The Computer Handbook

Other Macmillan books of related interest

Computer Literacy: A beginners' guide Vincent Walsh

Dictionary of Information Technology Dennis Longley and Michael Shain

Making Computers Work Trevor J. Bentley

Mastering Computers G. Wright

The Microcomputer Users Handbook Dennis Longley and Michael Shain

Understanding Microcomputers Dennis Longley and Michael Shain

The Computer Handbook

A businessman's guide
to choosing and using
a computer system

Charles Jones

M
MACMILLAN

© Charles Jones 1986

All rights reserved. No reproduction, copy or transmission of this publication may be made without written permission.

No paragraph of this publication may be reproduced, copied or transmitted save with written permission or in accordance with the provisions of the Copyright Act 1956 (as amended).

Any person who does any unauthorised act in relation to this publication may be liable to criminal prosecution and civil claims for damages.

First published 1986

**Published by
MACMILLAN EDUCATION LTD
Houndmills, Basingstoke, Hampshire RG21 2XS
and London
Companies and representatives
throughout the world**

British Library Cataloguing in Publication Data

Jones, Charles

**The computer handbook: a businessman's guide
to choosing and using a computer.**

1. Microcomputers—Catalogs

I. Title

001.64'04'0294 QA76.5

ISBN 978-0-333-39263-8

ISBN 978-1-349-07991-9 (eBook)

DOI 10.1007/978-1-349-07991-9

**This book is dedicated to William Jones, Senior and Junior,
who made it all possible**

Although this may seem a paradox, all exact science is dominated by the idea of approximation

Bertrand Russell

Contents

(*Italic heads indicate illustrative sections for use as reference material*)

Introduction	1
The first step is the biggest	1
“Is this actually a revolution?”	3
<i>Development of office technology</i>	6
<i>The ‘generations’ of computer development</i>	8
 1 The New Role for Management	 10
The new skills	10
<i>Flowcharting</i>	13
<i>Decision tables</i>	14
<i>A ‘system’</i>	17
Why bother with computers?	19
<i>Possible areas where computer systems can ‘earn their keep’</i>	20
<i>The time trap</i>	22
Office productivity	23
<i>The hierarchy of systems</i>	25
New technology and the human interface	28
Recruitment	31
Education	32
<i>Computer Aided Engineering (CAE)</i>	36
 2 Computer Equipment	 38
The evolution of computers	38
<i>Computer configurations</i>	40
<i>Benchmarks</i>	41
<i>What’s in a word</i>	44
<i>Boolean logic and the binary system of counting</i>	46
The mainframe	48
<i>Computer level bus services</i>	50
<i>The development of the microchip</i>	54
<i>The different microprocessors</i>	56
<i>Typical layout of a microcomputer’s electronics</i>	58

	<i>How internal memory can be used in microcomputers</i>	60
	<i>Types of data storage access</i>	63
	<i>Access times and cache memory</i>	65
	Printers and plotters	67
	Impact printers	67
	<i>Printing technologies 1</i>	69
	Non-impact printers	71
	<i>Printing technologies 2</i>	72
	<i>Printing tips</i>	74
	Terminals, monitors, VDUs, displays and keyboards	75
	<i>Display check-list and the technology</i>	76
	Man-machine interface	81
	<i>The ASCII and EBCDIC codes</i>	82
	Optical character recognition and facsimile exchange	84
	<i>Bar Codes</i>	85
	<i>Information on plastic cards, OCR & FAX</i>	86
	Telex, Teletex and Teletext	87
	<i>Communications terminology and Prestel</i>	88
	Communications	91
	<i>Local and Wide Area Networks</i>	92
	<i>Digital, analogue and modulated signals</i>	94
	<i>Communications techniques and terminology</i>	95
	<i>RS232C serial connection and associated protocols</i>	96
	<i>The ISO 7-layer communications model</i>	99
3	Software	101
	What it is	101
	<i>The different levels of software</i>	103
	<i>Program suites and packages</i>	105
	<i>What would you see if you could read a disk?</i>	108
	<i>The database concept</i>	112
	<i>Programming concepts</i>	114
	Computer languages	115
	Operating systems	122
	<i>Multi-user and multi-tasking systems</i>	123
	<i>Microcomputer configurations</i>	126
	The cost of software	129
	<i>The price you pay for software</i>	130
	Piracy	132
	Problems and pitfalls	133
	Future developments	135
	<i>Windows, icons, mice and pointers</i>	138
4	Selecting a System	141
	<i>An overview of package selection</i>	142
	The strategy	144

The feasibility study	145
<i>Strategies</i>	146
<i>Strategies – another perspective</i>	148
<i>The interdependence of files</i>	149
Preparing the specification	150
<i>Outline specification</i>	151
<i>Summary of the various alternatives</i>	155
<i>Configurations of typical small business systems</i>	157
<i>Dealer check-list</i>	160
Evaluating and selecting software	161
<i>A check-list for sorting out the short-list</i>	163
Software evaluation	165
Selecting hardware	172
<i>Reading a computer specification</i>	174
<i>Outline and costing of some possible strategies</i>	177
Choosing printers	179
<i>Estimating bulk data storage requirements</i>	180
<i>Choosing a printer</i>	182
<i>The economics of choosing small printers</i>	184
<i>Spooling, buffering and the production of characters</i>	186
Dealing with data-processing managers	188
<i>How to link to a mainframe from a micro</i>	189
Project management	191
<i>Connecting to bulletin boards</i>	192
<i>How to make a small system work</i>	194
<i>Project flowchart</i>	195
<i>Designing a computer system</i>	196
 5 Working with Computers	 198
Training	198
<i>Floppy disks</i>	200
Staff relations	203
Physical preparations	204
<i>Form design and numbering systems</i>	206
Installing, testing and data conversion	209
<i>Installing and testing: who does what</i>	210
<i>Installing hardware</i>	212
<i>File transfer</i>	216
<i>Communications protocols and how to set up communication links</i>	217
Routine tasks	219
<i>Data Protection Act</i>	222
<i>Cryptography: DES and the open key</i>	224
<i>Back-up procedures: disks</i>	226
<i>Audit trails</i>	230
<i>Paper handling</i>	233
<i>Types of paper feed</i>	234

	<i>Some 'Dos' and 'Don'ts'</i>	236
	Time-scales	237
	<i>The main factors affecting time-scales</i>	238
	The human factor	240
	<i>Priorities</i>	241
	Ergonomics	244
	<i>The working environment</i>	245
	<i>The laws of computing!</i>	248
6	The Costs	250
	<i>Cost-benefit analysis overview</i>	251
	<i>Project costing check-list</i>	253
	<i>Explaining the costs of different strategies</i>	255
	Benefits	256
	<i>Hidden extras</i>	259
	Buying and financing	260
	<i>What you pay is important</i>	261
	<i>Cost of storage</i>	264
	<i>The capacity of disk drives and disks</i>	266
	The contract	267
	Running costs	270
	Insurance	275
	Charging for computer services	278
	<i>Setting the cost of a central computer</i>	280
7	An Outline of Some Standard Packages	285
	Word processing	288
	<i>Word-processor check-list</i>	290
	<i>Spreadsheet calculators</i>	293
	Spreadsheets and model builders	294
	<i>Model building</i>	296
	How to use them	298
	Database — what is it?	300
	<i>Database</i>	301
8	The Office of the Future	305
	Terminology	305
	The ideal office	305
	<i>Some practicalities underlying office automation</i>	306
	<i>Office time budget</i>	308
	Where the technology can help	309
	<i>Office system integration</i>	311
	<i>Central versus distributed processing; bandwidth and satellite communications</i>	313
	Working in the office of the future	315

CONTENTS

xi

Working from home	316
<i>Different hardware strategies</i>	317
Artificial intelligence	318
Expert Systems	319
<i>Artificial intelligence and 5th generation computing</i>	320
Appendix A: System Questionnaire	323
Appendix B: Bibliography and Where to Find More to Read	331
Appendix C: List of Journals and Publications	335
Appendix D: Sources of Help and Advice	341
Appendix E: Supplier Address List	348
Appendix F: Index and Glossary of Computer Terms	350

CP/M and MP/M are the registered trade marks of Digital Research Inc.
IBM and SNA are the registered trade marks of International Business Machines Corporation.
PRESTEL is the registered trade mark of British Telecom.
DEC is the registered trade mark of the Digital Equipment Company.
Unix is the registered trade mark of Bell Laboratories.
MSDOS, XENIX and MSX are the registered trade marks of Microsoft Inc.