Technologies
IBM Corporation
Snugli Incorporated
Rosen Research

ComputerLand Corporation
Homecomputer Software Inc.
Time-Life Incorporated
Xante Corporation
Digital Research
G.P. Technologies Inc.

Valmont Incorporated
WEA Corporation
Bessemer Venture Partners
Texas Instruments
Spectravideo
Olivetti
New York Times
Fairchild Publishing

IBM Corporation
Chalk Board Inc.
Citibank N.A.
Androbot
T G Products
Enrich/Ohaus
Texas Instruments
Datamost
Atari
IBM-Canada Limited
Synapse Software
Liebman Enterprises
Time Magazine
IBM Corporation

Atari
Pickwick Distributing Co.
ComputerLand Corporation
Electronic Arts
IBM Corporation
Atari
Activision
IBM Corporation
General Telephone Company
Snugli Incorporated
Osborne/McGraw-Hill
Howard W. Sams Co.
Western Union Telegraph Co.

Epson America

Lord, Geller, Federico, Einstein
IBM Corporation
Sirius Software

Guy Johnson
Paul Johnson
Myrddin Jones
Pamela Joseph

Donna Karney
Malcolm E.A. Kaufman
Patrick Keliher
Debra Kenny
Patrick Ketchum
Sat Tara Singh Khalsa
H. Khosrowshahi
Don Kingsborough
Jason Klein
Hidehiko Kobiayshi
Gary Koffler
Ken Kontski
Richard E. Koon
Mitsuo Kurobe

Scott Lackey
Linwood A. Lacy
Don Lahr
James Lake
Laura Landron
Chyang Lee
Dick Lehrberg
John Leininger
Phil Lemmons
Greg Lerman
James Levy
Brad Little
Robert Litwiller
Scott Llewellyn
Mark Lyon

Jeff MacCallum
David Marguardt
Andrew Martinez
Rich Mauro
Jim McCullaugh
Bob McGoldrick
Regis McKenna
Joan Melling
Dave Mitchell
Rodney Mitchell
William Mitschrich
Bruce Montgomery
O.W. Moody
Tom Moorman
Ted D. Morgan
Nancy Morrice

Carol Naiman
Mike Newell
Kazuhiko Nishi
Catherine Norton

IBM Corporation
Time-Life Books
Commodore
VCA

IBM Corporation
Malcolm E.A. Kaufman & Associates
Billboard Publishing
Interface Age
Dataseft Inc.
Kriya Systems Inc.
Future Shop
Atari
Bain Ad Company
Fuji Corporation
Datamost
General Datacomm
IBM Corporation
Mitsui & Company (USA)

Lord, Geller, Federico, Einstein
Best Products
IBM Corporation
Hitachi America Ltd.
Wall Street Journal • *Call for Union*
IBM-Canada Limited
Activision
Apple Computer
Byte Magazine
La Belles Best Products
Activision
Gould Incorporated
IBM Corporation
Dataseft Inc.
Expert Systems Inc.

Chain Store Age, GM Ed.
Technology Venture Investors
IBM Corporation
IBM Corporation
Software Merchandising
IBM Corporation
Regis McKenna Public Relations
Apple Computer
Wilshire Foam Products
GENQUEST
Service Software
Montgomery & Company Inc.
Control Data Corporation
IBM Corporation
Human Engineering Software
Dilithium Press

Western Union
IBM Corporation
Microsoft
L.F. Rothschild

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Alan Oppenheimer
Jerry Orenstein

John Parker
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Kim Peters
Dr. Mary Ann Peters
Jorge Pita
Tom Pomeroy
Andrea Porfilio
Michele Preston
Edward Prokop

Ruth Ann Quindlan

Vern Raburn
Lisa Raleigh
Robert H. Ranson
Bill Raven
Tom Restaino
Erin Rhein
Lou Richman
Paul Richter
Bow Rodgers
Michael Rogers
Dan Ross
John Rowley

Jim Sanders
Steve Sayles
Lee Schaeffer
Tom Schoeffling
Jim Schmuck
Bill Senke
Martha Sessums
Dan Shafer
Steve Shinbori
Bruce Silverman
Steve Smith
Dr. Douglas S. Soloman
Ed Streeter
Gary Swanson
Paul Sweeting
Alan Swimmer
Mike Szeto

Jon Tedesco
Ben Tenn
Paul Terrell
Fred Thorlin
Mark Tiddens
Joseph E. Toplyn
Beth Trachtenberg
Sid Tsuruhara

Sharp Electronics
Apple Computer
Coleco Industries

Knoware Incorporated
Olivetti
Time Incorporated
Apple Computer
Discos CBS International
Activision
Time Incorporated
L.F. Rothschild
Databar Corporation

Alex Brown & Sons

Symantec Corporation
ISO World
Chalk Board Inc.
IBM Corporation
Activision
Chase Manhattan Bank
Fortune Magazine
Los Angeles Times
Human Engineering Software
Newsweek
Timex
Digital Research

Texas Instruments
Kodak
Apple Computer
Xante Corporation
3M Corporation
Formaster Corporation
Apple Computer
Homecomputer Software Inc.
Sony Corporation
Bozell & Jacobs
IBM Corporation
Apple Computer
La Belles Best Products
Dilithium Press
Video Marketing Game Letter
Infostore
IBM Corporation

Homecomputer Software Inc.
Walt Disney PC Software
Romox
Atari
Key Tronic Corporation
Columbia Pictures Industries Inc.
GENQUEST
NEC Home Electronics USA

← Call for lunch

Peter Van Cylenburg
Leslie Viragh
Joel Voelz

Larry Weiss
David Westfall
Pat Wheeler
Dick Whittington
Ken Williams
Stephen Williams
Charles Wingis
Gary Wood

Gene Younger

Judith Ziajka
Martin Zwilling

Texas Instruments
Intratec Incorporated
Texas Instruments

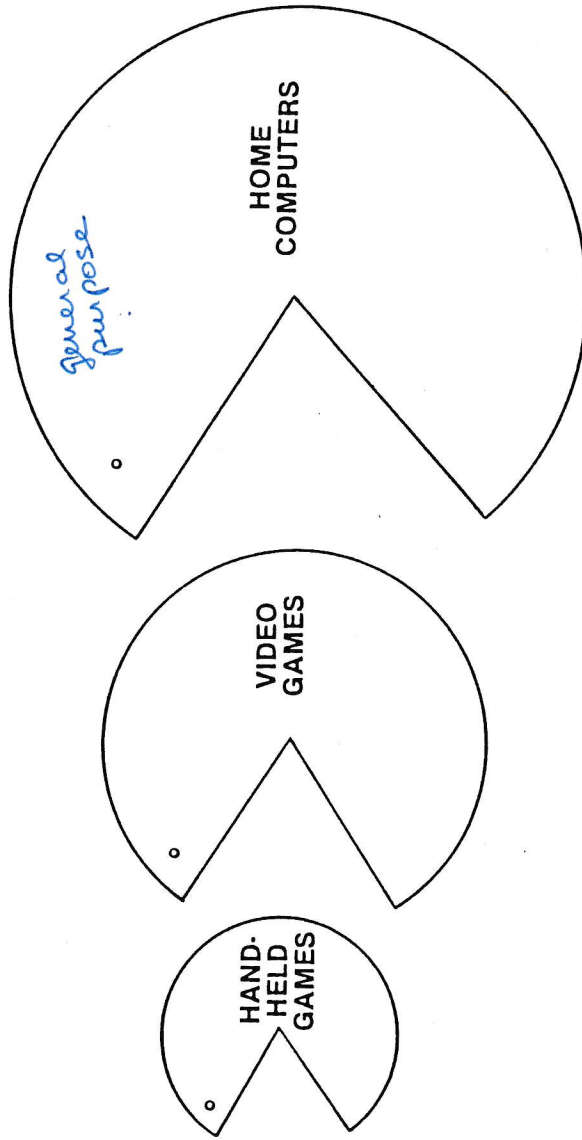
WEA Corporation
American Home Video Group
Time-Life Books
Texas Instruments
Sierra On-Line
Prudential Insurance Co.
Advertising Age
Chalk Board Inc.

La Belles Best Products

Osborne/McGraw-Hill
IBM Corporation

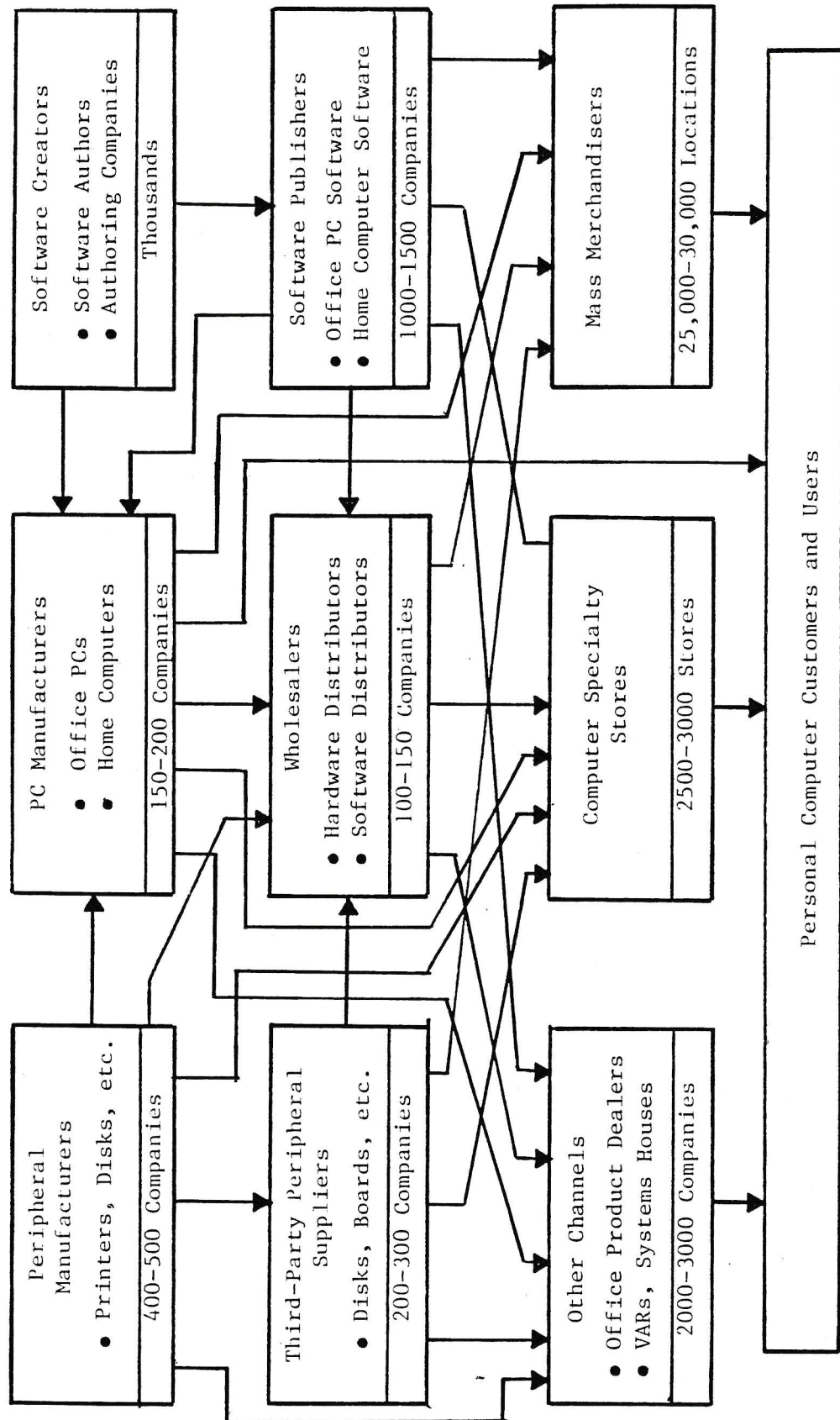
SESSION 1

Whither Video Games?

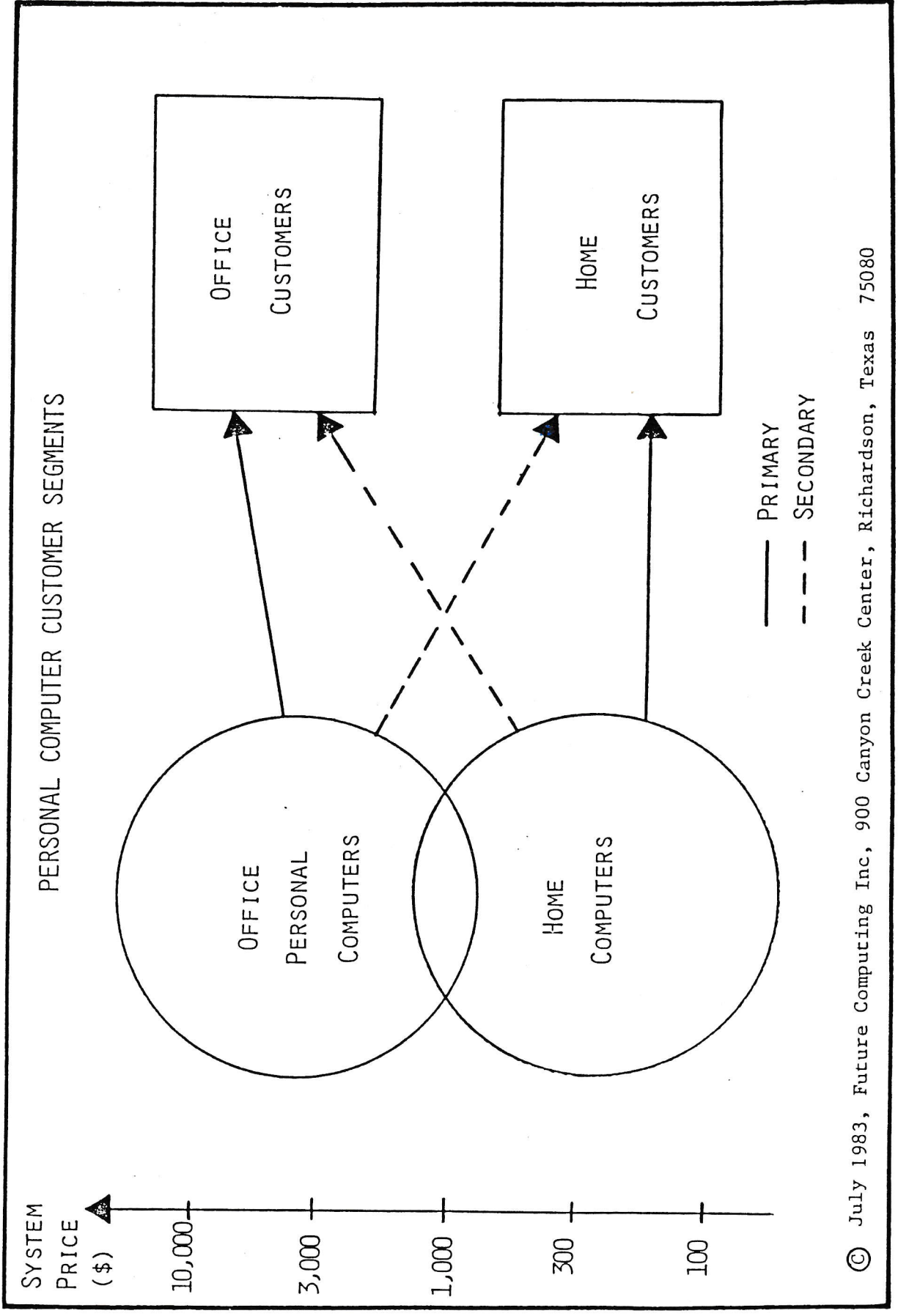


Lebe Consumer Electronics Market

PERSONAL COMPUTER INDUSTRY PARTICIPANTS



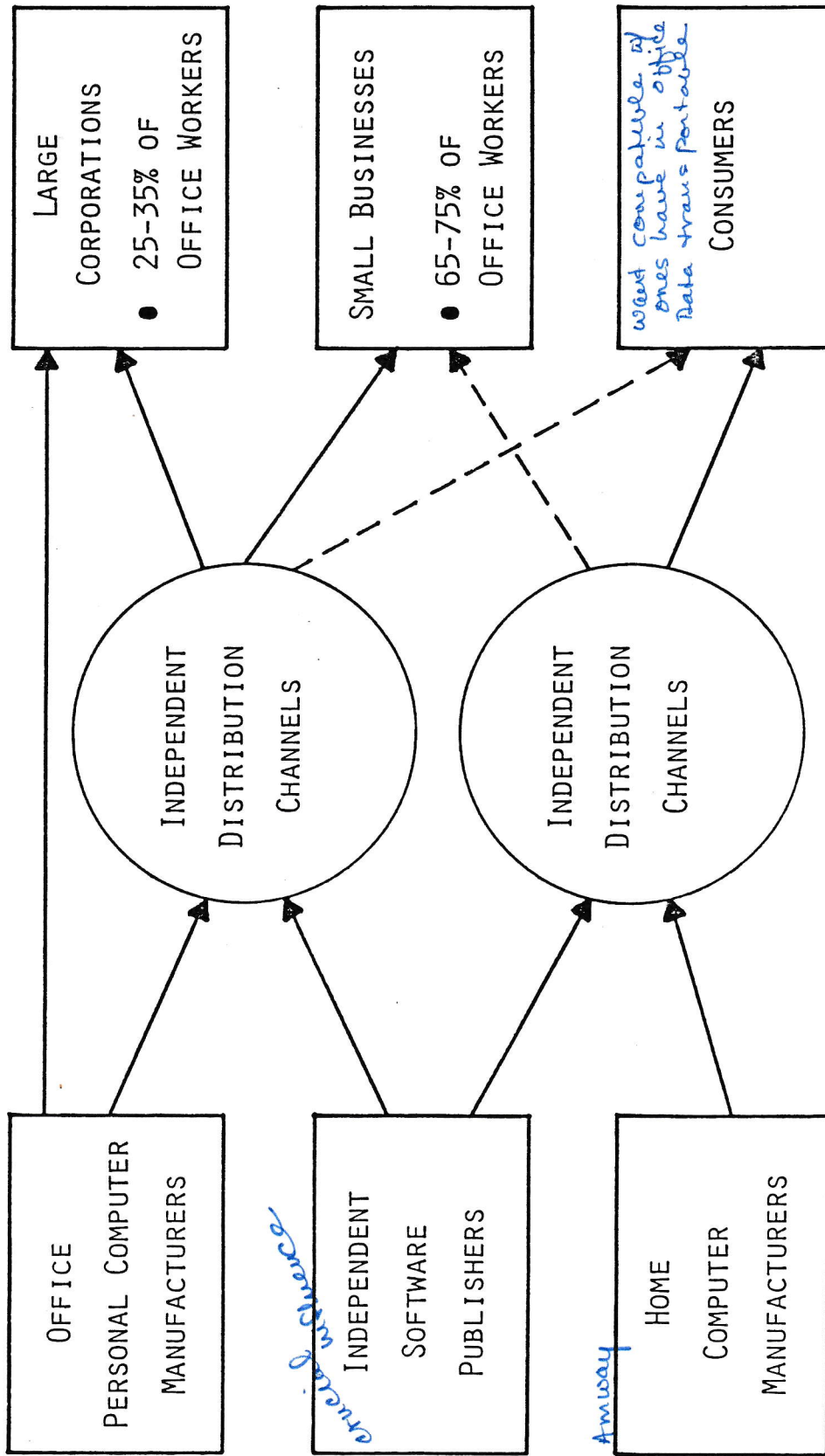
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PERSONAL COMPUTER MARKET DYNAMICS		
COMPUTER PRICE (\$)	MARKET/DISTRIBUTION	PRODUCTS
MINICOMPUTERS	<ul style="list-style-type: none"> ● LOCKED-IN THIRD-PARTY DISTRIBUTION ● VOLUME DISCOUNT PRICING 	<ul style="list-style-type: none"> ● PROPRIETARY HARDWARE ● PROPRIETARY SOFTWARE
OFFICE PERSONAL COMPUTERS	<ul style="list-style-type: none"> ● CONTROLLED THIRD-PARTY DISTRIBUTION ● NO MIXING OF INCOMPATIBLE DISTRIBUTION CHANNELS ● DISCOUNT DEPENDS ON FUNCTION PERFORMED ● CUSTOMER SUPPORT REQUIRES AN AVERAGE 30% MARGIN 	<ul style="list-style-type: none"> ● DE FACTO STANDARD HARDWARE ● DE FACTO STANDARD SOFTWARE ● THIRD-PARTY SOFTWARE PUBLISHERS CRUCIAL ● THIRD-PARTY HARDWARE COMPANIES IMPORTANT
<p><i>New strategies</i></p> <p><i>2nd functionality</i> <i>1/2 raise price</i> <i>1st basic computers</i> <i>1/2 lose price</i></p> <p>HOME COMPUTERS</p>	<ul style="list-style-type: none"> ● NEARLY UNCONTROLLED THIRD-PARTY DISTRIBUTION <i>wholesalers, mass merch., Airlines etc.</i> ● LIMITED PROFIT FROM COMPUTER CONSOLE ● PROFIT FROM SOFTWARE AND PERIPHERALS ● TV ADVERTISING REQUIRED 	<ul style="list-style-type: none"> ● DE FACTO STANDARD HARDWARE WILL EVENTUALLY DOMINATE <i>retail drive market</i> ● DE FACTO STANDARD SOFTWARE WILL EVENTUALLY DOMINATE <i>home developers</i> ● LOW-COST MANUFACTURING REQUIRED ● *THIRD-PARTY SOFTWARE PUBLISHERS CRUCIAL - <i>foremost strategic element</i>

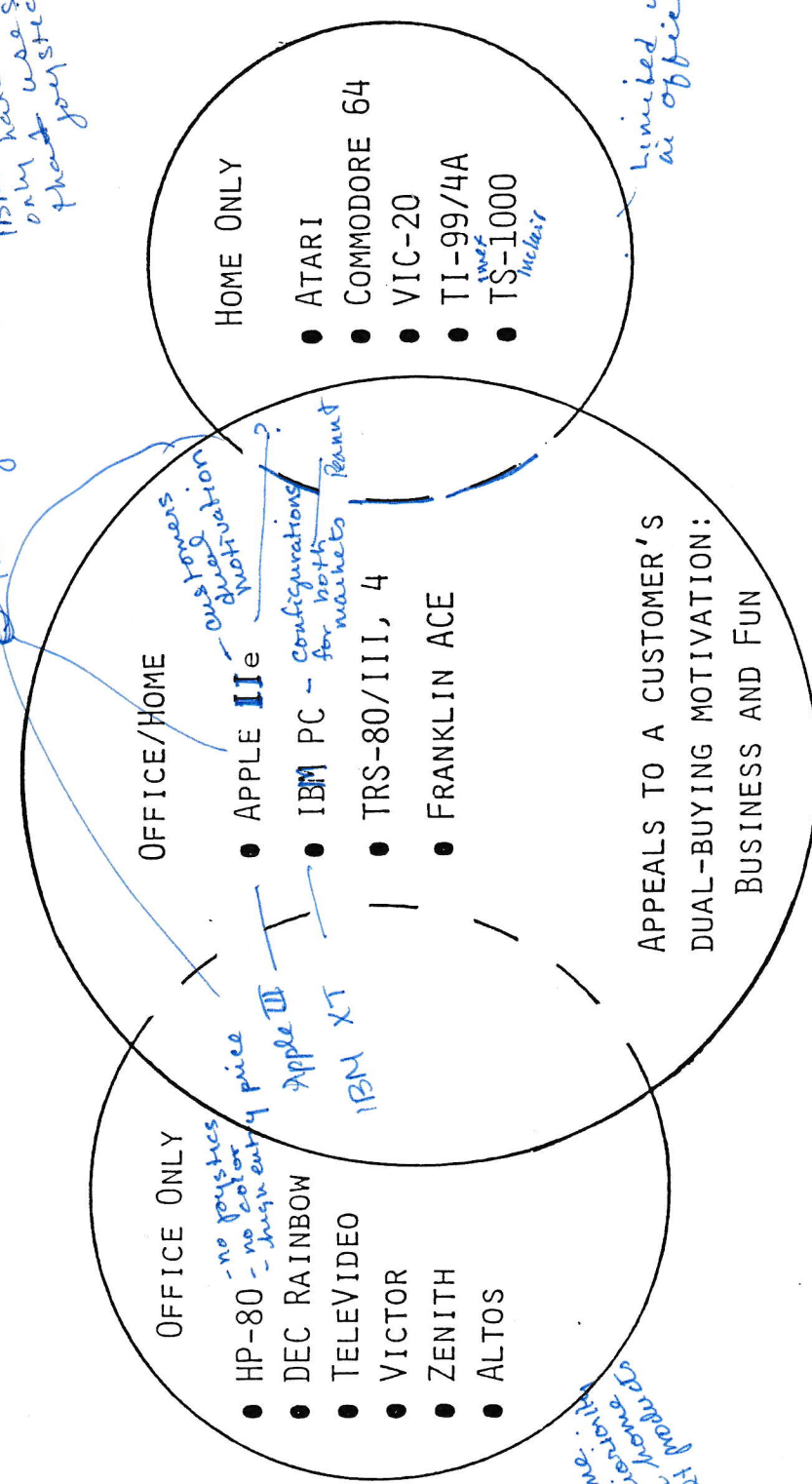
PERSONAL COMPUTER INDUSTRY STRUCTURE



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PERSONAL COMPUTER PRODUCT POSITIONING

family of machines
PC XT → IBM hard disc only use 5 1/4 inch floppy disks



OFFICE ONLY

- HP-80 - no postscript - no color - high entry price
- DEC RAINBOW
- TELEVIDEO
- VICTOR
- ZENITH
- ALTOS

OFFICE/HOME

- APPLE IIe
- IBM PC - Configurations for both markets
- TRS-80/III, 4
- FRANKLIN ACE

HOME ONLY

- ATARI
- COMMODORE 64
- VIC-20
- TI-99/4A
- TS-1000

APPEALS TO A CUSTOMER'S
 DUAL-BUYING MOTIVATION:
 BUSINESS AND FUN

limited utility in office

assume... separate responsibility

our long standing motivations?

PERSONAL COMPUTER PRODUCT CLASSES

SYSTEM PRICE \$

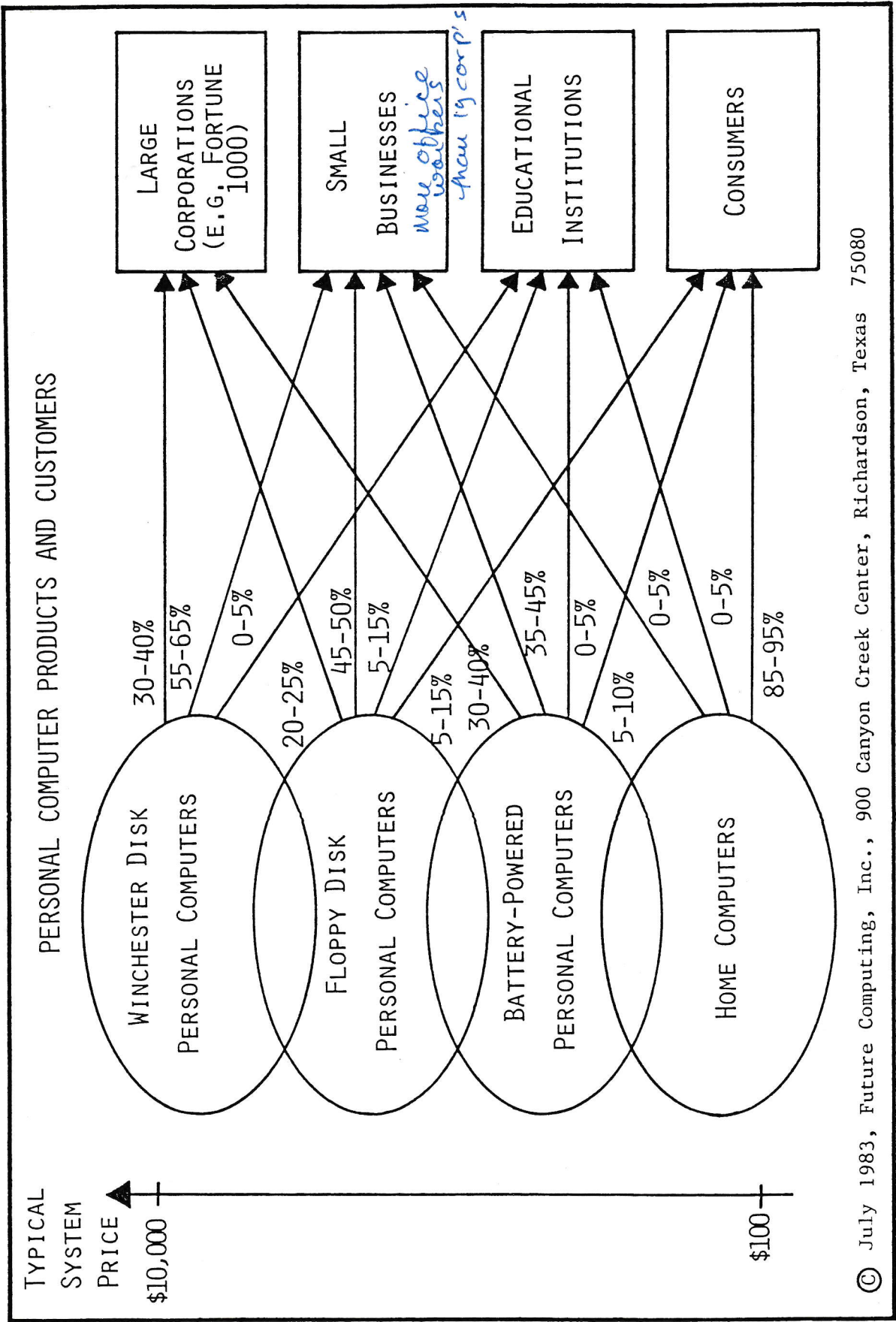
10,000
3,000
1,000
300
100

WINCHESTER
DISK-BASED PCS
Apple Lisa
● DESKTOP
IBM
● PORTABLE
KayPro 10

FLOPPY DISK-BASED PCS
● DESKTOP
IBM / Apple
● PORTABLE
Compaq

BATTERY-POWERED PCS
Compaq
● BRIEFCASE
HP-75C
** Gavilan*
● BOOK-SIZE
Tandy 100
● HANDHELD
AP 75C

HOME COMPUTERS
strongest & most segment
● PRODUCTIVITY
Apple II 800
#500-1000 of disk printer
● ENTERTAINMENT
Vic 20
● NOVELTY
Timex 1000
computer literacy

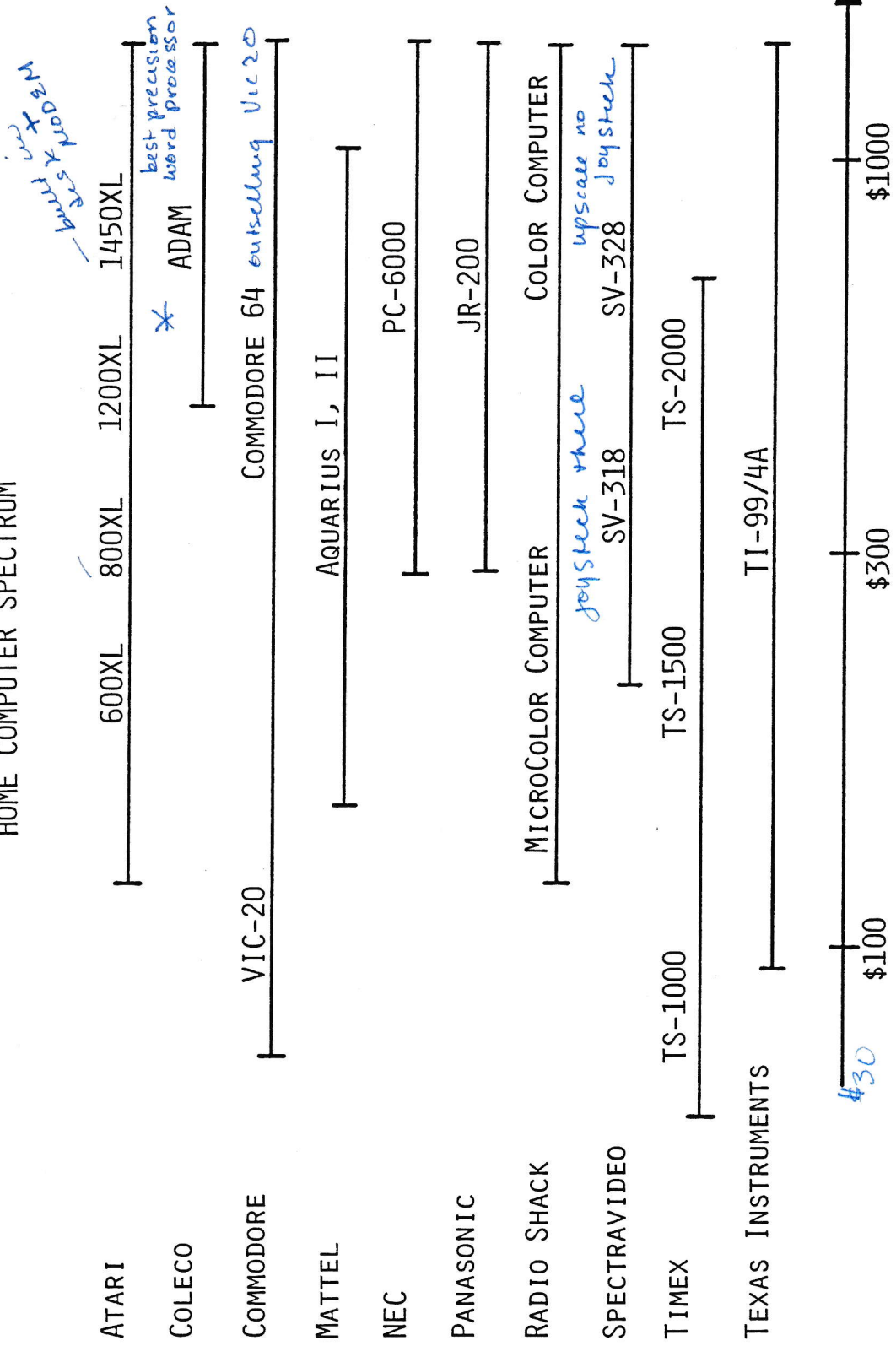


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HOME COMPUTERS - TYPICAL CONFIGURATIONS

COMPUTER LITERACY	ENTERTAINMENT HC	PRODUCTIVITY HC
<ul style="list-style-type: none"> ● 4 KBYTES RAM ● B/W TV INTERFACE ● SOFTWARE MEDIA <ul style="list-style-type: none"> ● CASSETTE ● ROM CARTRIDGE - <i>coming</i> ● COMPUTER LITERACY SOFTWARE ● ENTERTAINMENT SOFTWARE <p style="text-align: right;"><u>\$35-\$200</u></p>	<ul style="list-style-type: none"> ● 16 KBYTES RAM ● COLOR TV INTERFACE ● JOYSTICK ● CASSETTE ● SOFTWARE MEDIA <ul style="list-style-type: none"> ● ROM CARTRIDGE ● CASSETTE ● ENTERTAINMENT SOFTWARE ● EDUCATION SOFTWARE <p style="text-align: right;"><i>\$100</i> <u>\$100-\$500</u> <i>Also found some</i></p>	<ul style="list-style-type: none"> ● 64 KBYTES RAM ● COLOR TV INTERFACE ● JOYSTICK ● SINGLE MINIFLOPPY DISK ● PRINTER <i>low cost letter!</i> ● SOFTWARE MEDIA <ul style="list-style-type: none"> ● ROM CARTRIDGE ● MINIFLOPPY DISK ● MODEM ● ENTERTAINMENT SOFTWARE ● EDUCATION SOFTWARE ● BUDGETING SOFTWARE ● ELECTRONIC FILING - <i>Database</i> ● SOFTWARE ● SPREADSHEET SOFTWARE ● WORD PROCESSING SOFTWARE <p style="text-align: right;"><u>\$500-\$1,500</u></p>

HOME COMPUTER SPECTRUM



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PERSONAL COMPUTERS FOR THE HOME: PRICE — PERFORMANCE

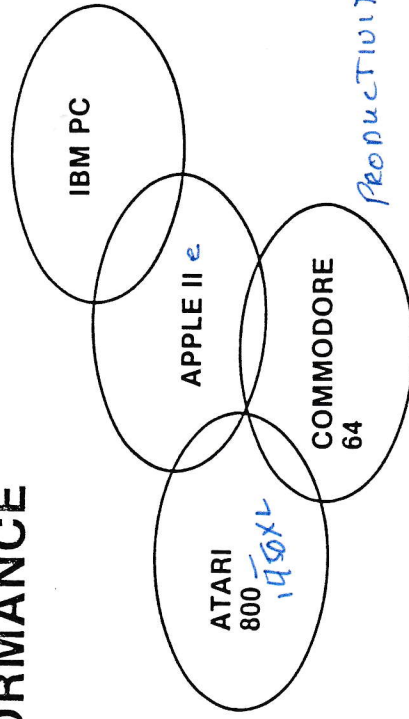
PRICE
(LOG
SCALE)

\$3000

\$1000

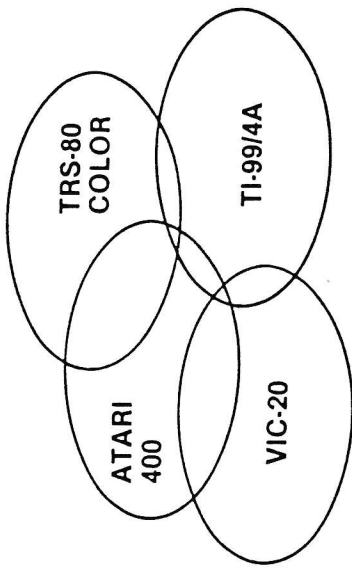
\$300

\$100

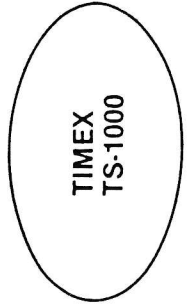


- ENTERTAINMENT
- EDUCATION
- HOME MANAGEMENT

- ENTERTAINMENT
- EDUCATION
- HOME MANAGEMENT
- BUSINESS APPLICATIONS



- NOVELTY
- COMPUTER LITERACY



SYSTEM CAPABILITIES

→ Consumer Electronic Show
Winter 1983

LEADING HOME COMPUTERS: 2Q 1983

	COMPUTER LITERACY	ENTERTAINMENT HC	PRODUCTIVITY HC
LEADING PRODUCTS	<ul style="list-style-type: none"> ● TIMEX TS 1000 	<ul style="list-style-type: none"> ● ATARI 400 ● COMMODORE VIC-20 ● TI-99/4A ● TRS-80 COLOR COMPUTER 	<ul style="list-style-type: none"> ● ATARI 800 ● COMMODORE 64 ● TI-99/4A ● TRS-80 COLOR COMPUTER
NEW PRODUCTS	<ul style="list-style-type: none"> ● SANYO PHC 20 ● TI-99/2 ● UNISONIC FUTURA 8300 ● VIDEO TECHNOLOGY VZ 200 	<ul style="list-style-type: none"> ● MATTEL AQUARIUS ● NEC PC 6000 ● PANASONIC JR 200 ● SANYO PHC25 ● SPECTRA VIDEO SV-318 ● TIMEX TS 200 	<ul style="list-style-type: none"> ● ATARI 1200

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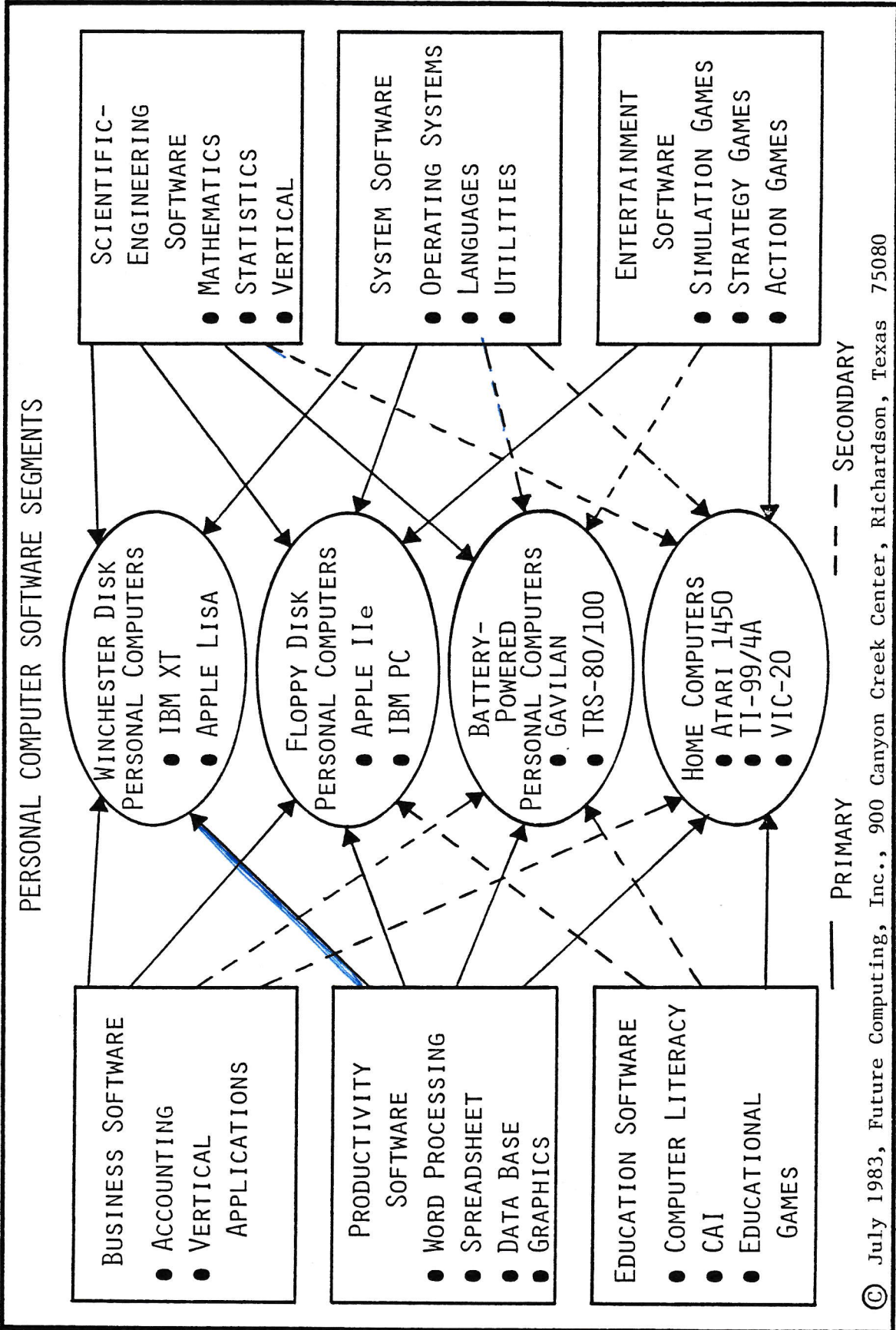
LEADING HOME COMPUTERS: 3Q 1983			
	COMPUTER LITERACY	ENTERTAINMENT HC	PRODUCTIVITY HC
LEADING PRODUCTS	<ul style="list-style-type: none"> ● TIMEX TS 1000 	<ul style="list-style-type: none"> ● ATARI 400 ● COMMODORE VIC-20 ● COMMODORE 64 ● TI-99/4A ● TRS-80 COLOR COMPUTER 	<ul style="list-style-type: none"> ● ATARI 800 ● COMMODORE 64 ● TI-99/4A ● TRS-80 COLOR COMPUTER
NEW PRODUCTS	<ul style="list-style-type: none"> ● TIMEX TS 1500 	<ul style="list-style-type: none"> ● ATARI 600XL ● MATTEL AQUARIUS ● NEC PC 6000 ● PANASONIC JR 200 ● SPECTRAVIDEO SV-318 ● TIMEX TS 2000 ● TRS-80 MICRO COLOR COMPUTER 	<ul style="list-style-type: none"> ● ATARI 800XL ● ATARI 1400XL ● ATARI 1450XL ● COLECO ADAM ● SPECTRAVIDEO SV-328

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PERSONAL COMPUTER PERIPHERALS

PRICE (LOG SCALE)	INPUT	OUTPUT	STORAGE
\$3000	<ul style="list-style-type: none"> • SPEECH RECOGNITION 	<ul style="list-style-type: none"> • LETTER-QUALITY PRINTER <i>price reduction \$550 start-typewriter based</i> • PLOTTER 	<ul style="list-style-type: none"> • 8" WINCHESTER DISK • 5 1/4" WINCHESTER DISK • BACK-UP TAPE
	<ul style="list-style-type: none"> • GRAPHIC TABLET 	<ul style="list-style-type: none"> • MUSIC SYNTHESIZER • COLOR DISPLAY • MATRIX PRINTER • TYPEWRITER PRINTERS 	<ul style="list-style-type: none"> • 8" FLOPPY DISK • BUBBLE MEMORY • MICROFLOPPY DISK • 5 1/4" MINIFLOPPY DISK
\$300	<ul style="list-style-type: none"> • MODEM • MOUSE 	<ul style="list-style-type: none"> • MODEM • SPEECH SYNTHESIZER 	
	<ul style="list-style-type: none"> • LIGHT PEN 	<ul style="list-style-type: none"> • MONOCHROME DISPLAY 	<ul style="list-style-type: none"> • WAFER TAPE ?
	<ul style="list-style-type: none"> • KEYBOARD • TRACKBALL • JOYSTICK • PADDLE 	<ul style="list-style-type: none"> • THERMAL PRINTER 	<ul style="list-style-type: none"> • CASSETTE
\$30			

PERSONAL COMPUTER SOFTWARE CATEGORIES	
SOFTWARE CATEGORY	FUNCTION PERFORMED
SYSTEM SOFTWARE ● OPERATING SYSTEM	CONTROLS AND MANAGES THE OPERATION OF THE PERSONAL COMPUTER.
SYSTEM SOFTWARE ● LANGUAGES AND UTILITIES	PROVIDES THE TOOLS TO DEVELOP COMPUTER PROGRAMS.
ENTERTAINMENT SOFTWARE	TURNS THE COMPUTER INTO AN ENTERTAINMENT MACHINE INCLUDING GAME PLAYING, MUSIC AND OTHER RECREATIONAL ACTIVITIES.
EDUCATION SOFTWARE	TURNS THE COMPUTER INTO A TEACHING MACHINE FOR HOME, SCHOOL OR BUSINESS.
PRODUCTIVITY SOFTWARE	IMPROVES THE PRODUCTIVITY OF COMMON TASKS SUCH AS TYPING, FINANCIAL PLANNING AND RECORD KEEPING.
SCIENTIFIC-ENGINEERING SOFTWARE	SOLVES ENGINEERING, SCIENTIFIC AND MATHEMATICAL PROBLEMS.
BUSINESS SOFTWARE	HANDLES ACCOUNTING FUNCTIONS SUCH AS LEDGERS, PAYROLL, BILLING, ORDERS AND INVENTORY.



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PERSONAL COMPUTER SOFTWARE DIFFERENCES

	SOFTWARE FOR HOME COMPUTERS	SOFTWARE FOR FLOPPY DISK-BASED PCS	SOFTWARE FOR WINCHESTER DISK-BASED PCS
SOFTWARE MEDIA	<ul style="list-style-type: none"> ● ROM CARTRIDGE ● CASSETTE 	<ul style="list-style-type: none"> ● DISKETTE 	<ul style="list-style-type: none"> ● DISKETTE
MEMORY SIZE ASSUMED	<ul style="list-style-type: none"> ● 16-64 KBYTES 	<ul style="list-style-type: none"> ● 64-256 KBYTES 	<ul style="list-style-type: none"> ● 64 KBYTES - 1 MBYTE
MASS STORAGE ASSUMED	<ul style="list-style-type: none"> ● CASSETTE 	<ul style="list-style-type: none"> ● MINIFLOPPY DISK 	<ul style="list-style-type: none"> ● FLOPPY DISK ● HARD DISK
DISPLAY FEATURES	<ul style="list-style-type: none"> ● 32 X 24 TEXT ● COLOR GRAPHICS 	<ul style="list-style-type: none"> ● 80 X 24 TEXT ● COLOR GRAPHICS 	<ul style="list-style-type: none"> ● 80 X 24 TEXT ● MONOCHROME GRAPHICS
OPERATING SYSTEM ASSUMED	<ul style="list-style-type: none"> ● NONE, BUILT INTO BASIC INTERPRETER 	<ul style="list-style-type: none"> ● SINGLE-USER 	<ul style="list-style-type: none"> ● SINGLE-USER ● MULTI-USER

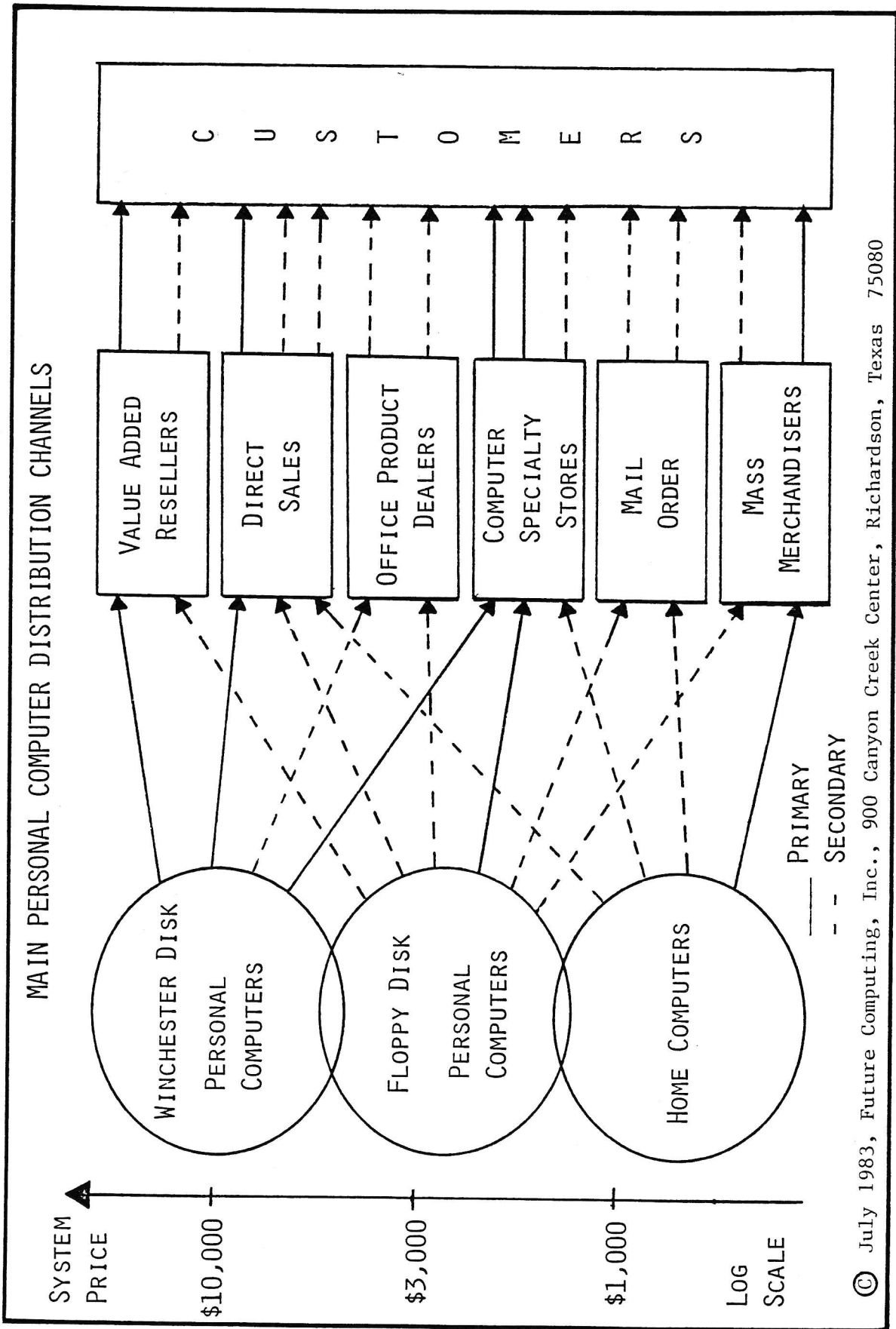
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PERSONAL COMPUTER SOFTWARE MEDIA

	ROM CARTRIDGE	CASSETTE, ETC.	FLOPPY DISK
WINCHESTER DISK-BASED PCs	-	-	100%
FLOPPY DISK-BASED PCs	-	15-20%	90-95%
HOME COMPUTERS	85-90%	80-90%	5-10%
BRIEFCASE PCs	20-30%	-	70-80%
BOOK-SIZE PCs	50-60%	60-70%	-
HANDHELD PCs	40-50%	60-70%	-

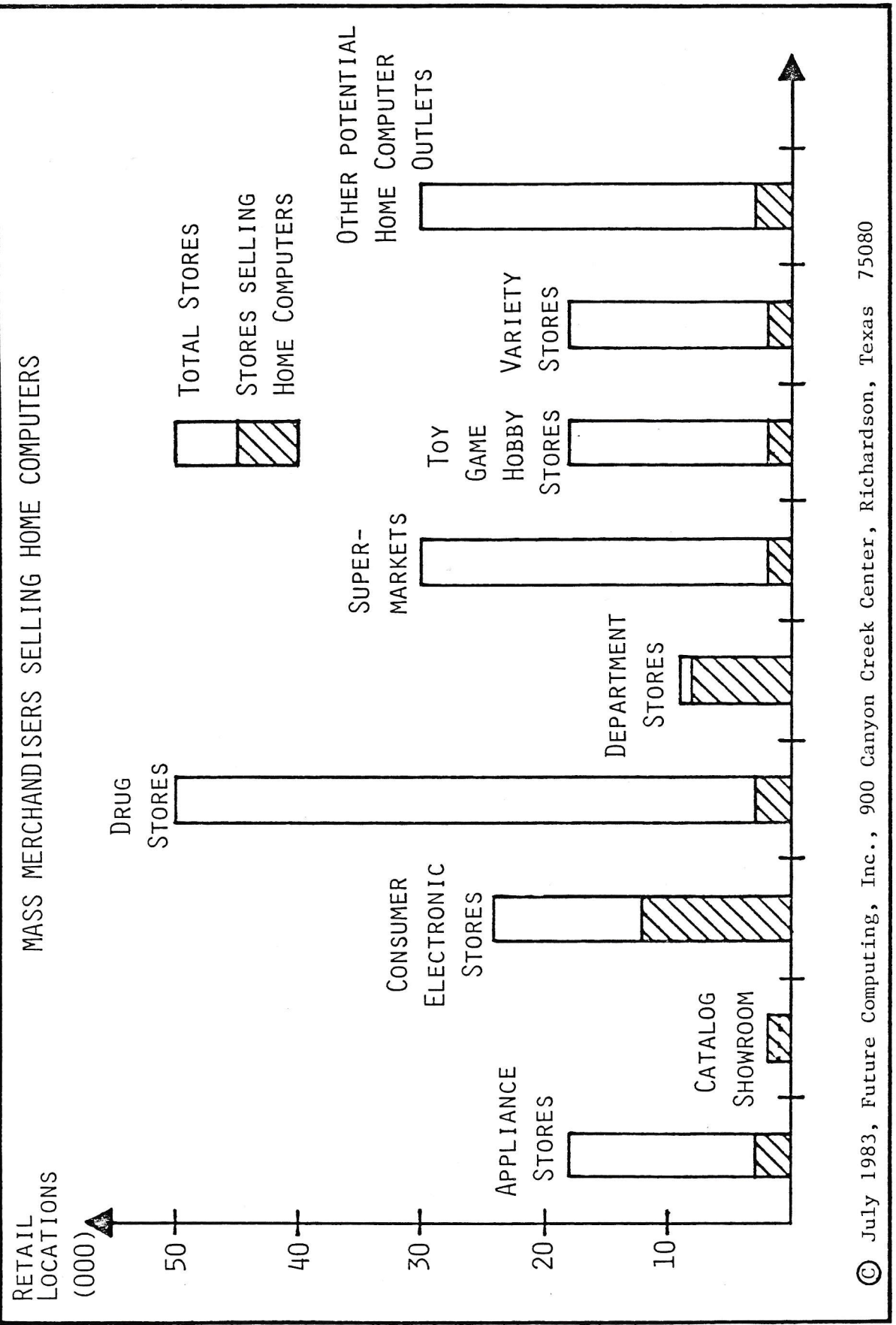
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% = units shipped to date



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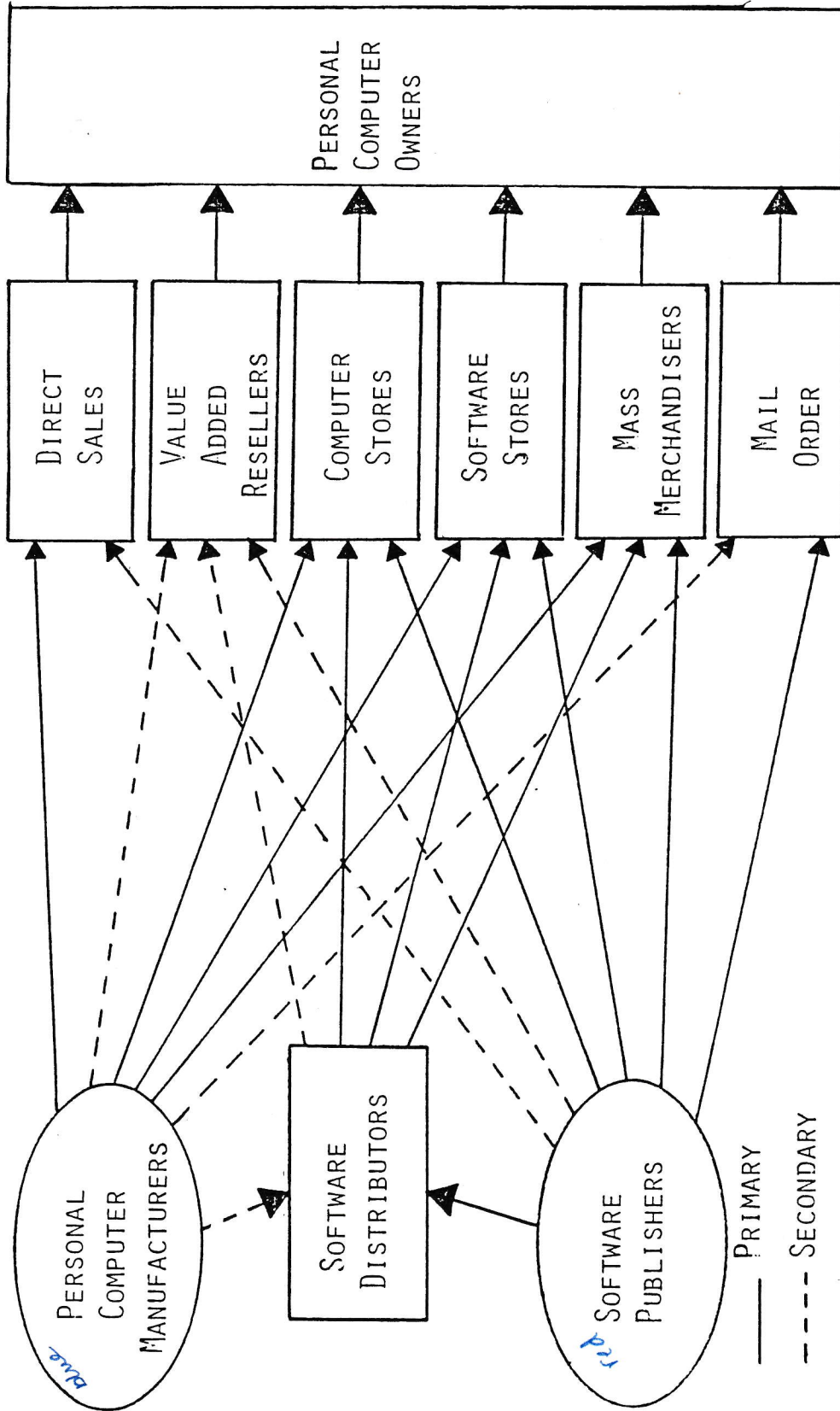
MASS MERCHANDISERS SELLING HOME COMPUTERS



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OFFICE PERSONAL COMPUTER AND HOME COMPUTER DISTRIBUTION CHANNELS		
DISTRIBUTION CHANNELS	NUMBER OF LOCATIONS SELLING HCS OR PCs	PRODUCT FOCUS
COMPUTER SPECIALTY STORES	2,500 <i>↑ growing</i>	PERSONAL COMPUTERS
OFFICE PRODUCT DEALERS	900-1,200	PERSONAL COMPUTERS
VALUE ADDED RESELLERS (INCLUDING SYSTEM HOUSES, OEMs)	1,200-1,500	PERSONAL COMPUTERS
MAIL ORDER COMPANIES	200-300	PERSONAL COMPUTERS HOME COMPUTERS
CONSUMER ELECTRONIC STORES*	10,000-12,000	HOME COMPUTERS
DEPARTMENT STORES	7,000-8,000	HOME COMPUTERS
APPLIANCE STORES	2,500-3,000	HOME COMPUTERS
CATALOG SHOWROOM STORES	1,800-2,000	HOME COMPUTERS
TOY SPECIALTY STORES	1,500-2,000	HOME COMPUTERS
OTHER MASS MERCHANDISERS	6,000-8,000	HOME COMPUTERS
*INCLUDING RADIO SHACK		
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PERSONAL COMPUTER SOFTWARE DISTRIBUTION CHANNELS



— PRIMARY
 - - - - SECONDARY

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SUCCESS REQUIREMENTS: HOME COMPUTERS	
<p>* MARKETING AND DISTRIBUTION</p>	<ul style="list-style-type: none"> ● MAJOR TV ADVERTISING REQUIRED ● DISTRIBUTION THROUGH MASS MERCHANDISERS IS REQUIRED ● OVER 10,000 LOCATIONS ARE NEEDED TO BE A LEADER <i>-keeps growing</i>
<p>SOFTWARE</p>	<ul style="list-style-type: none"> ● THIRD PARTY SOFTWARE IS REQUIRED FOR LONG TERM SUCCESS ● OVER 1,000 PROGRAMS ARE AVAILABLE FOR THE LEADING HOME COMPUTERS ● HIT ENTERTAINMENT AND EDUCATIONAL GAMES IS REQUIRED
<p>HARDWARE</p>	<ul style="list-style-type: none"> ● DEFACTO STANDARDS WILL EMERGE-POSSIBLY FROM EXISTING PROPRIETARY SYSTEMS OR FROM THE HIGHER PRICED PERSONAL COMPUTERS ● LOW COST MANUFACTURING IS REQUIRED

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FROM RAGS TO RICHES: TI-99/4A

RAGS (1979-1980)

- POSITIONED FOR HOME MARKET WHEN THERE WAS NONE
- PRICE TOO HIGH
- NO DISTRIBUTION CHANNELS
- PRODUCT FEATURES COMPARED UNFAVORABLY WITH THE BEST SELLING PERSONAL COMPUTERS
- MINIMAL SOFTWARE
- FEW PERIPHERALS
- CLOSED MACHINE
- HIGH PRICED SOFTWARE DEVELOPMENT SYSTEM
- NO THIRD-PARTY SOFTWARE SUPPORT

RESULT

- PRODUCT WAS REJECTED BY COMPUTER STORES
- LOW SALES

RICHES (1982-1983)

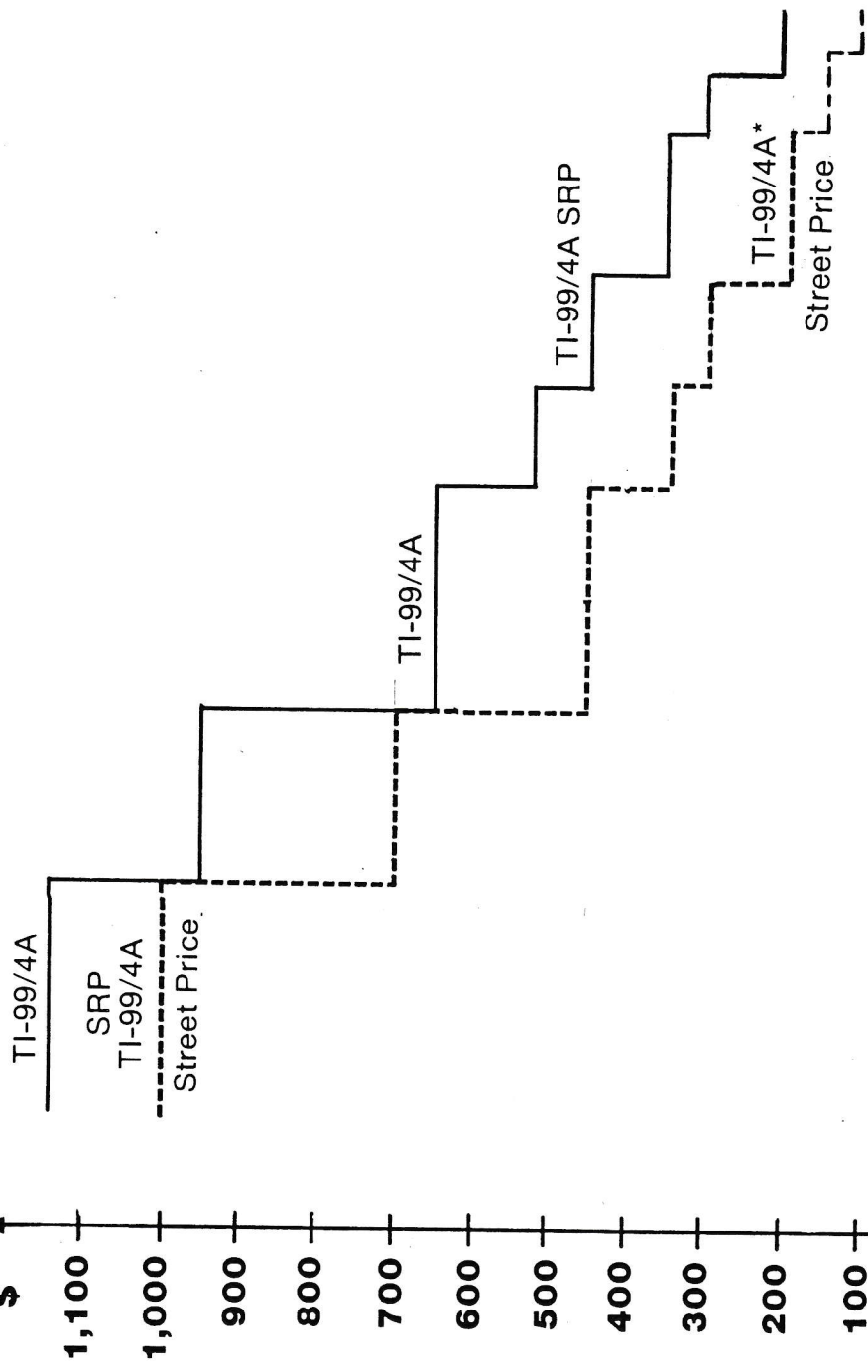
- CORRECTED THE PRODUCT WEAKNESSES
- LARGE SELECTIONS OF TI SOFTWARE
- THIRD-PARTY SOFTWARE SUPPORT
- FOCUSED MAGAZINE: 99'ER
- LOW PRICE
- IMPROVED HARDWARE PRODUCT: 99/4A
- REPOSITIONED THE PRODUCT FOR CONSUMER DISTRIBUTION CHANNELS
- NOW SOLD BY OVER 10,000 RETAILERS

RESULT

- A LEADING HOME COMPUTER 4.0 \$Z
- OVER 1 MILLION SOLD
- ABOUT 150,000 UNITS SOLD PER MONTH

Home Computer Price Decline

Minimum System Price \$



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TI-99/4A: FROM RICHES TO RAGS (MORE)
 (FUTURE COMPUTING'S VIEW)

FACTORS	RESULT
<ul style="list-style-type: none"> ● TI PROJECTED A 1983 HOME COMPUTER MARKET OF 6.7M UNITS ● TI'S GOAL WAS 40-50% MARKET SHARE 	<ul style="list-style-type: none"> ● PRODUCTION PLANS WERE SET ACCORDINGLY, I.E., ABOUT 3M UNITS
<ul style="list-style-type: none"> ● TRANSFORMER PROBLEM IQ 1983 STOPPED 99/4A SALES FOR 1 MONTH ● TI STILL MANUFACTURED 99/4S DURING MOST OF THIS TIME 	<ul style="list-style-type: none"> ● TI-99/4A INVENTORY BUILT UP ● COMMODORE VIC-20 AND 64 SALES GREATLY EXPANDED
<ul style="list-style-type: none"> ● WHEN TI-99/4A STARTED SHIPPING COMMODORE LOWERED THE EFFECTIVE VIC-20 STREET PRICE 	<ul style="list-style-type: none"> ● TI-99/4A DID NOT GET BACK UP TO ITS FORMER SELLING RATE <i>Stopped to tense</i> ● TI-99/4A INVENTORY BUILT UP
<ul style="list-style-type: none"> ● TI STOPPED \$100 REBATE, BUT LOWERED WHOLESALE PRICE \$100 	<ul style="list-style-type: none"> ● PRICE PROTECTION TO RETAILERS WAS MUCH HIGHER THAN ANTICIPATED
<ul style="list-style-type: none"> ● TI'S \$50 REBATE STARTING IN JUNE WAS LEAKED IN APRIL 	<ul style="list-style-type: none"> ● SOME CONSUMERS DELAYED BUYING THE 99/4A OR BOUGHT THE LOWER PRICED VIC-20

TI-99/4A: FROM RICHES TO RAGS (CONTINUED)
 (FUTURE COMPUTING'S VIEW)

FACTORS	RESULT
<ul style="list-style-type: none"> ● 99/2 WAS CAUGHT IN THE RAPID PRICE DECLINE 	<ul style="list-style-type: none"> ● PRODUCTION OF 99/2 WAS CANCELLED WITH RESULTING WRITE-OFFS
<ul style="list-style-type: none"> ● SUMMER MONTHS TRADITIONALLY HAVE SLOW CONSUMER ELECTRONIC SALES 	<ul style="list-style-type: none"> ● HOME COMPUTER DEMAND DID NOT INCREASE AS MUCH AS IT DID IN 1982
<ul style="list-style-type: none"> ● TI-99/4A DID NOT SELL AS TI PLANNED DURING 1H 1983 	<ul style="list-style-type: none"> ● SOFTWARE AND PERIPHERALS, WHICH GENERATE PROFIT, DID NOT SELL AS WELL AS PLANNED
<ul style="list-style-type: none"> ● TI HAD TO LOWER ITS 1983 HARDWARE AND SOFTWARE PRODUCTION 	<ul style="list-style-type: none"> ● WRITE-OFFS

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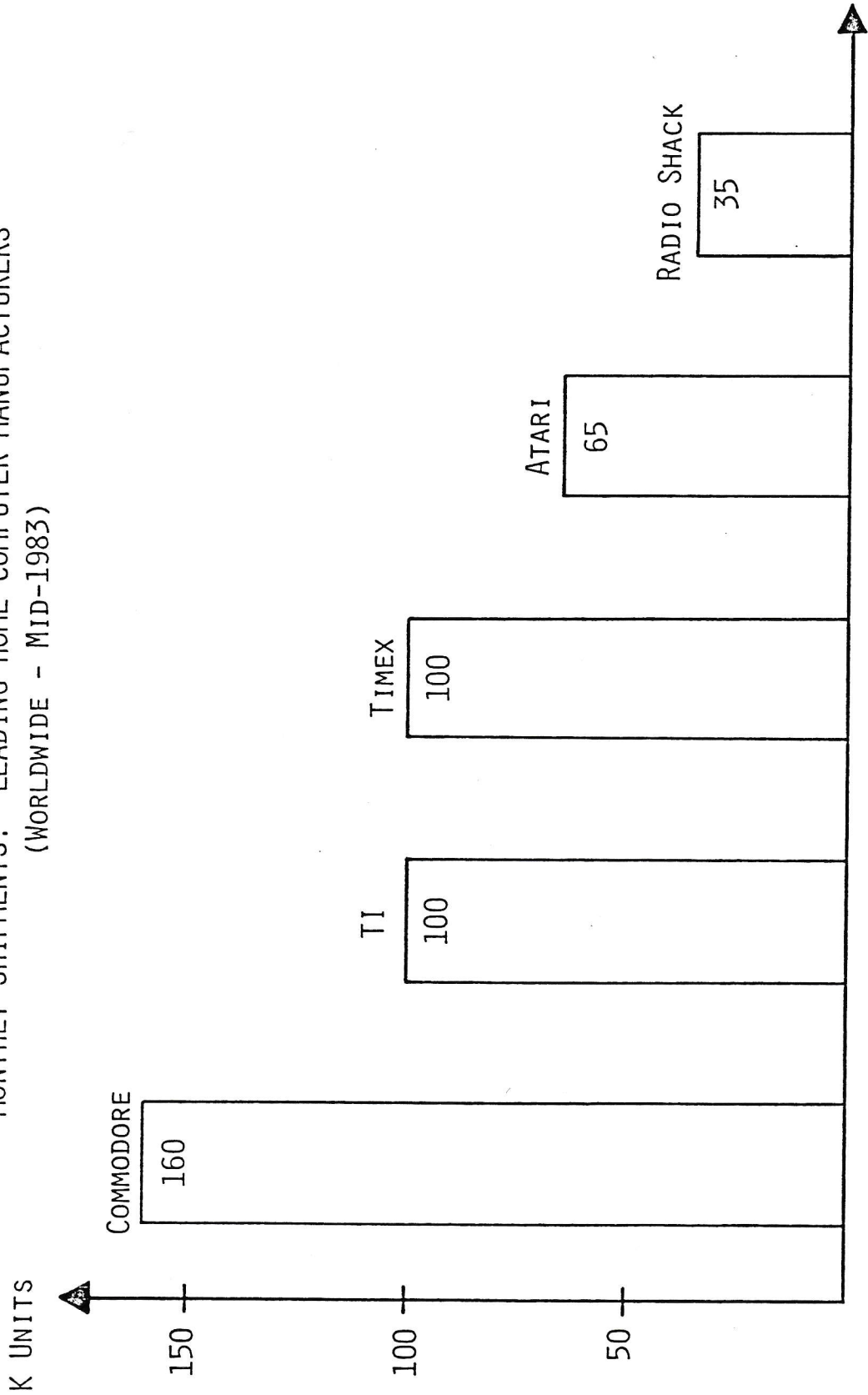
lost \$ 183 million

HOW WILL TI'S HOME COMPUTERS DO IN 1983?	
<p>FUTURE COMPUTING'S ESTIMATE OF TI'S 1983 GOAL</p>	<p>FUTURE COMPUTING'S ESTIMATE OF TI'S 1983 RESULTS</p>
<ul style="list-style-type: none"> ● U.S. MARKET FORECAST OF 6.7M HOME COMPUTERS ● TI MARKET SHARE OF 40-50% ● TI HOME COMPUTER SALES OF ABOUT 3M UNITS (INCLUDING NEW PRODUCTS) ● TI HOME COMPUTER REVENUES OF \$0.8-1B (INCLUDING SOFTWARE REVENUES) 	<ul style="list-style-type: none"> ● U.S. MARKET FORECAST OF 5M HOME COMPUTERS ● TI MARKET SHARE OF 20-25% ● TI HOME COMPUTER SALES OF 1.2M - 1.5M UNITS (INCLUDING NEW PRODUCTS) ● TI HOME COMPUTER REVENUES OF \$400 - \$500M (INCLUDING SOFTWARE REVENUES)
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SUCCESS STORY: COMMODORE VIC-20 <i>WINNER - driving the price</i>	
SUCCESS FACTORS	RESULT
<ul style="list-style-type: none"> • VIC-20 IS AGGRESSIVELY PRICED AND IS THE PRICE LEADER • COMMODORE'S IMAGINATIVE TV ADVERTISING CREATED STRONG DEMAND • SUBSTANTIAL THIRD PARTY SOFTWARE SUPPORT HAS RAPIDLY BUILT A SOFTWARE BASE • VIC-20 CAPITALIZED ON THE HOME COMPUTER MARKET SURGE IN 1982 	<ul style="list-style-type: none"> • VIC-20 IS A LEADING HOME COMPUTER • VIC-20 HAS MADE COMMODORE AS SUCCESSFUL IN THE U.S. MARKET AS IT IS IN EUROPE • OVER 1 MILLION VIC-20S HAVE BEEN SOLD • ABOUT 150,000 VIC-20S ARE SOLD EVERY MONTH

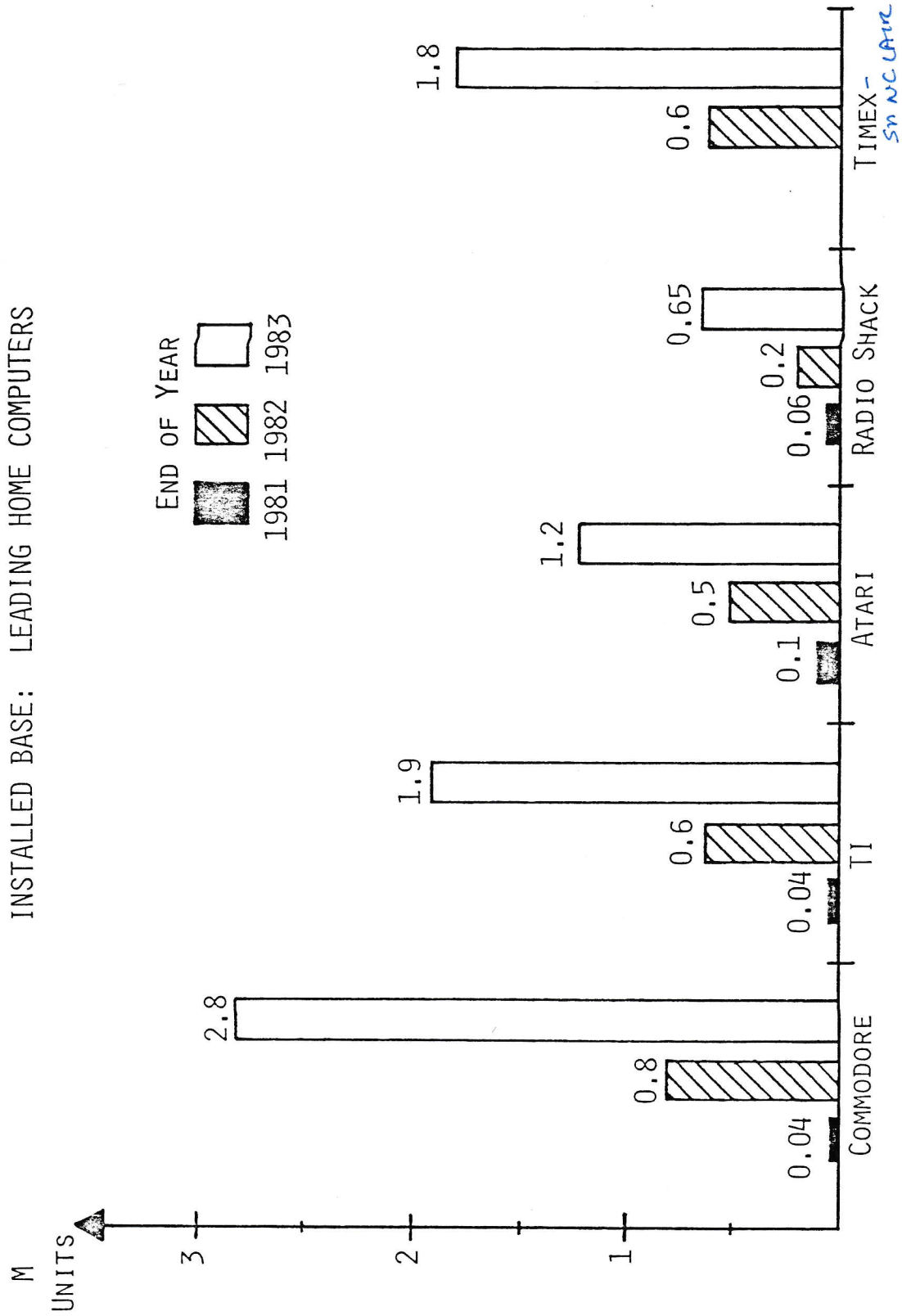
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MONTHLY SHIPMENTS: LEADING HOME COMPUTER MANUFACTURERS
(WORLDWIDE - MID-1983)



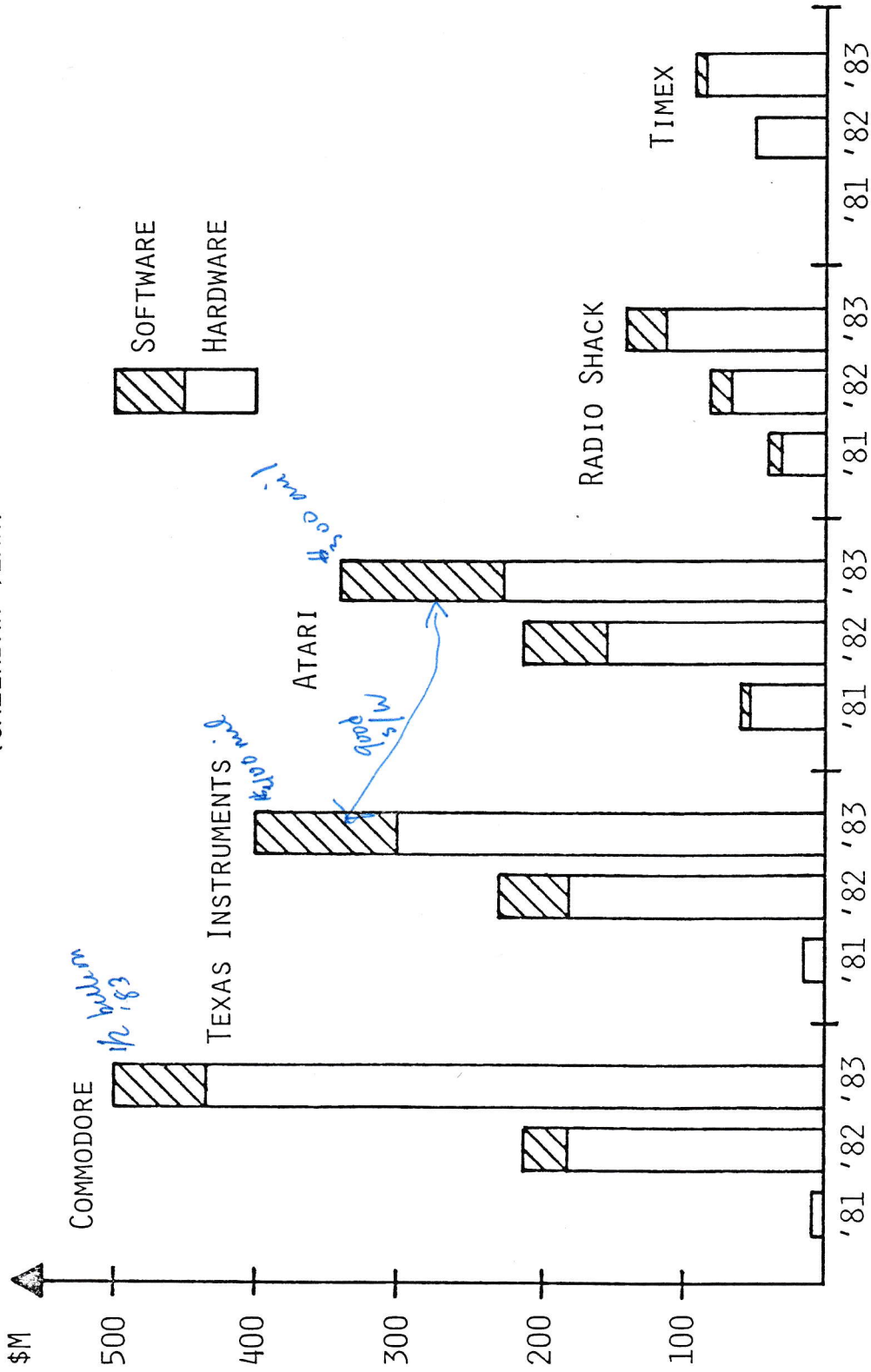
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INSTALLED BASE: LEADING HOME COMPUTERS



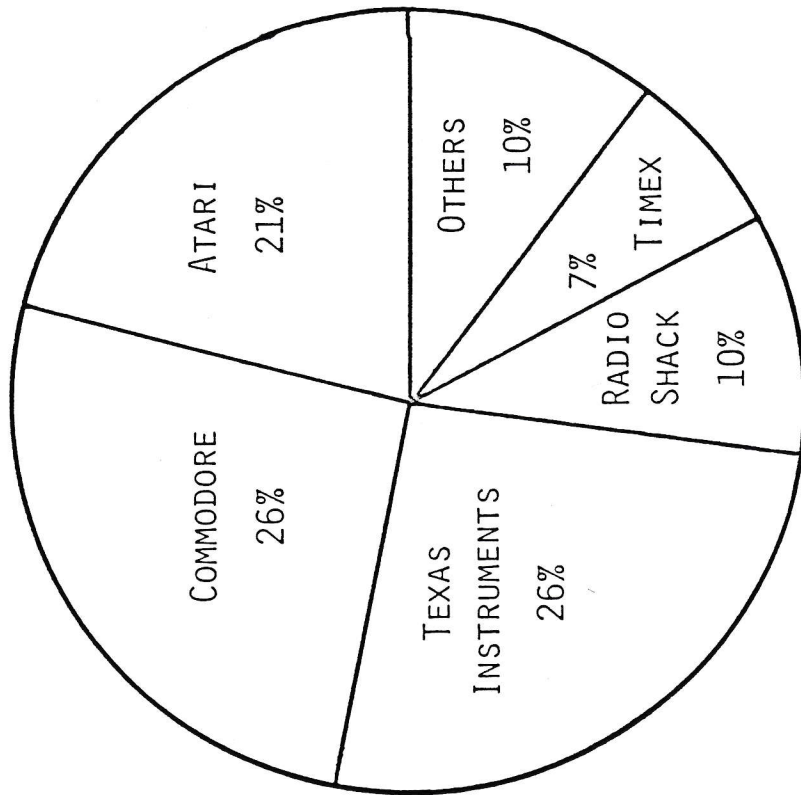
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WORLDWIDE HOME COMPUTER REVENUE: LEADING MANUFACTURERS
(CALENDAR YEAR)

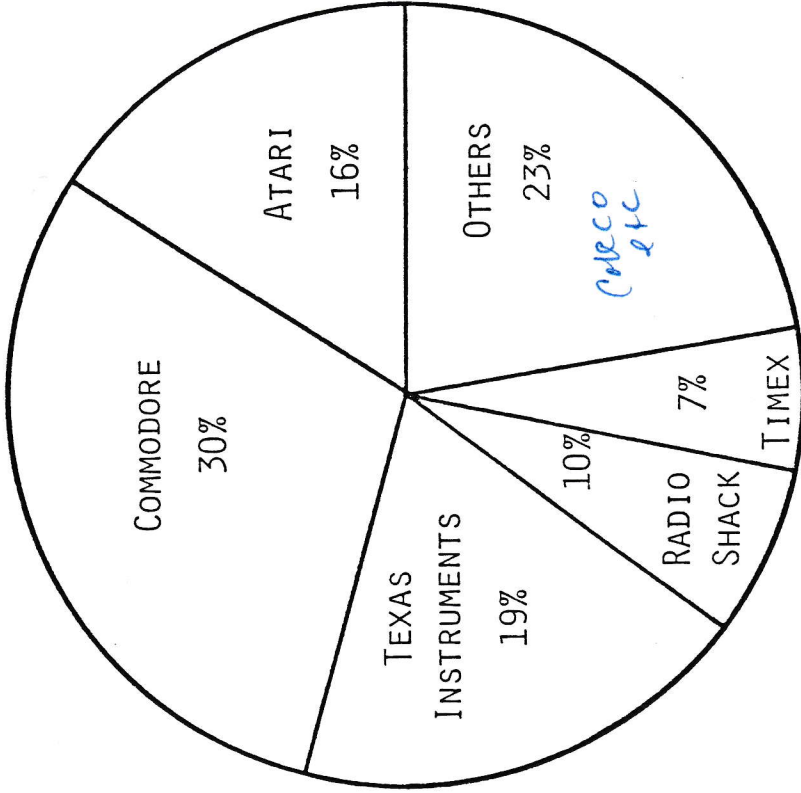


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U.S. MARKET SHARES OF LEADING HOME COMPUTER MANUFACTURERS
(FACTORY VALUE)



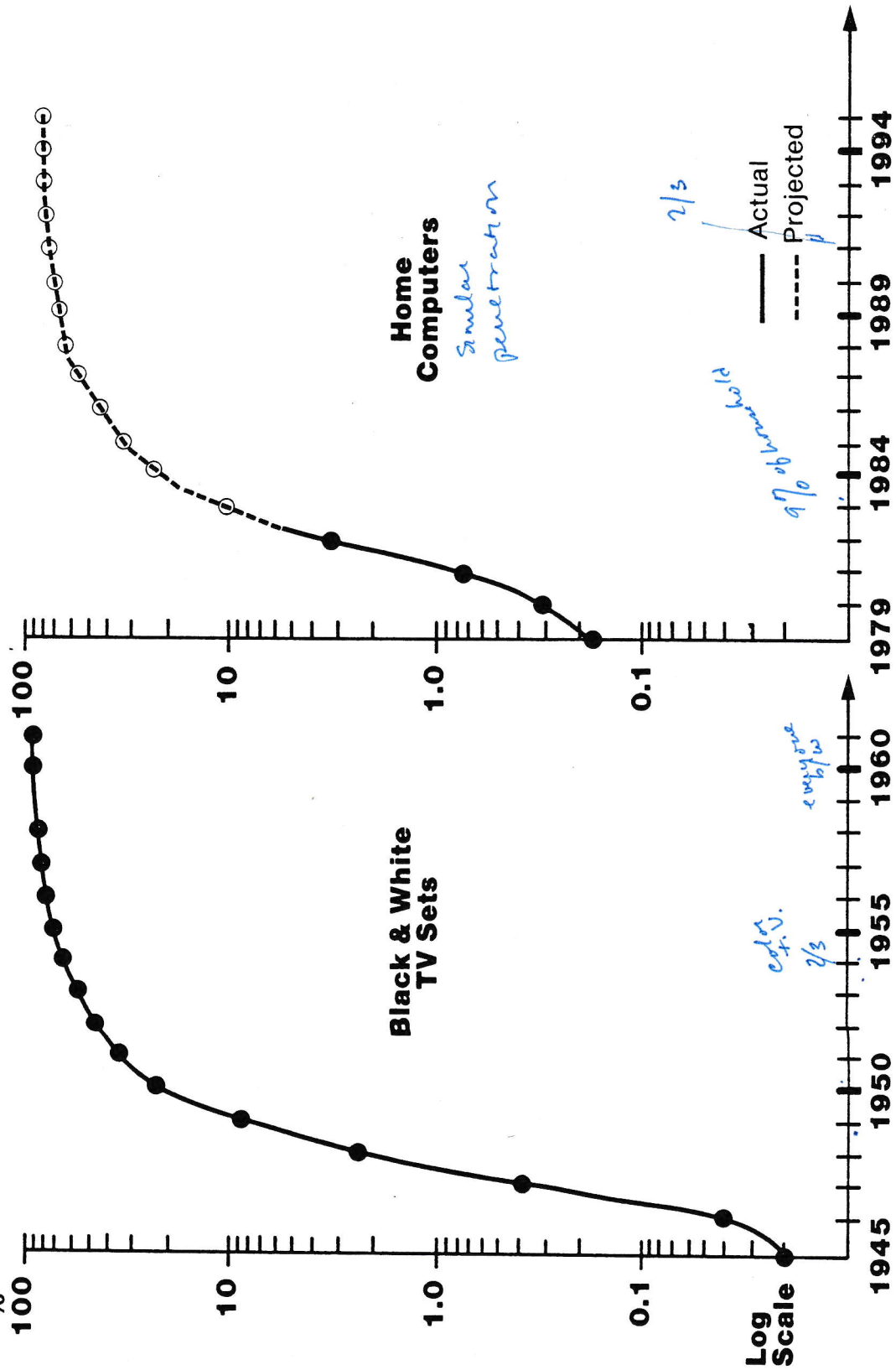
1982 = \$0.7B
(HARDWARE ONLY)



1983 = \$1.4B
(HARDWARE ONLY)

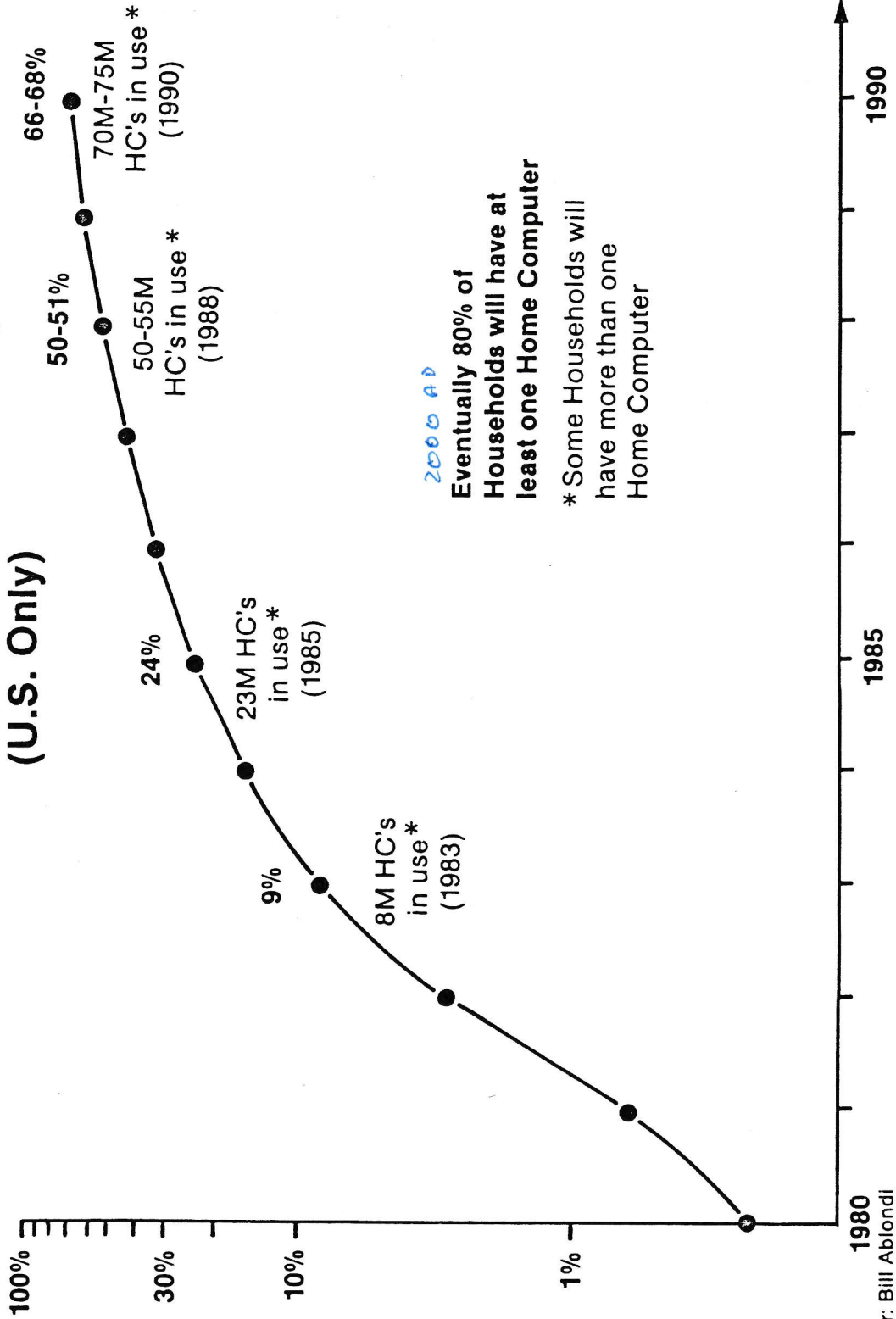
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Percentage of Households with TV's and Home Computers



unit sales

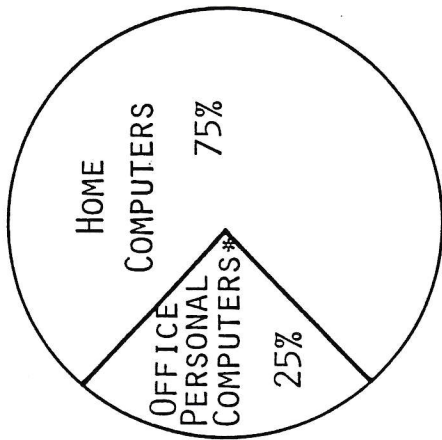
Percent of Households with Home Computers (U.S. Only)



80%
2000

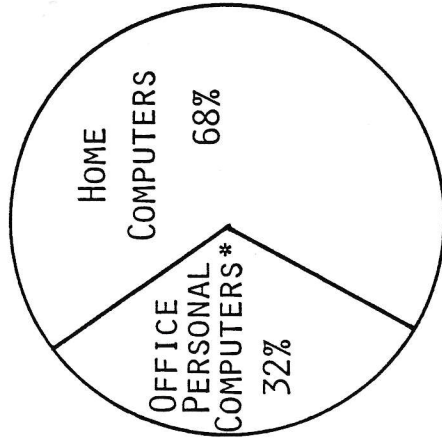
1980 1985 1990
 Author: Bill Ablondi
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 83-7-2

OFFICE PERSONAL COMPUTER AND HOME COMPUTER RELATIVE MARKET SIZES
(U.S. ONLY)

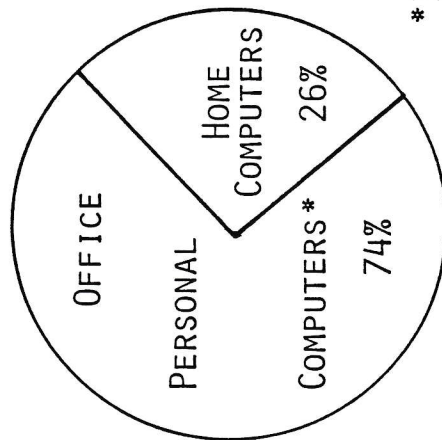


TOTAL PCS
UNIT SHIPMENTS

1983
6.7M
P.C. sold 5 mil home

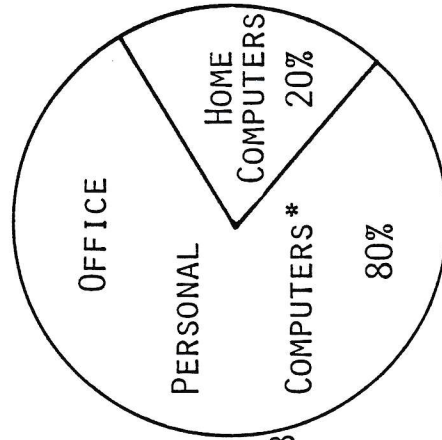


1988
23.3M



TOTAL PCS
RETAIL VALUE

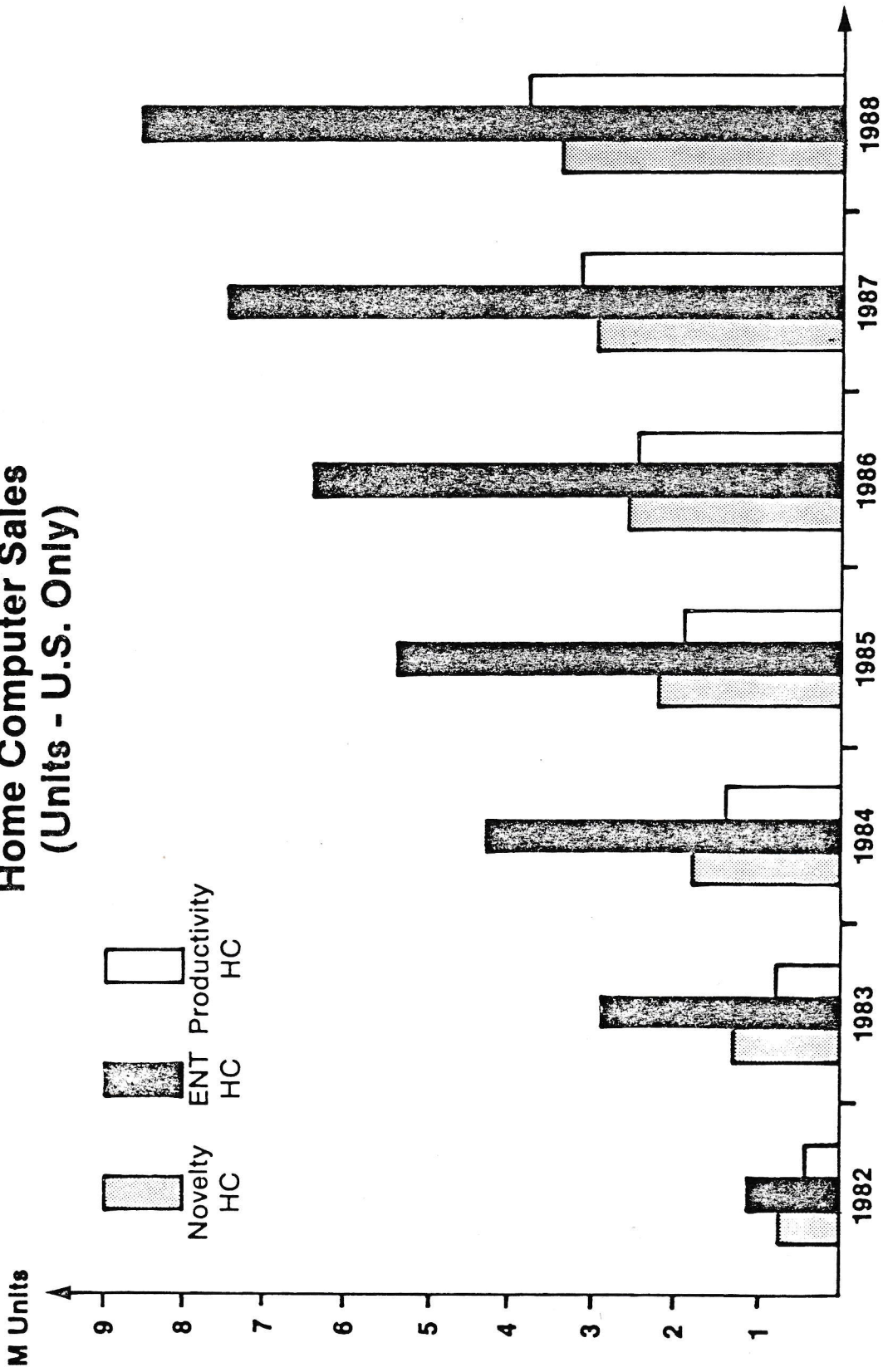
1983
\$8.0B



1988
\$29.7B
1988 July 6/83

*INCLUDES OFFICE ONLY AND
OFFICE/HOME PRODUCTS

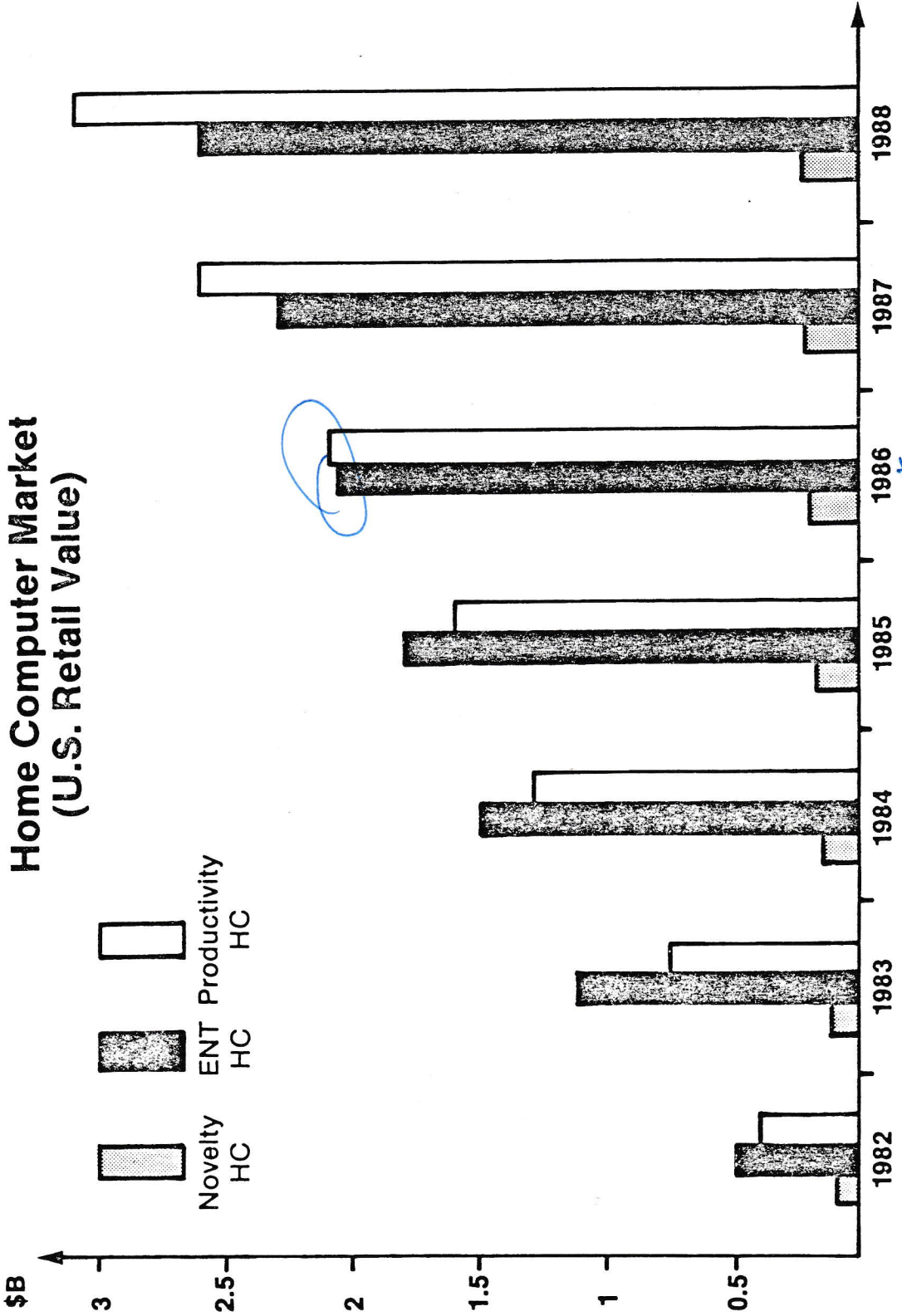
Home Computer Sales (Units - U.S. Only)



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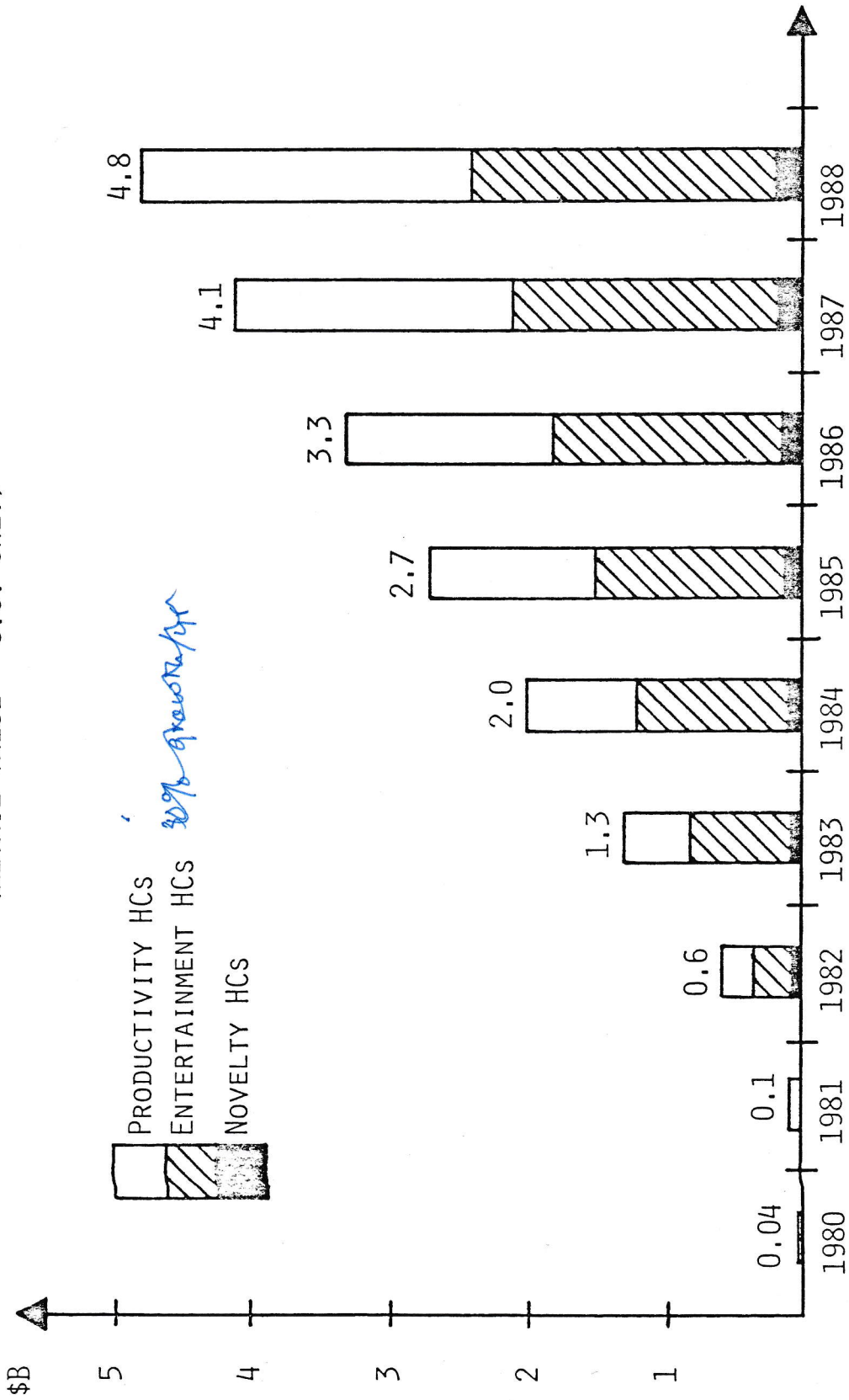
83-7-3

Home Computer Market (U.S. Retail Value)



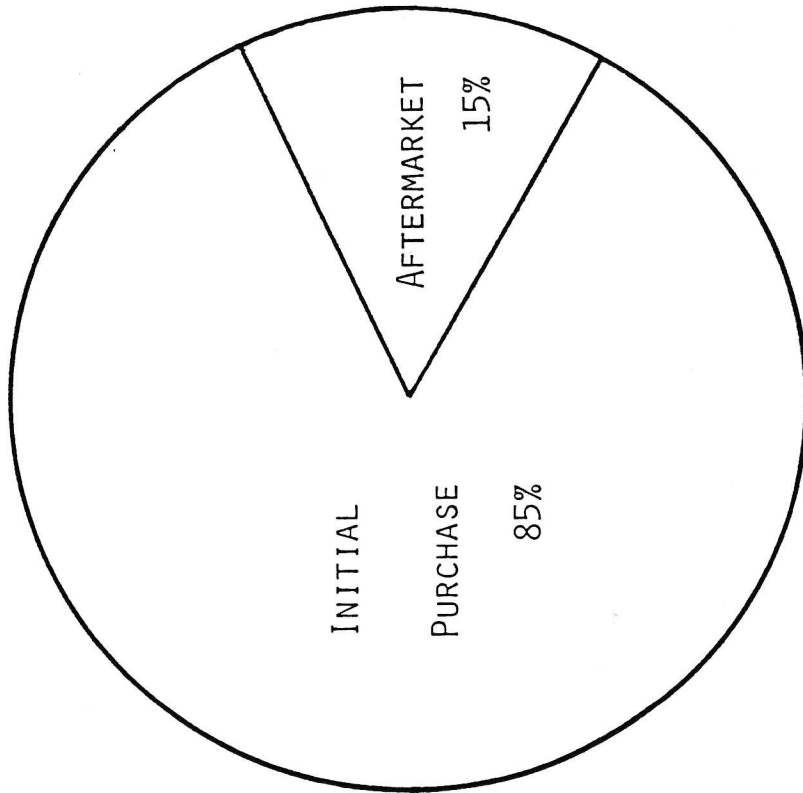
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TOTAL HOME COMPUTER PERIPHERAL MARKET
(RETAIL VALUE - U.S. ONLY)

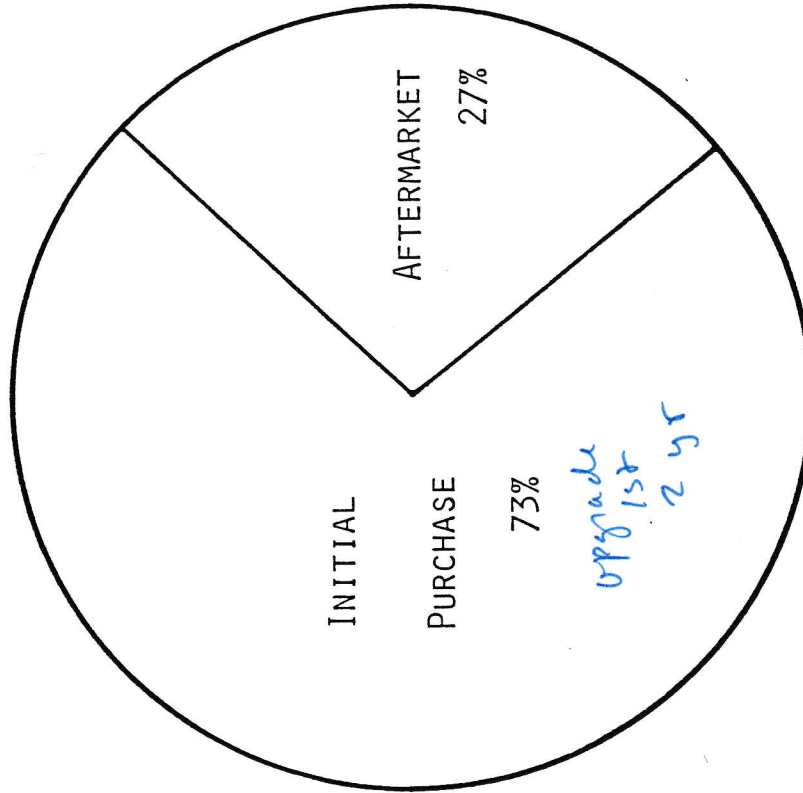


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HOME COMPUTER HARDWARE AFTERMARKET PORTION
(U.S. ONLY)



1983 = \$2.1B

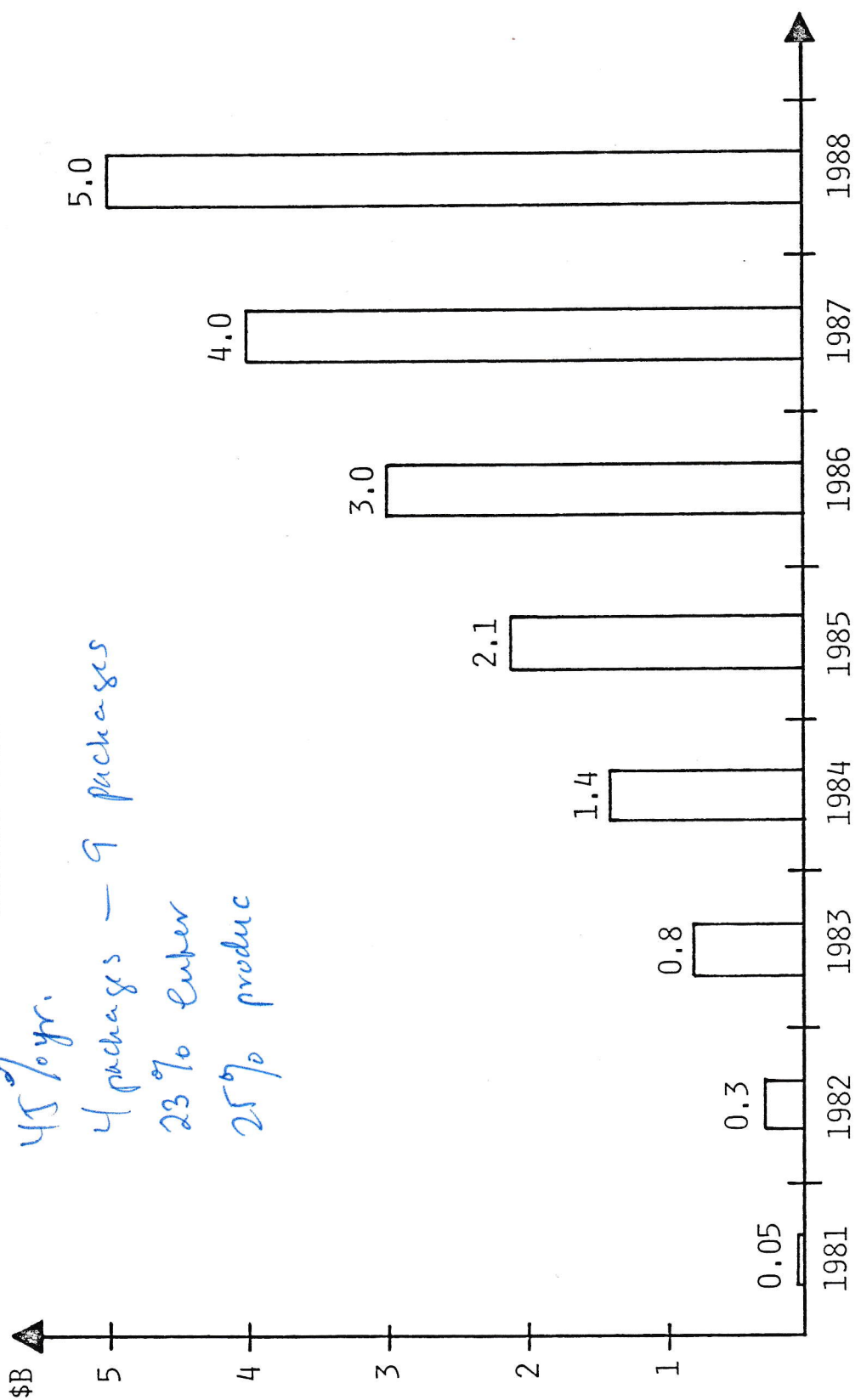


1988 = \$5.9B

TOTAL HC HARDWARE
RETAIL VALUE

HOME COMPUTER SOFTWARE MARKET
(RETAIL VALUE - U.S. ONLY)

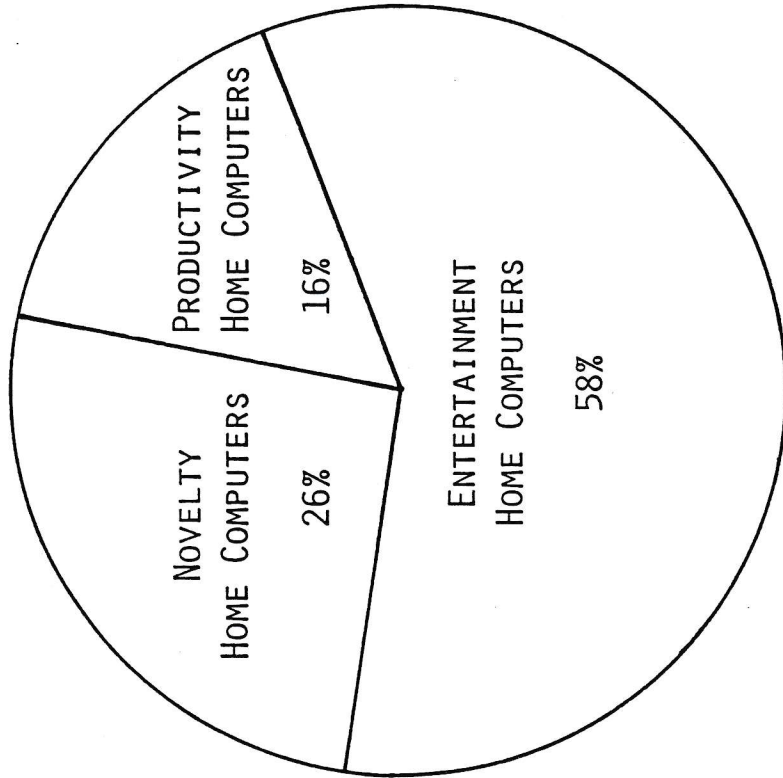
*45% yr.
4 packages - 9 packages
23% enter
25% produce*



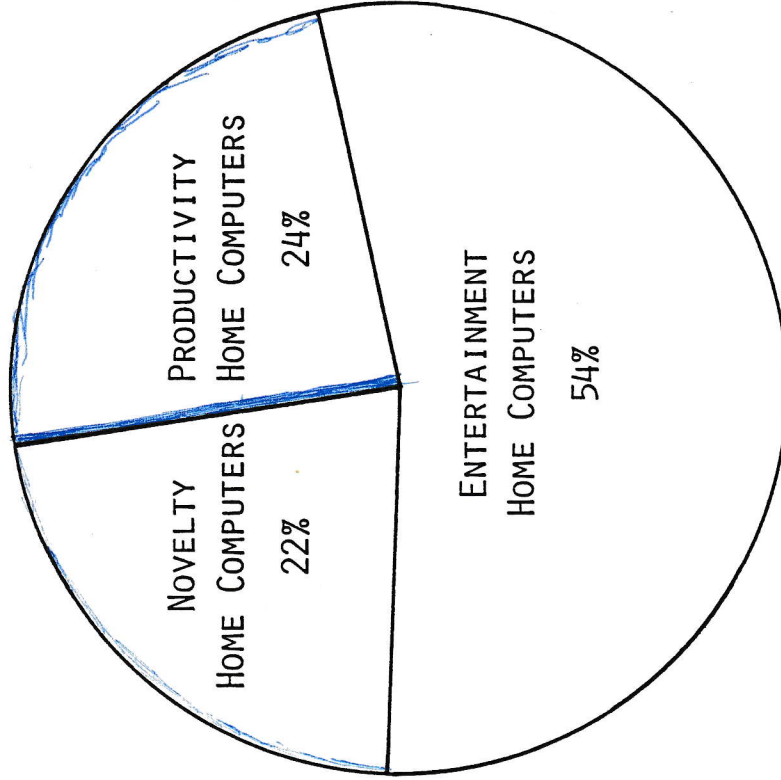
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SESSION 12

HOME COMPUTER SHIPMENTS BY PRODUCT CLASS
(U.S. ONLY)



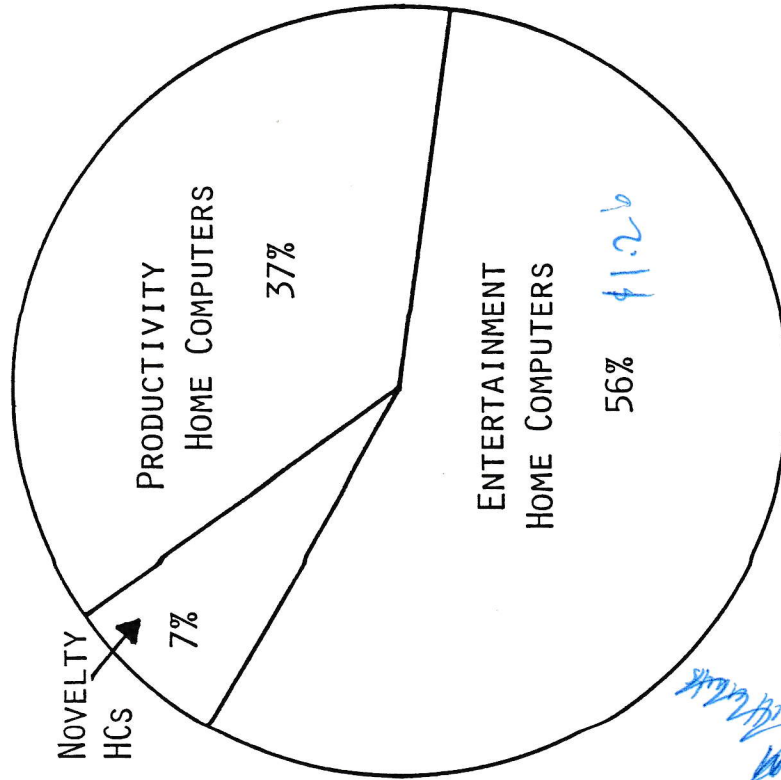
1983 = 5M UNITS



1988 = 15.8M UNITS

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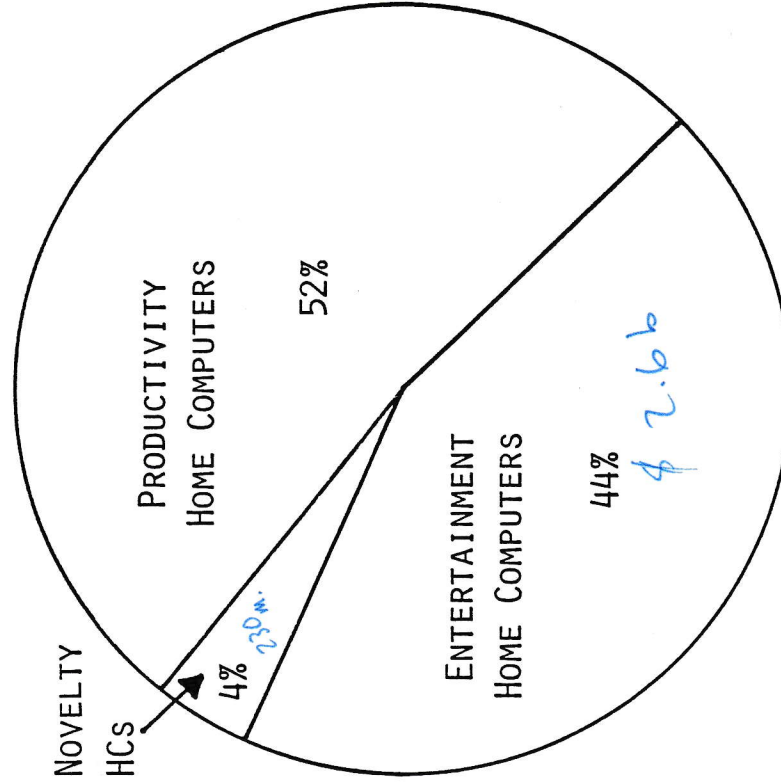
HOME COMPUTER MARKET BY PRODUCT CLASS
(U.S. ONLY)



1983 = \$2.1B

RETAIL VALUE

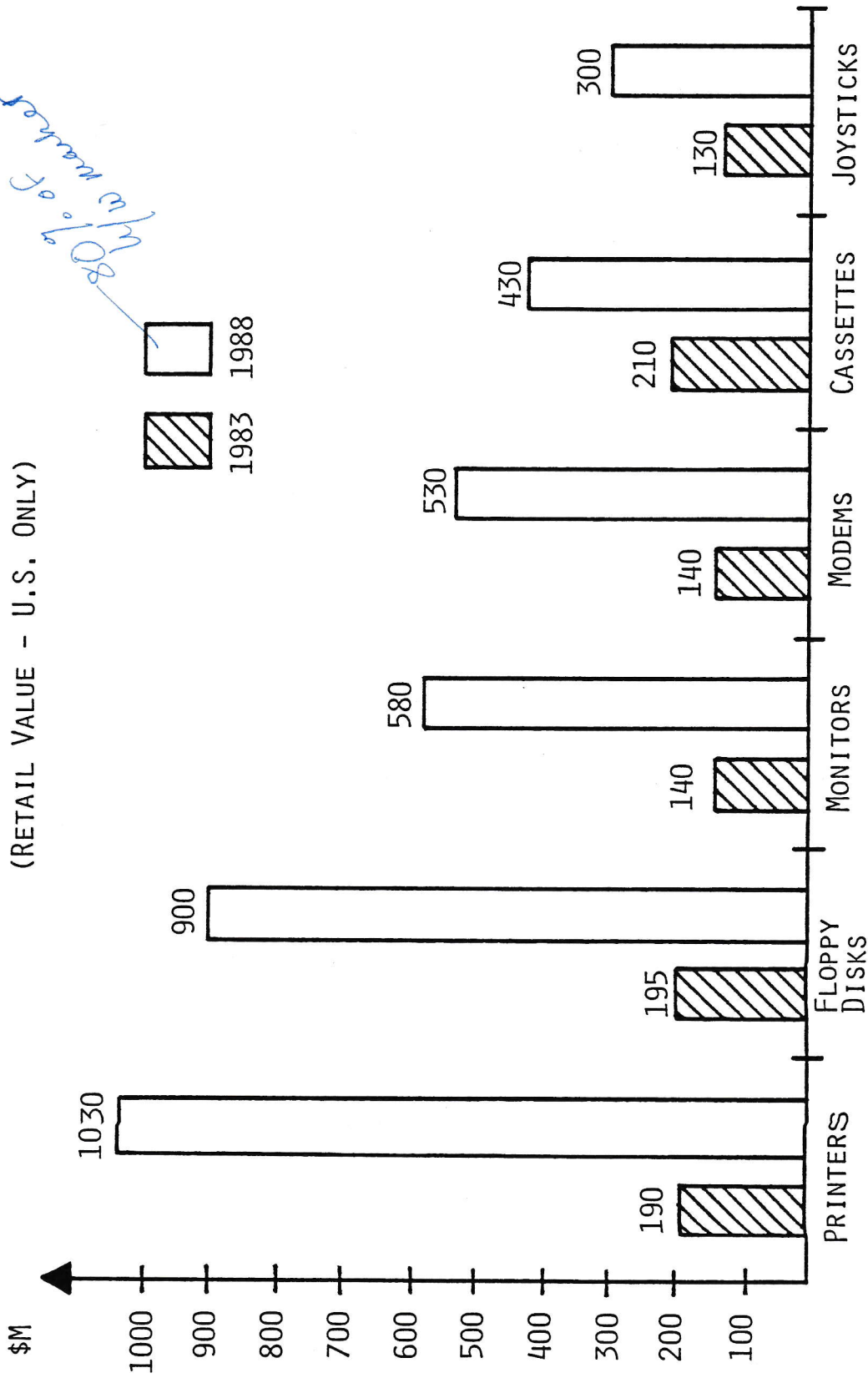
1988 = \$5.9B



MAJOR HOME COMPUTER PERIPHERAL MARKETS
(RETAIL VALUE - U.S. ONLY)

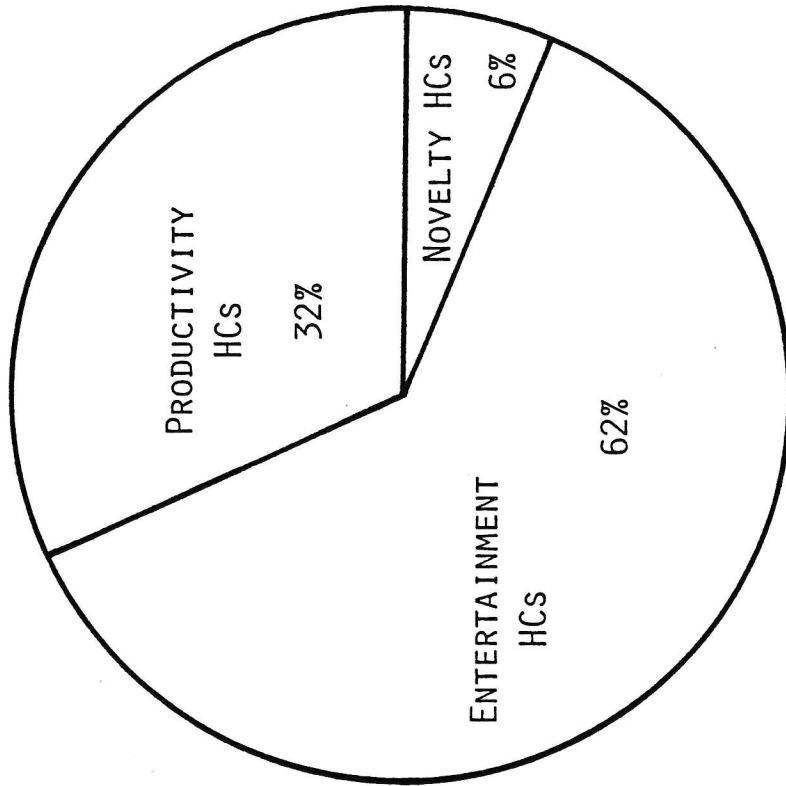
80% of market

1983 1988

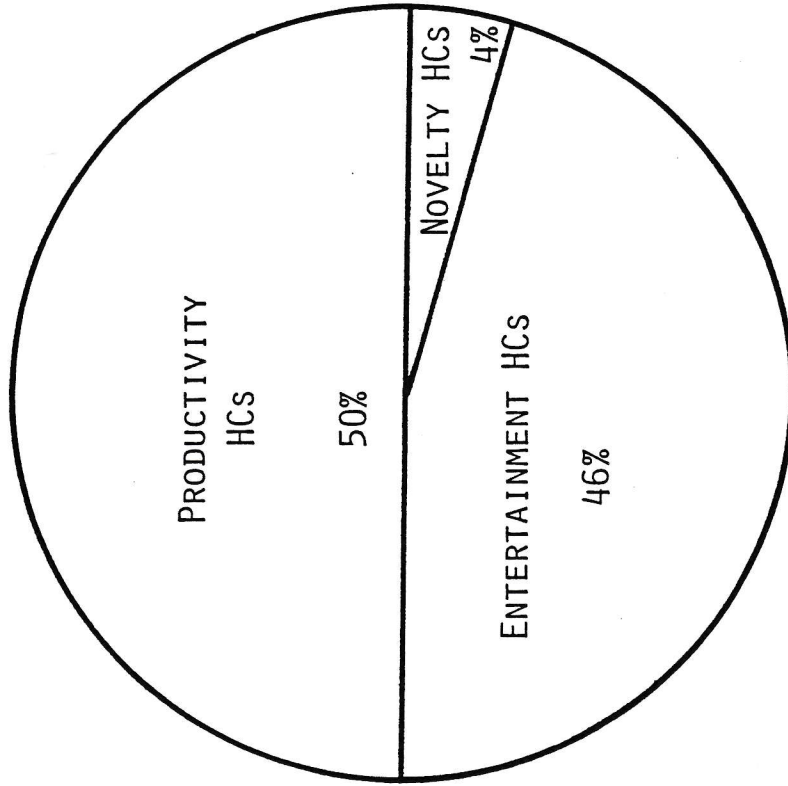


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TOTAL HOME COMPUTER PERIPHERAL MARKET BY HC CLASS
(U.S. ONLY)



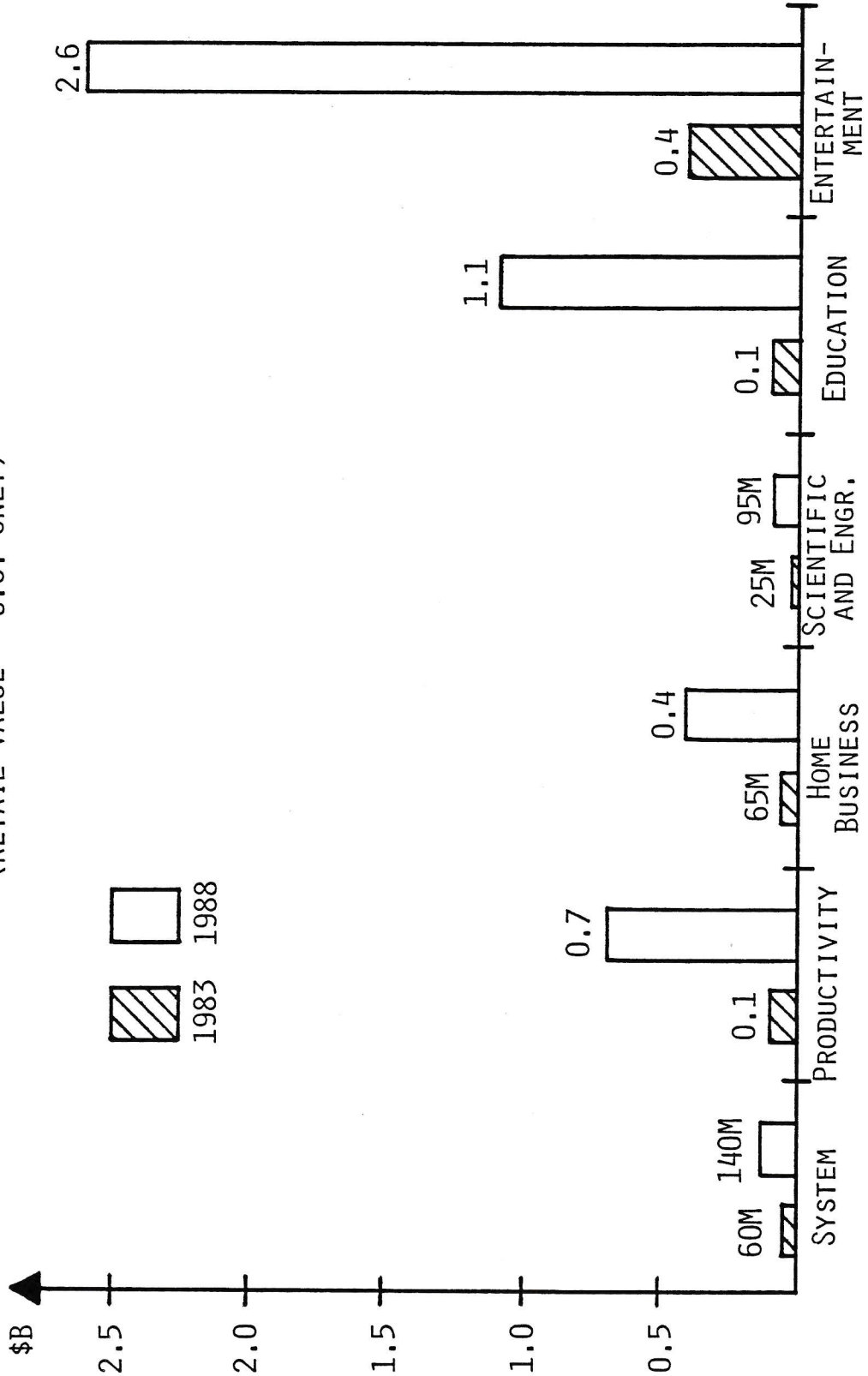
1983 = \$1.3B



1988 = \$4.8B

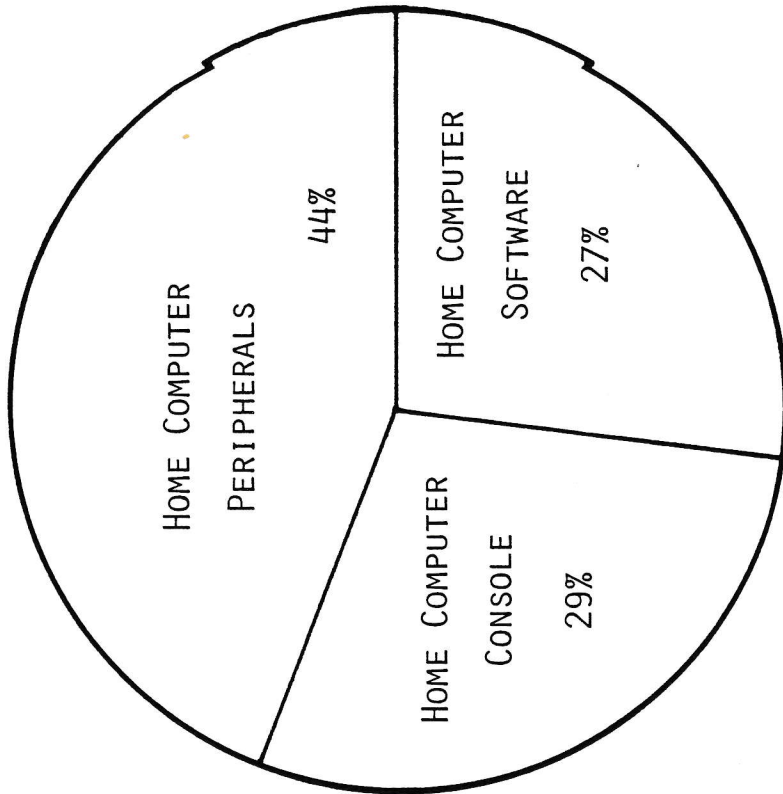
RETAIL VALUE

HOME COMPUTER SOFTWARE MARKET SEGMENTS
(RETAIL VALUE - U.S. ONLY)



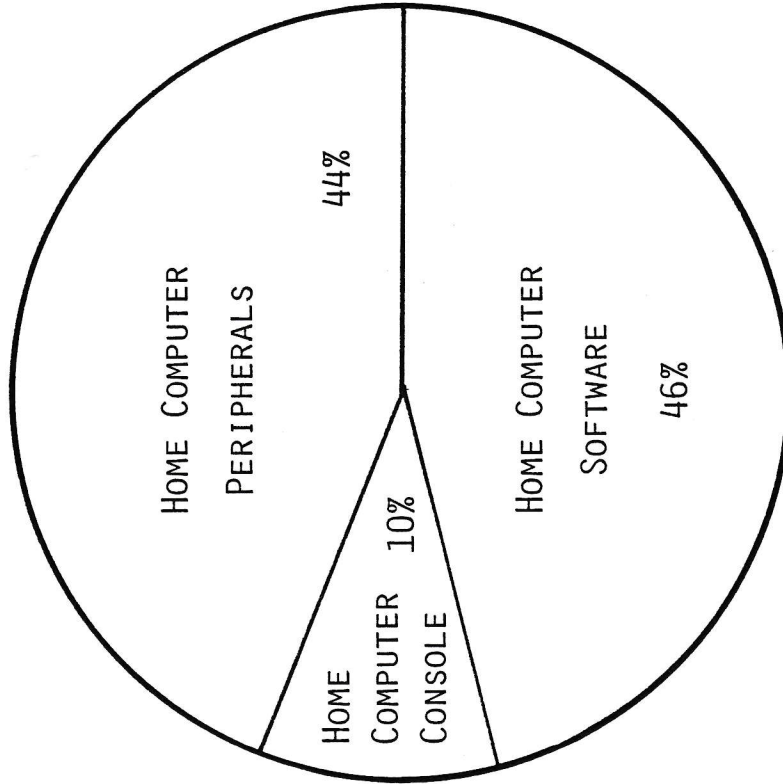
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HOME COMPUTER MARKET SEGMENTS
 (U.S. ONLY)



1983 = \$2.8B

grow at 50%/yr.

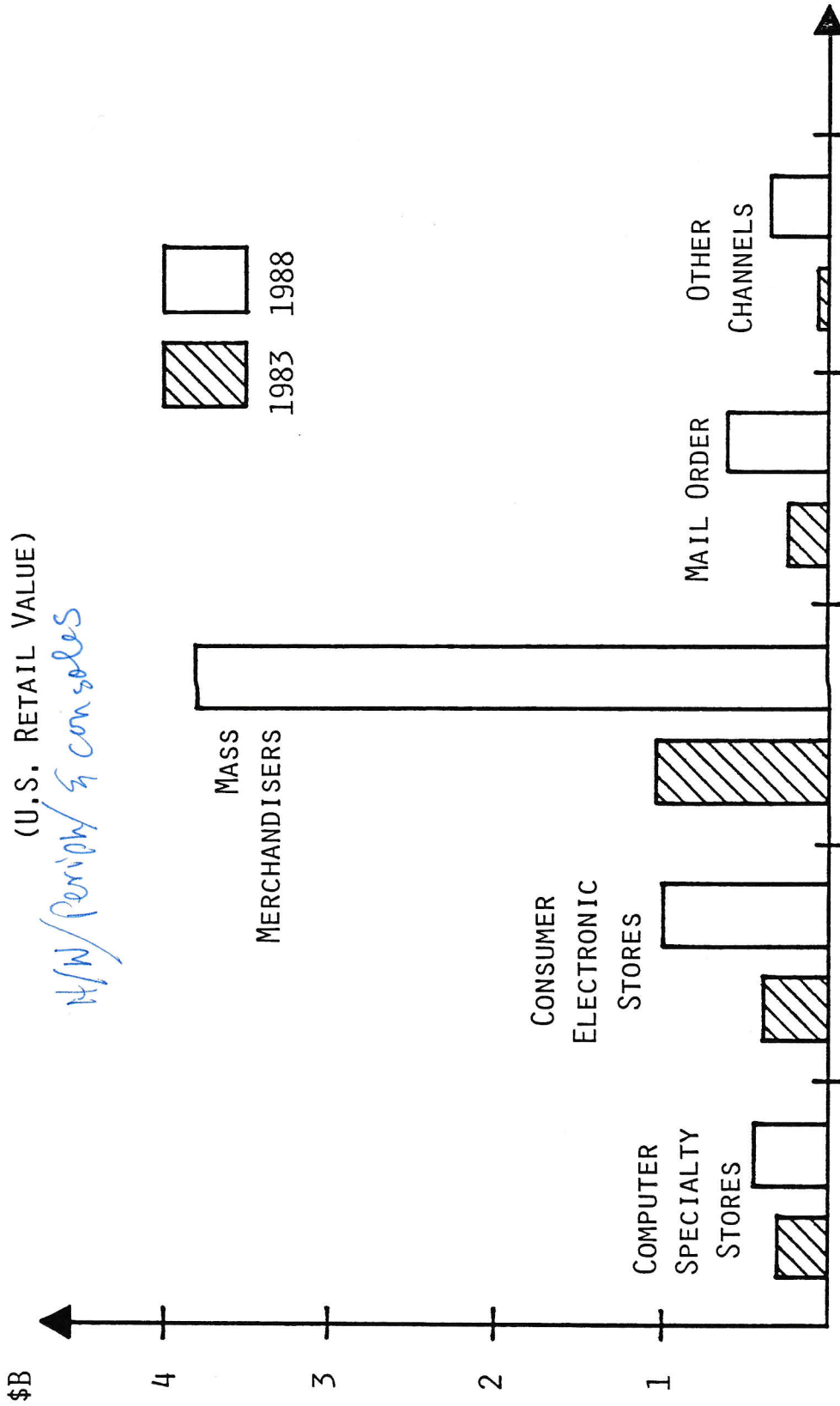


1988 = \$10.9B

HOME COMPUTER DISTRIBUTION CHANNEL REVENUES

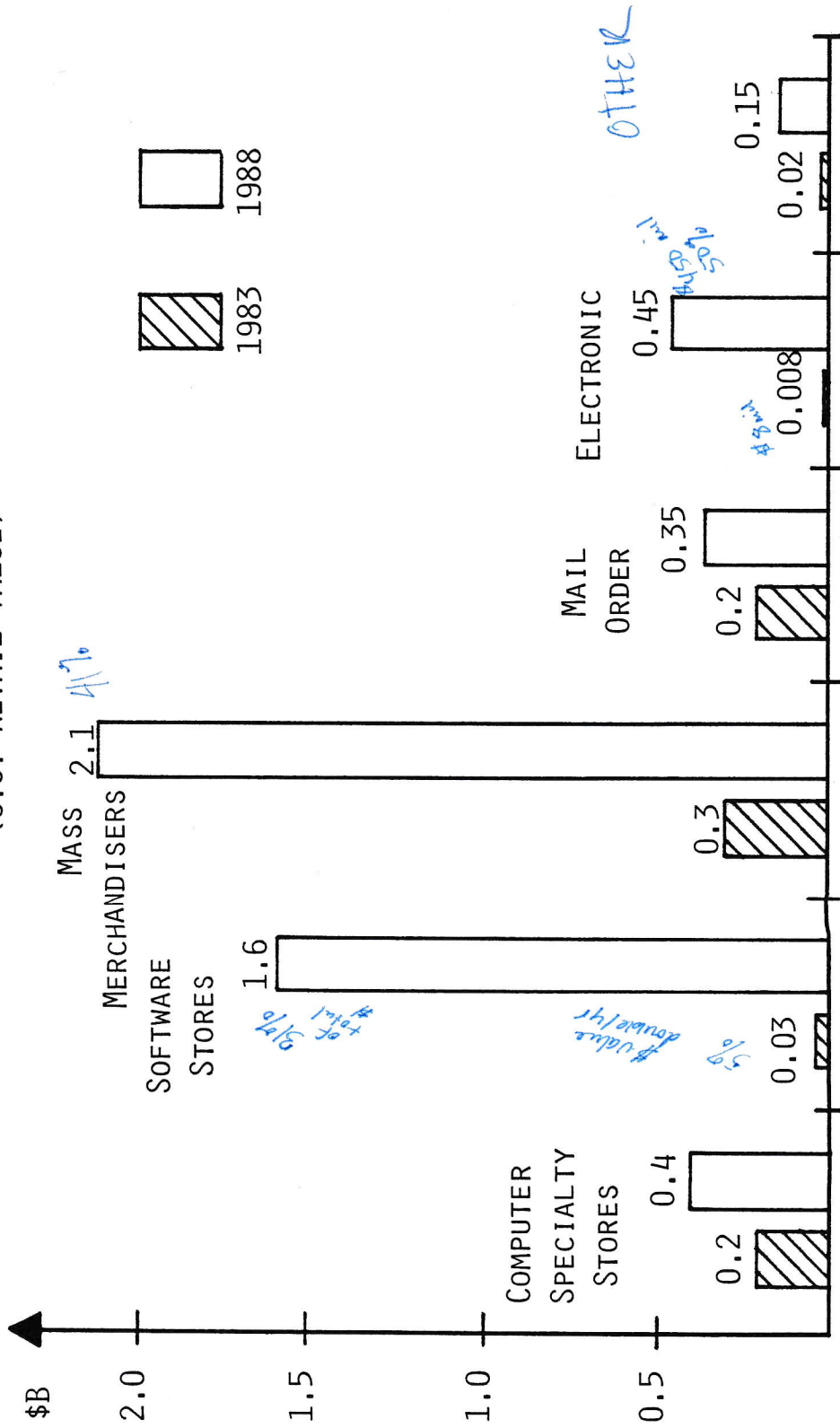
(U.S. RETAIL VALUE)

H/W/Peripherals & consoles



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HOME COMPUTER SOFTWARE DISTRIBUTION CHANNEL REVENUE
(U.S. RETAIL VALUE)

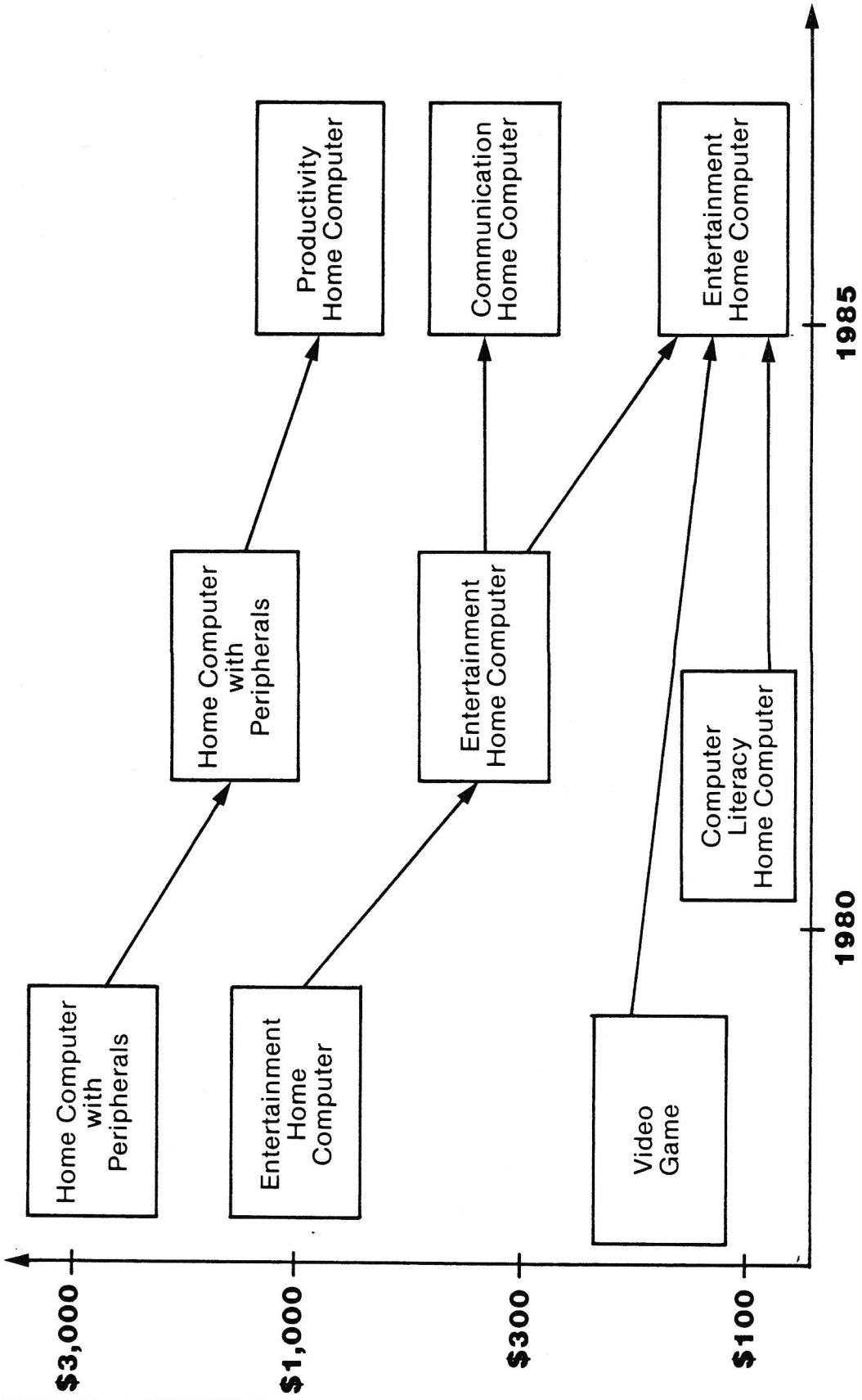


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HOME COMPUTER HARDWARE TRENDS	
TRENDS	EXAMPLES
CAPABILITY IMPROVEMENTS <ul style="list-style-type: none"> ● LARGER MEMORY ● BUILT-IN PERIPHERALS 	<ul style="list-style-type: none"> ● COMMODORE 64 ● ATARI 1400, 1450
SYSTEMS WITH BUNDLED PERIPHERALS	<ul style="list-style-type: none"> ● COLECO ADAM ● ATARI - THE WRITING SYSTEM ● TI-99/4A
LOW COST PERIPHERALS	<ul style="list-style-type: none"> ● LETTER-QUALITY PRINTERS: \$300-\$400 ● MATRIX PRINTERS: \$100-\$200 ● FLOPPY DISKS: \$200-\$300 ● PRINTERS/PLOTTERS: \$250-\$300
DE FACTO STANDARDS	<ul style="list-style-type: none"> ● MSX
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Home Computer Product Evolution

System Price
(Log Scale)



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83-3-4

1985 Home Computer Configurations

Entertainment HC	Communication HC	Productivity HC
<ul style="list-style-type: none"> • 32KB RAM • Color TV Interface • ROM Cartridge Software • Speech Output • Joystick • Entertainment Software • Education Software <p style="text-align: right;">\$100</p>	<ul style="list-style-type: none"> • 64KB RAM • Color TV Interface • ROM Cartridge Software • Speech Output • Joystick • Modem • RAM Cartridge Mass Storage • Cassette • Entertainment Software • Education Software • Communication Software • Transaction Software • Teletex Software <p style="text-align: right;">\$300</p>	<ul style="list-style-type: none"> • 128KB RAM • Color TV Interface • ROM Cartridge Software • Speech Output • Joystick • Modem • Microfloppy Disk • Impact Printer • Entertainment Software • Education Software • Communication Software • Transaction Software • Productivity Software • Home Business Software • Teletex Software <p style="text-align: right;">\$1,000</p>

SUCCESS REQUIREMENTS: ENTERTAINMENT SOFTWARE

PERSONAL COMPUTER
FOCUS

- HOME COMPUTERS WITH LARGE INSTALLED BASE AND HIGH SHIPMENT RATES ARE THE PRIMARY TARGETS
- APPLE II AND IBM PC ALSO HAVE LONG TERM ENTERTAINMENT SOFTWARE POTENTIAL

PRODUCT
FEATURES

- INNOVATIVE PRODUCTS ARE REQUIRED
- GOOD COLOR GRAPHICS IS NEEDED
- ATTRACTIVE PACKAGING IS REQUIRED

MARKETING
AND
DISTRIBUTION

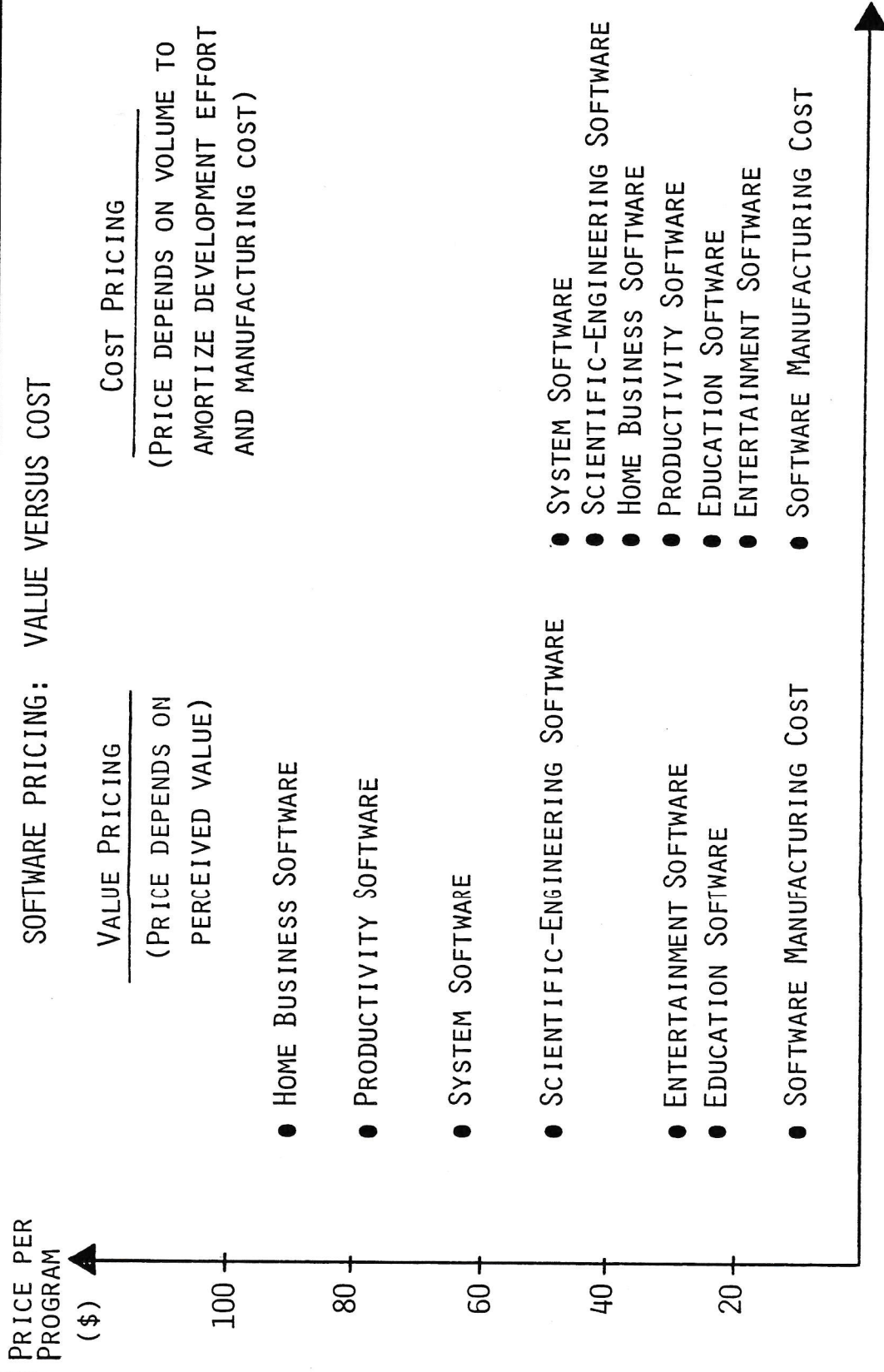
- SOFTWARE WHOLESALERS ARE REQUIRED
- MAJOR ADVERTISING REQUIRED - TV ADS WILL BE NEEDED
- NAMES OF PROGRAMMING STARS ARE VERY HELPFUL

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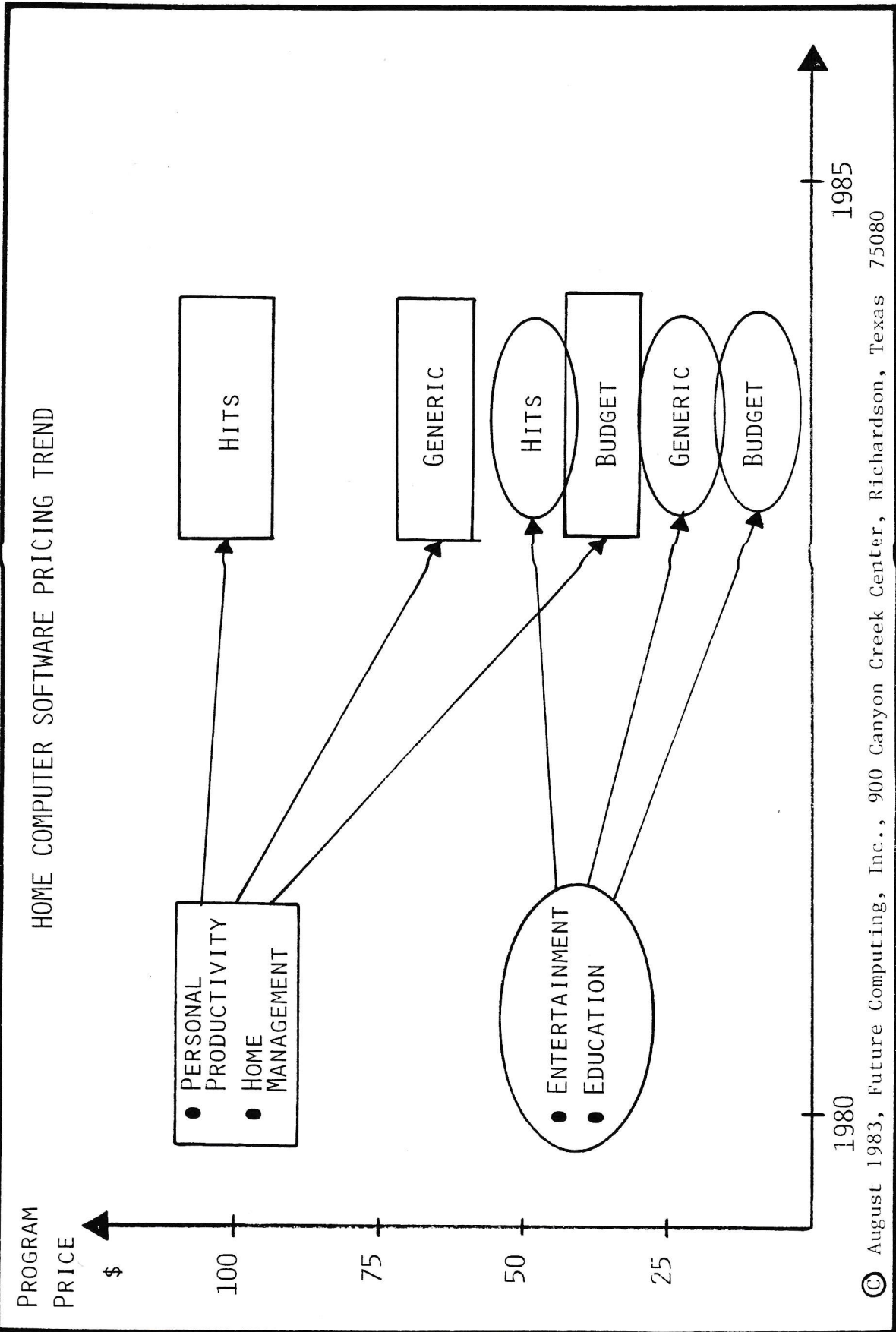
SUCCESS REQUIREMENTS: EDUCATIONAL SOFTWARE	
PERSONAL COMPUTER FOCUS	<ul style="list-style-type: none"> ● HOME COMPUTERS WITH LARGE INSTALLED BASE AND HIGH SHIPMENT RATES ARE THE PRIMARY TARGETS ● APPLE II AND IBM PC ALSO HAVE GOOD POTENTIAL
PRODUCT FEATURES	<ul style="list-style-type: none"> ● PRODUCTS WITH HOME EDUCATION APPEAL HAVE THE LARGEST POTENTIAL ● INNOVATIVE PROGRAMS ARE REQUIRED ● HIT PROGRAMS MUST HAVE EDUCATIONAL VALUE AND BE FUN
MARKETING AND DISTRIBUTION	<ul style="list-style-type: none"> ● SOFTWARE WHOLESALERS ARE REQUIRED ● MAJOR ADVERTISING IS REQUIRED - TV ADVERTISING WILL BE NEEDED BY 1984 ● BRAND NAMES ARE BECOMING IMPORTANT

HOME COMPUTER SOFTWARE TRENDS	
TRENDS	EXAMPLES
PRODUCTIVITY APPLICATIONS	<ul style="list-style-type: none"> ● VISICALC - ATARI 800 ● MULTIPLAN - TI-99/4A ● WORD PROCESSING - COLECO ADAM
EDUCATIONAL GAMES	<ul style="list-style-type: none"> ● SPINNAKER ● THE LEARNING COMPANY
BUDGET PRICE SOFTWARE	<ul style="list-style-type: none"> ● COMMODORE'S PRICE CUT ● LOW COST CASSETTE SOFTWARE
ELECTRONIC DISTRIBUTION TO RETAILERS	<ul style="list-style-type: none"> ● ROMOX ● PC TELEMART
SOFTWARE SPECIALTY STORES	<ul style="list-style-type: none"> ● SOFTWARE CENTRES INTERNATIONAL ● SOFTWARE CITY
SOFTWARE RACKJOBING	<ul style="list-style-type: none"> ● SERVICE SOFTWARE ● SKU ● SOFTSEL - PICKWICK

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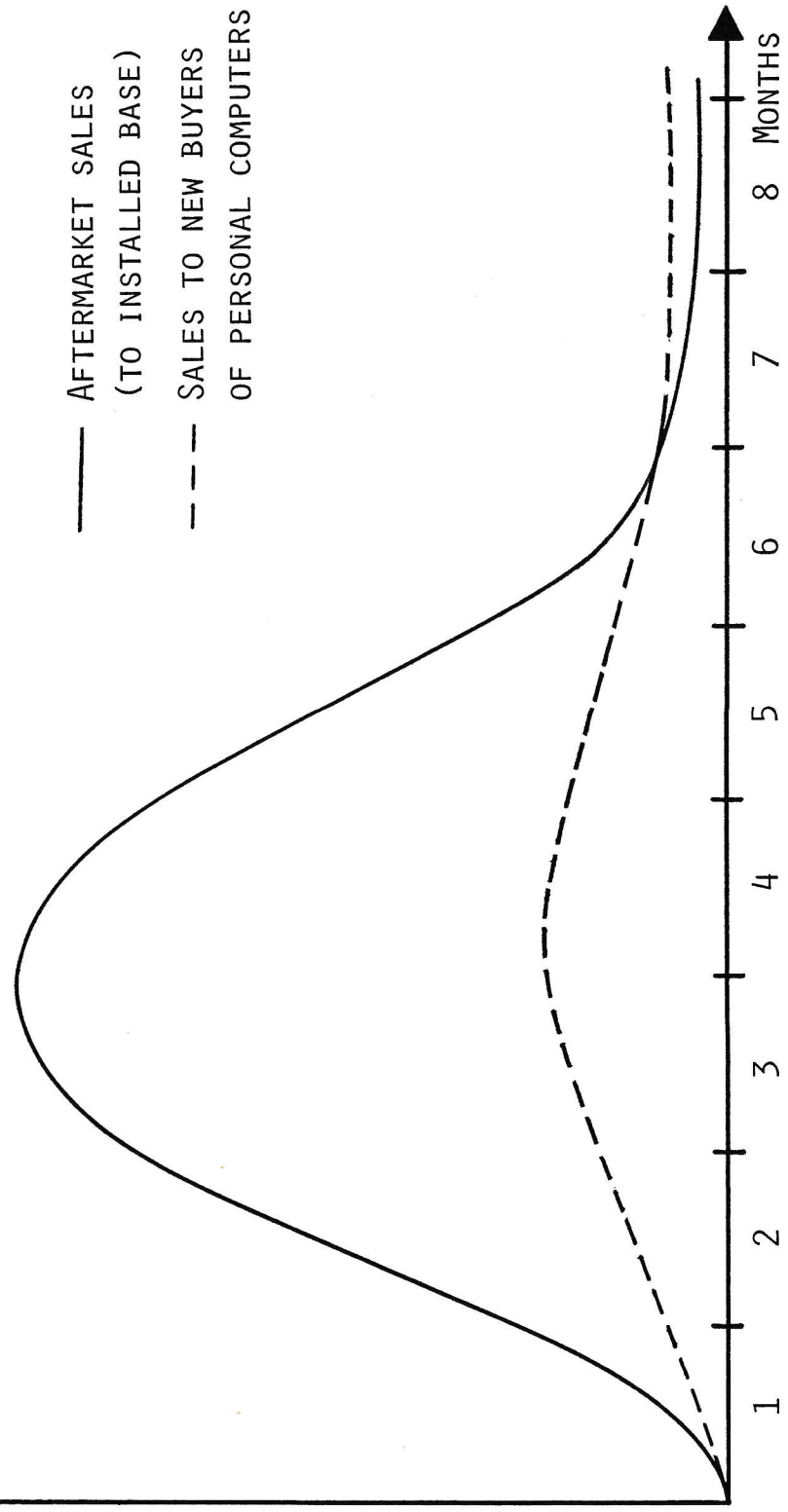


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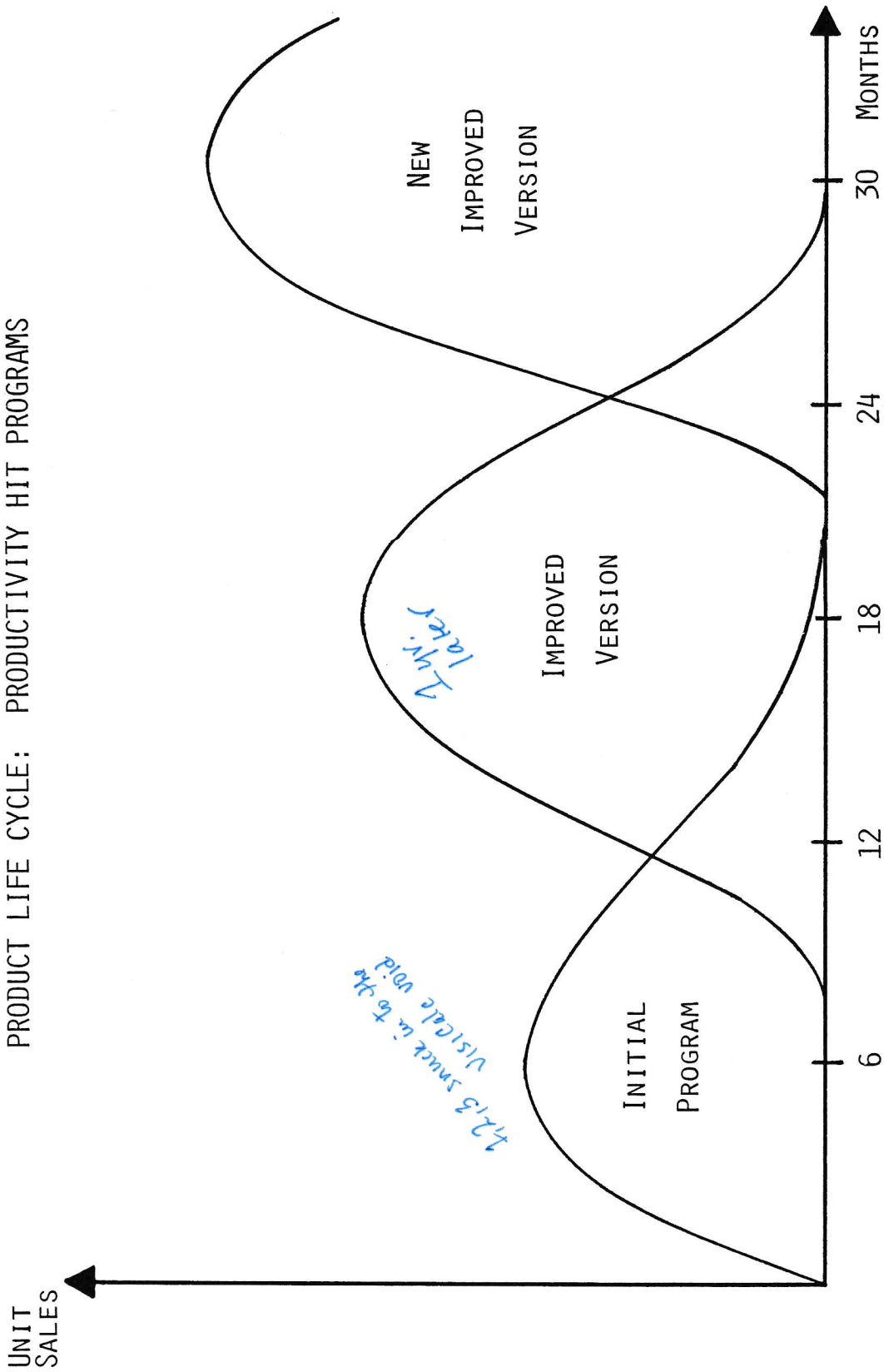
PRODUCT LIFE CYCLE: ENTERTAINMENT HIT PROGRAMS

UNIT SALES

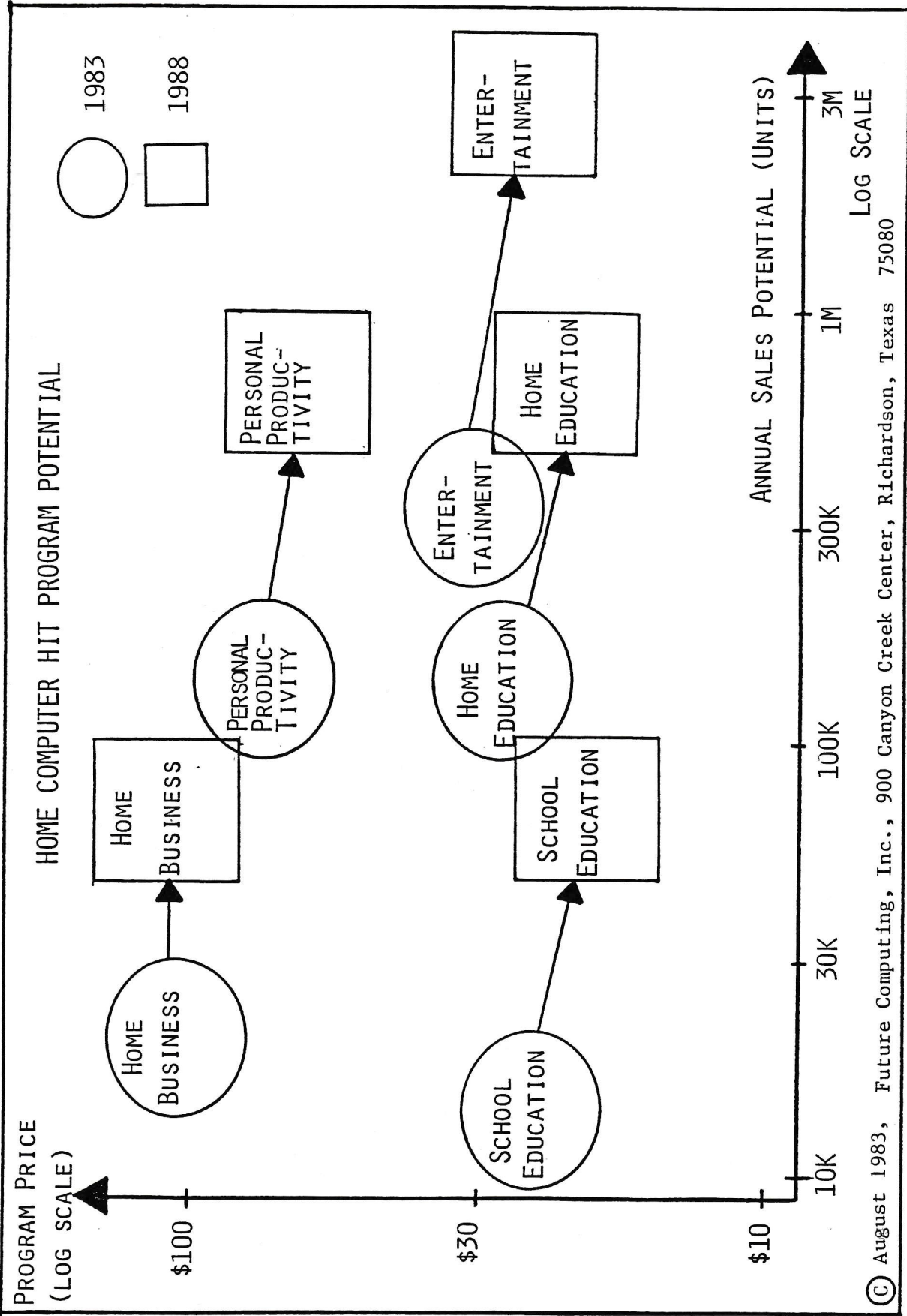


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PRODUCT LIFE CYCLE: PRODUCTIVITY HIT PROGRAMS



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ELECTRONIC SOFTWARE DISTRIBUTION

- ELECTRONIC DISTRIBUTION OF SOFTWARE IS SENDING PROGRAMS VIA THE TELEPHONE OR OTHER DATA COMMUNICATION LINKS.
- ELECTRONIC SOFTWARE DISTRIBUTION WILL HAVE SUBSTANTIAL IMPACT ON THE HOME COMPUTER SOFTWARE MARKET.
- THERE REMAIN SEVERAL QUESTIONS:
 - WILL THE SOFTWARE BE SENT TO THE STORE AND THEN SOLD?
 - WILL THE SOFTWARE BE SENT DIRECTLY TO THE CONSUMER?
 - WHO WILL MAKE THE MONEY?
 - HOW WILL ILLEGAL COPYING BE MINIMIZED?

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fix changes

HOME COMPUTER SOFTWARE ENTRANTS

- MOVIE PRODUCERS
- RECORDING COMPANIES
- TOY COMPANIES
- VIDEO GAME SOFTWARE COMPANIES
- BOOK PUBLISHERS
- OFFICE PERSONAL COMPUTER SOFTWARE COMPANIES
- STARTUP COMPANIES
- HOME COMPUTER MANUFACTURERS

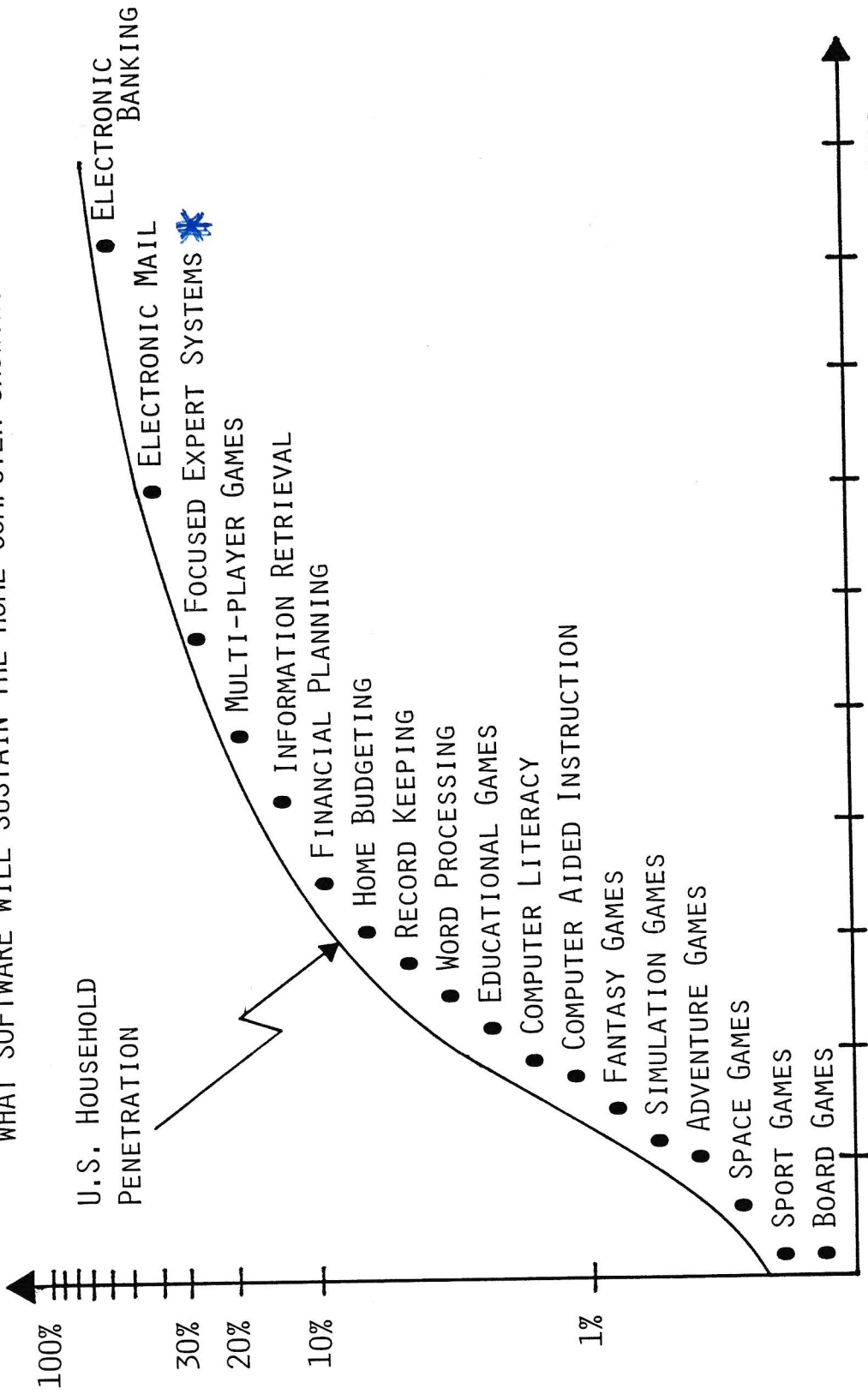
- RECORD STORES
- BOOK STORES
- SOFTWARE SPECIALTY STORES
- DEPARTMENT STORES
- TOY SPECIALTY STORES
- CATALOG SHOWROOMS
- ELECTRONIC SPECIALTY STORES
- COMPUTER SPECIALTY STORES

1980

1985

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WHAT SOFTWARE WILL SUSTAIN THE HOME COMPUTER GROWTH?



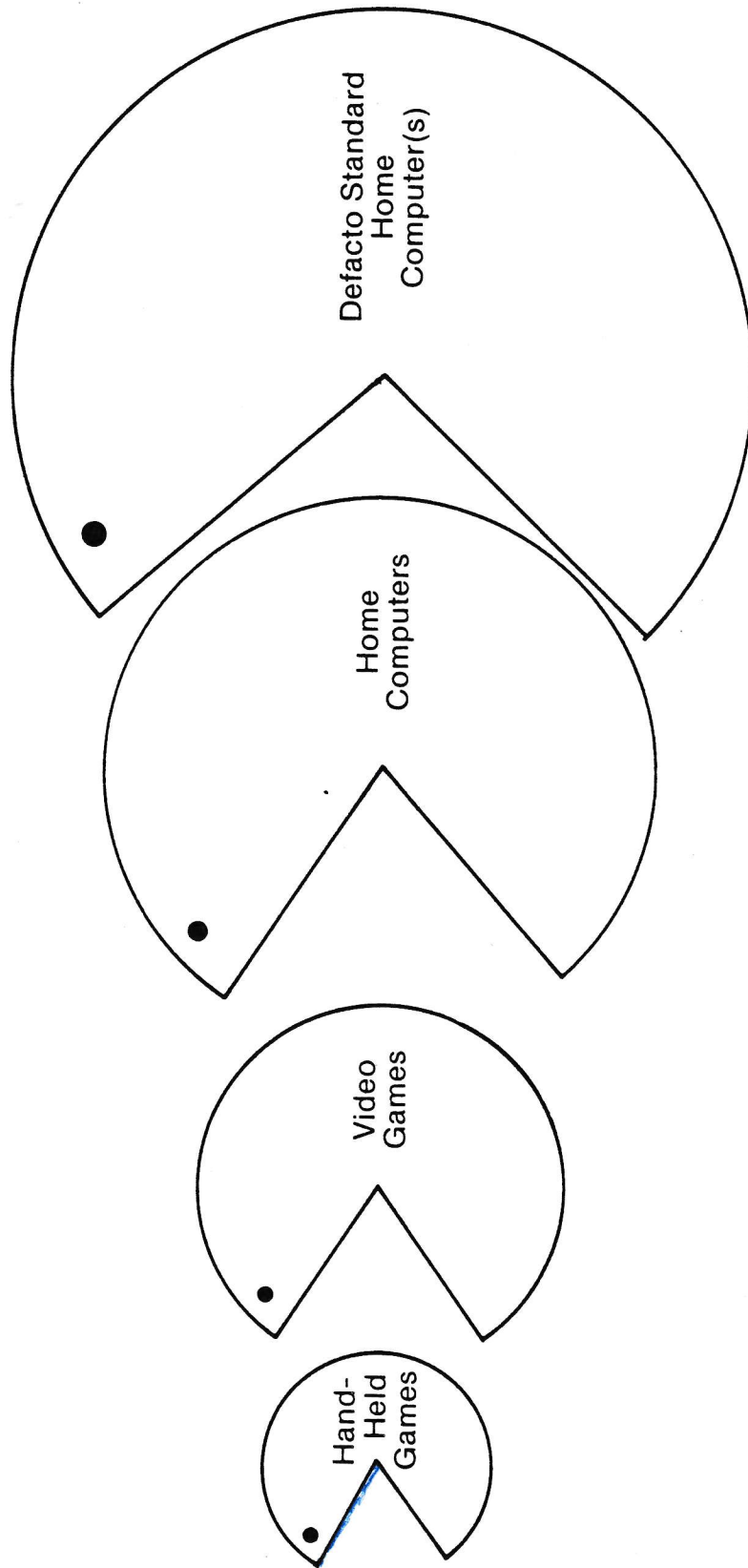
1990

1985

1980

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Defacto Standard Home Computer Impact



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83-3-6

DE FACTO STANDARD HOME COMPUTER CANDIDATES

CURRENT PROPRIETARY HOME COMPUTERS

architecture

- ATARI XL-FAMILY
- COMMODORE 64
- TRS-80 COLOR COMPUTER
- TI-99/4A

Radical change in manufacturers stance to become standards

EXISTING SOFTWARE BASE

- APPLE IIe *←* *co-activa derivative standard*
- CP/M *or compatible*
- *Not HOME BASED - experience base & programmers know what doing*
- IBM PERSONAL COMPUTER

● MSX-STANDARD PROPOSAL

imp. 1st time a S/W co. has led a gp of manu. to try to do this.

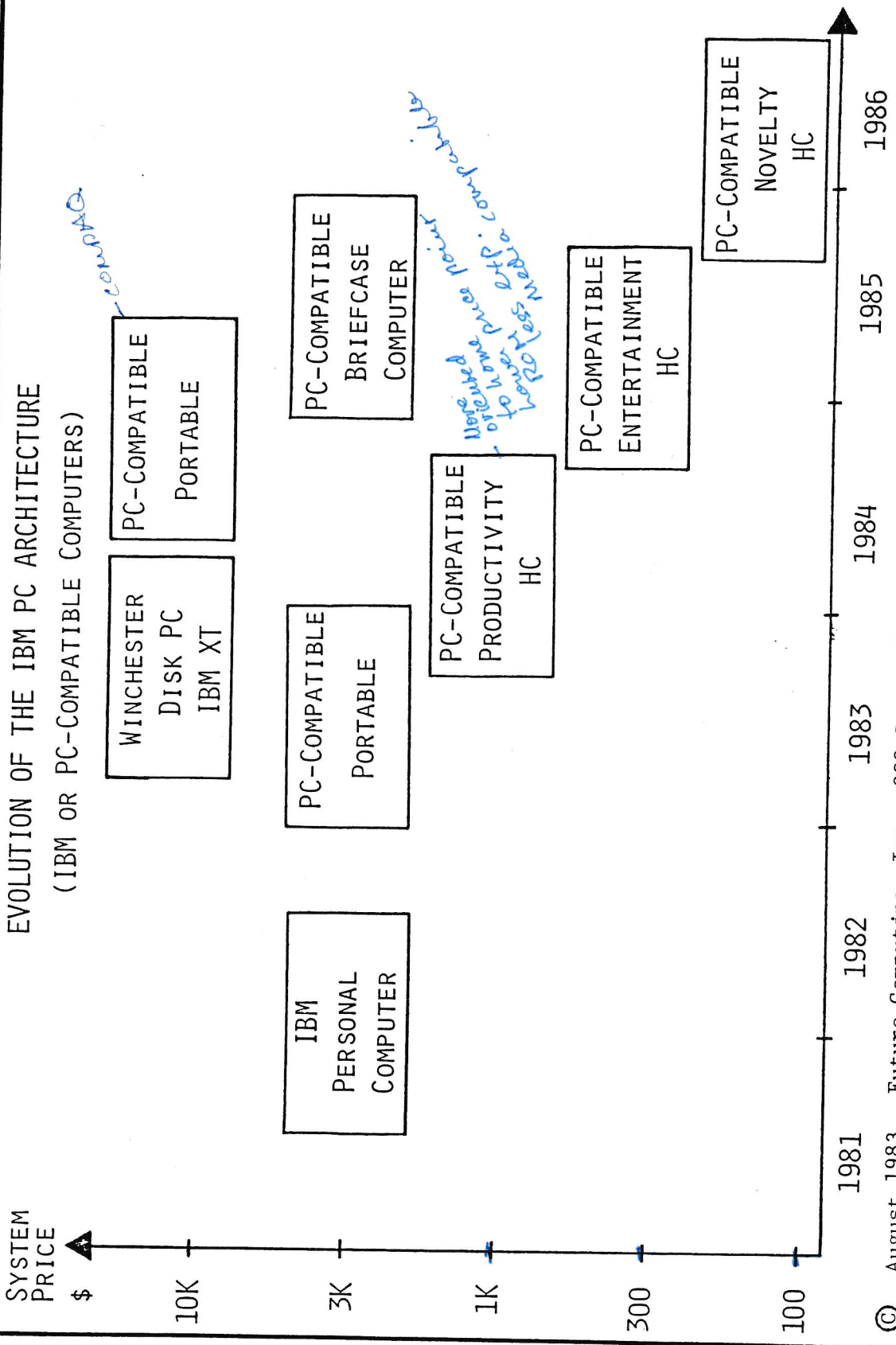
- *6800 based architecture*
- 1. *major manu. - in an open way*
- 2. *gp of manu. to co-announce*
- 6800, graphics chip. 6/S environment*

HOME COMPUTER STANDARD ASSESSMENTS							
DE FACTO STANDARD CANDIDATES (MPU)	LARGE MEMORY	COLOR GRAPHICS	INSTALLED BASE	MONTHLY SHIPMENT	SOFTWARE BASE (HOME/OFFICE)	MULTIPLE SUPPLIERS	
ATARI XL (6502)	YES	YES PROPRIETARY	700K+	50K+	GOOD/OK	No	
COMMODORE 64 (6510)	YES	YES PROPRIETARY	500K+	70K+	OK/OK	No	
TRS-80 COLOR (6809)	YES	YES PROPRIETARY	300K+	30K+	OK/LIMITED	No	
TI-99/4A (9900)	YES	YES 9918	1M+	100K+	GOOD/OK	No	
APPLE II (6502)	YES	YES PROPRIETARY	1M+	50K+	GOOD/GOOD	YES	
CP/M (Z80)	YES	YES 9918?	1M+	40K+	LIMITED/GOOD	YES	
IBM PC AND PC-COMPATIBLES (8088)	YES	YES	400K+	40K+	GOOD/GOOD	YES	
MSX (Z80)	YES	YES 9918	NOT YET	NOT YET	NOT YET (MICROSOFT BASIC)	YES SOON	

64K+

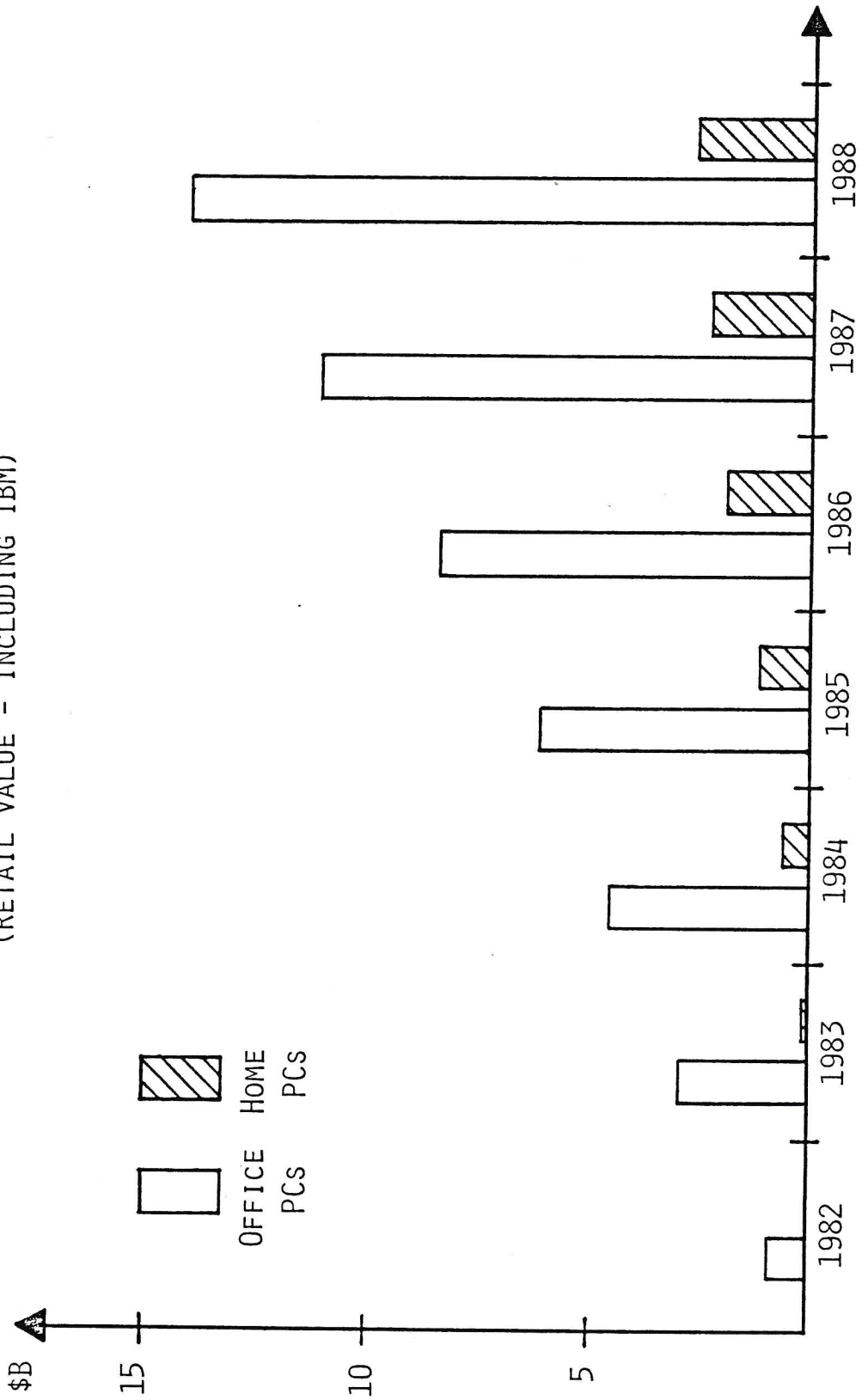
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EVOLUTION OF THE IBM PC ARCHITECTURE
 (IBM OR PC-COMPATIBLE COMPUTERS)



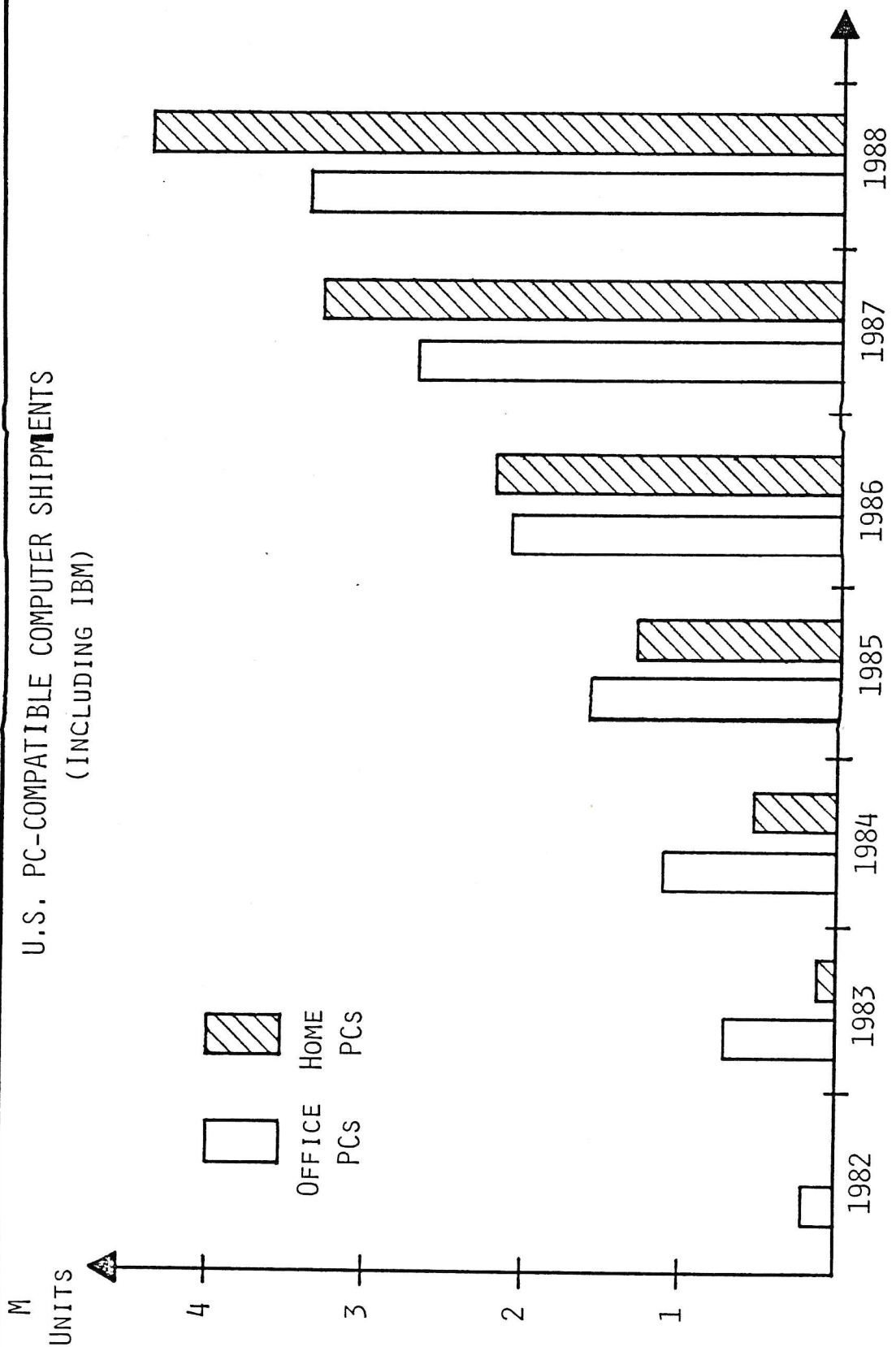
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U.S. PC-COMPATIBLE COMPUTER MARKET
 (RETAIL VALUE - INCLUDING IBM)



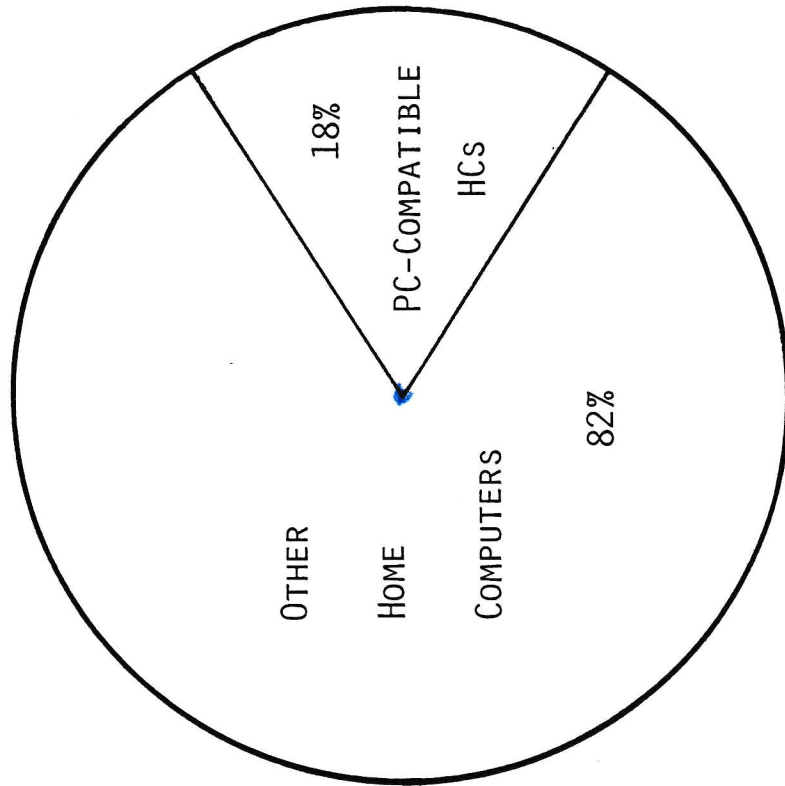
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U.S. PC-COMPATIBLE COMPUTER SHIPMENTS
(INCLUDING IBM)

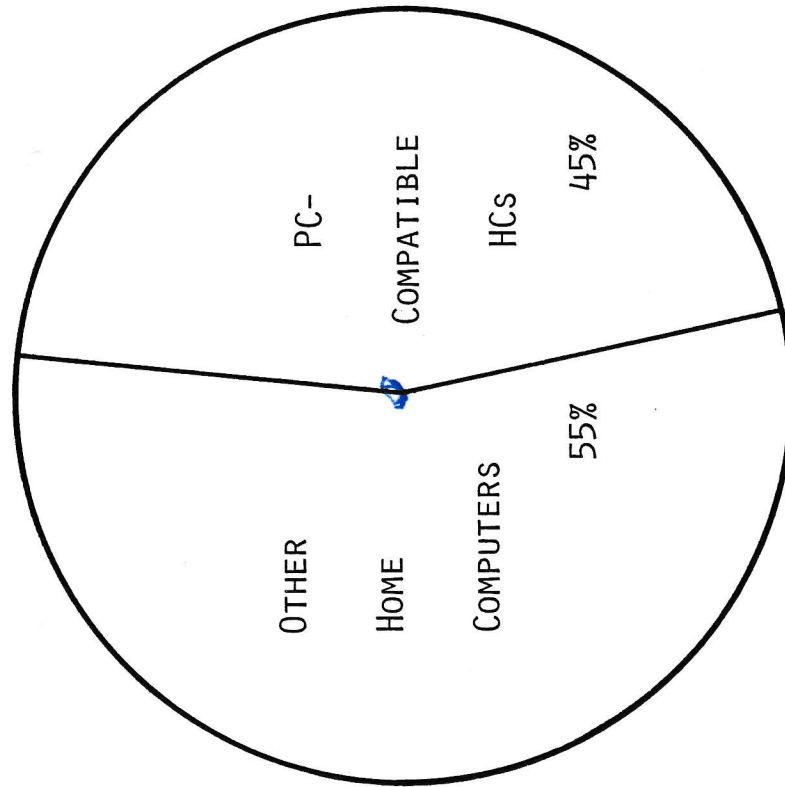


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IBM PC-COMPATIBLE PORTION OF HOME COMPUTER MARKET
 (U.S. HARDWARE - RETAIL VALUE)



1984 = \$2.9B

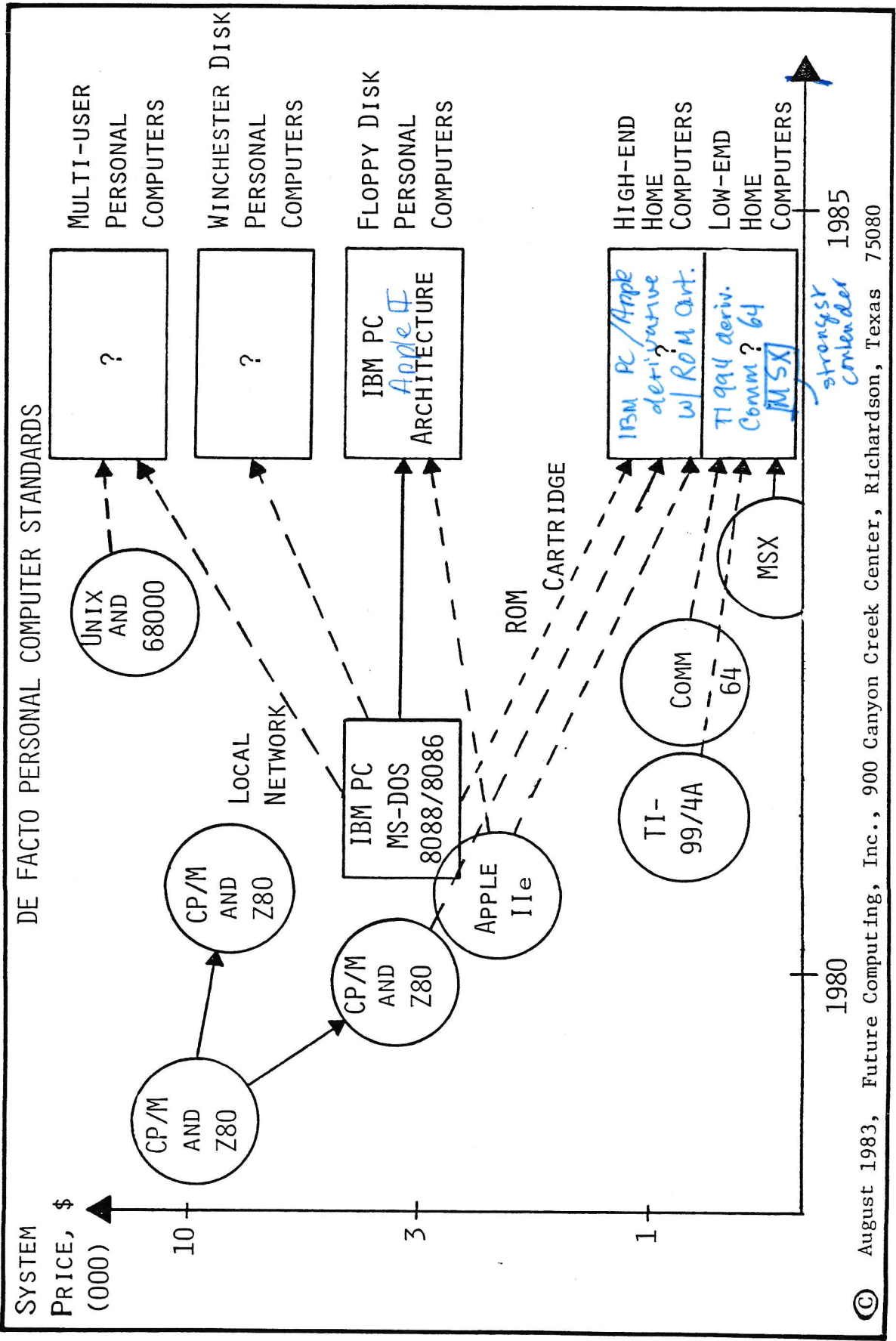


1988 = \$5.9B

architecture

WHAT IF THERE WERE AN APPLE II HOME COMPUTER?	
SUCCESS FACTORS	RESULT
<ul style="list-style-type: none">● APPLE II HAS THE BEST SOFTWARE BASE FOR FUN, EDUCATIONAL, AND HOME USES● THE APPLE NAME IS AMONG THE BEST KNOWN IN THE INDUSTRY● APPLE II IS ALREADY SELLING WELL TO CONSUMERS <p><i>1/2 of all Apple II's in homes</i></p>	<ul style="list-style-type: none">● AN APPLE II HOME COMPUTER WOULD QUICKLY BECOME A LEADING PRODUCT● AN APPLE II HOME COMPUTER WOULD BECOME A DE FACTO STANDARD AND WOULD SOLIDIFY APPLE'S POSITION● HOWEVER, THIS OPPORTUNITY WINDOW IS STARTING TO CLOSE <p><i>needs a ROM cartridge Some types of mass merchandising Channels</i></p>

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Home Computer Market

HOME COMPUTER SHIPMENT-US ONLY									
	1980	1981	1982	1983	1984	1985	1986	1987	1988
PRODTVTY HC #K	55	135	400	800	1400	1900	2500	3200	3850
ENTRTAIN HC #K	30	100	1100	2900	4300	5400	6400	7500	8550
NOVELTY HC #K	35	150	750	1300	1800	2200	2600	3000	3400
TOTAL HCs #K	120	385	2250	5000	7500	9500	11500	13700	15800
MKT GROWTH %		221	484	122	50	27	21	19	15
HCS SOLD #K	155	540	2790	7790	15290	24790	36290	49990	65790
REPLACEMENT %			1	3	6	11	18	25	31
REPLACEMENT #K			23	150	450	1045	2070	3425	4898
INSTAL BASE #K	155	540	2768	7618	14668	23123	32553	42828	53730
HOUSEHOLDS #M	79.1	81.2	82.4	83.7	84.9	86.2	87.5	88.8	90.1
HC/HOUSEHOLD %	0.20	0.67	3.36	9.10	17.28	26.82	37.20	48.23	59.63
MULTIPLE HCs %		1	3	5	8	11	14	16	18
PENETRATION %	0.20	0.66	3.26	8.67	16.00	24.17	32.63	41.58	50.54

AVERAGE SYSTEM PRICE-US ONLY									
	1980	1981	1982	1983	1984	1985	1986	1987	1988
PRODTVTY HC \$K	1.4	1.1	1	.95	.9	.86	.83	.81	.8
ENTRTAIN HC \$K	.75	.5	.45	.4	.35	.33	.32	.31	.3
NOVELTY HC \$K	.25	.2	.14	.105	.09	.085	.08	.075	.07

HOME COMPUTER MARKET-US ONLY(RETAIL VALUE)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988
PRODTVTY HC \$M	77	149	400	760	1260	1634	2075	2592	3080
ENTRTAIN HC \$M	23	50	495	1160	1505	1782	2048	2325	2565
NOVELTY HC \$M	9	30	105	137	162	187	208	225	238
TOTAL HCs \$M	108	229	1000	2057	2927	3603	4331	5142	5883
MKT GROWTH %		111	338	106	42	23	20	19	14
FACTRY VALU \$M	76	160	700	1440	2049	2522	3032	3599	4118
AUP \$K	0.90	0.59	0.44	0.41	0.39	0.38	0.38	0.38	0.37
AFTERMARKET \$M	5	15	80	308	663	942	1138	1357	1614
AFTERMARKET %	4.62	6.56	7.95	14.98	22.64	26.13	26.28	26.39	27.44
PRODTVTY HC %	71.13	64.99	40.00	36.96	43.05	45.35	47.91	50.41	52.35
ENTRTAIN HC %	20.79	21.88	49.50	56.41	51.42	49.46	47.29	45.22	43.60
NOVELTY HC %	8.08	13.13	10.50	6.64	5.53	5.19	4.80	4.38	4.05
	100.	100.	100	100.	100.	100.	100.	100.	100.

WORLDWIDE HOME COMPUTER MARKET									
	1980	1981	1982	1983	1984	1985	1986	1987	1988
HC-US SHARE %	85	84	83	82	80	77	74	70	66
HC-WW SHIP #K	141	458	2711	6098	9375	12338	15541	19571	23939
HC-WW MKT \$M	134	286	1265	2633	3842	4913	6145	7713	9359

Home Computer Peripheral Summary

HC PERIPHERAL SUMMARY-US ONLY (RETAIL VALUE)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988
PRINTER-LQ \$M	1	3	12	43	118	208	276	381	488
PRTR-MATRIX \$M	12	24	83	150	219	290	365	461	546
PLOTTERS \$M	0	1	10	34	73	100	134	171	212
FLOPPY DSK \$M	7	18	85	195	342	464	609	756	904
MONITORS \$M	4	12	61	144	234	307	389	488	583
MODEMS \$M	4	10	61	141	226	297	369	444	528
JOYSTICKS \$M	4	11	61	134	192	224	254	279	295
INPUT \$M	3	8	46	113	182	243	310	384	451
OUTPUT \$M	2	5	31	86	141	187	231	280	319
CASSETTES \$M	7	18	99	209	289	336	373	408	432
TOT PERIF \$M	44	110	549	1249	2016	2656	3310	4052	4758
TOT PERIF %	40.65	48.14	54.90	60.73	68.88	73.72	76.43	78.80	80.88
P.HC % TOT PER	70	62	35	32	38	41	45	48	50
E.HC % TOT PER	23	28	56	62	56	54	51	48	46
N.HC % TOT PER	7	10	9	6	5	5	5	4	4
PRINTER-LQ #K	0	2	14	77	254	558	920	1410	1946
PRTR-MATRX #K	12	39	193	420	714	1128	1650	2314	3022
PLOTTERS #K	0	1	15	82	199	349	520	738	984
FLOPPY DSK #K	10	31	173	500	1034	1673	2503	3517	4623
MONITORS #K	11	35	201	510	882	1249	1677	2199	2757
MODEMS #K	13	40	274	716	1264	1827	2491	3314	4211
JOYSTICKS #K	138	422	2787	6935	10867	14029	16898	19919	22387
INPUT #K	6	20	128	346	614	891	1220	1628	2073
OUTPUT #K	5	16	113	345	609	883	1208	1611	2052
CASSETTES #K	102	304	1779	3907	5605	6640	7465	8220	8695
TOT PERIF #K	297	910	5677	13838	22042	29227	36552	44870	52750
PERIF/HC #	2.48	2.36	2.52	2.77	2.94	3.08	3.18	3.28	3.34
PERIF/HC \$	367	286	244	250	269	280	288	296	301

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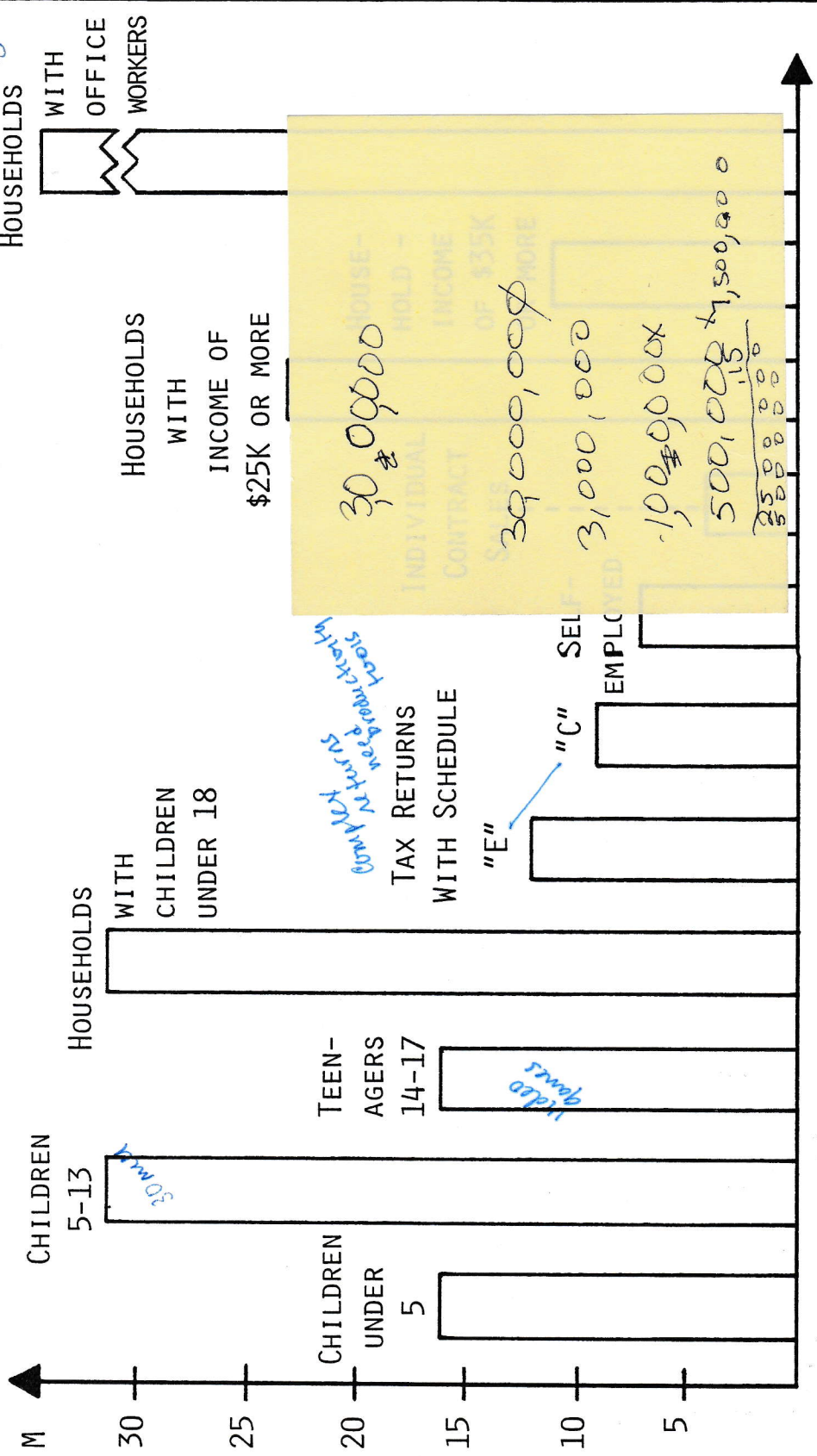
Home Computer Software Summary

HOME COMPUTER SOFTWARE SUMMARY-US ONLY									
		1981	1982	1983	1984	1985	1986	1987	1988
SYSTEM SOFTWARE	\$M	9	33	60	80	97	111	124	137
PRODUCTIVITY SW	\$M	10	50	115	195	281	385	516	667
HOME BUSINESS SW	\$M	5	27	64	117	174	242	327	423
SCIENG SOFTWARE	\$M	2	11	23	38	53	66	79	93
EDUCATION SW	\$M	5	37	115	235	399	609	828	1054
ENTERTAINMENT SW	\$M	17	124	379	733	1127	1603	2106	2640
TOTAL HC SW	\$M	48	282	756	1398	2131	3016	3980	5014
HC SW GROWTH	%		488	168	85	52	42	32	26
SYSTEM SOFTWARE	#K	100	383	701	962	1189	1394	1562	1744
PRODUCTIVITY SW	#K	127	662	1524	2531	3626	4945	6602	8444
HOME BUSINESS SW	#K	59	334	787	1413	2089	2884	3868	4976
SCIENG SOFTWARE	#K	41	221	447	693	903	1108	1288	1495
EDUCATION SW	#K	174	1366	4148	8151	13455	19913	27978	36827
ENTERTAINMENT SW	#K	575	3978	11875	23068	36513	51956	70221	90507
TOTAL SW UNIT SHIP	#K	1076	6944	19482	36818	57775	82200	111519	143993
SOFTWARE AUP	\$	45	41	39	38	37	37	36	35
SOFTWARE PER HC	#	2.79	3.09	3.90	4.91	6.08	7.15	8.14	9.11
PRODUCTIVITY HC SHARE	%	58	30	24	25	25	26	27	28
ENTERTAIN HC SHARE	%	33	61	68	68	67	66	65	65
NOVELTY HC SHARE	%	10	9	8	7	8	8	8	8

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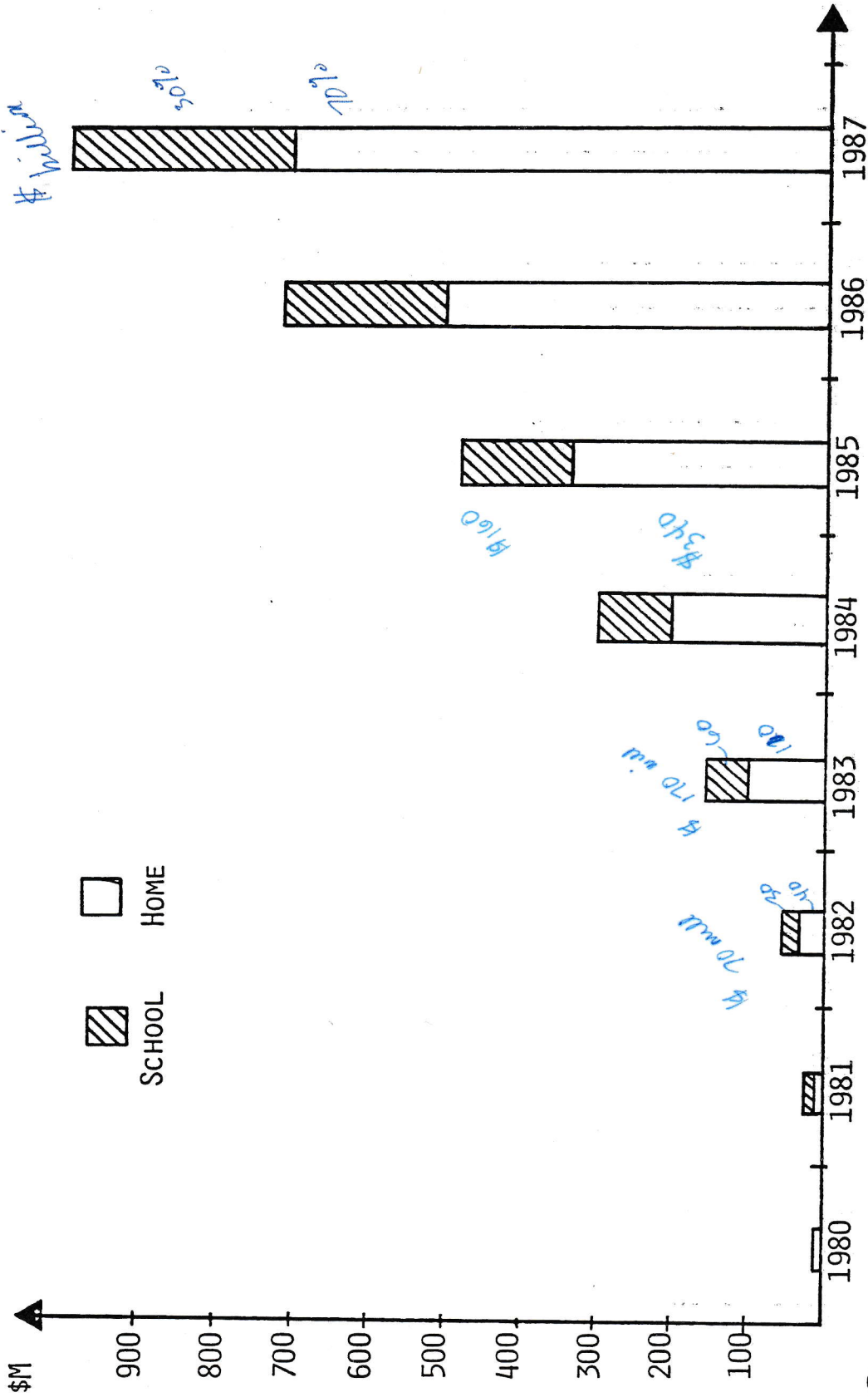
HOME COMPUTER SOFTWARE CUSTOMER POTENTIAL

50-55 M.



X

PERSONAL COMPUTER EDUCATIONAL SOFTWARE MARKET



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