## Contents

**Figures**  ix  
*Foreword by Gifford Pinchot*  xiii

Introduction: Shards in the Glass Ceiling  i

1  Creating the HP Way  9

2  Lord Kelvin’s Imperative  37

3  Scaling the HP Way  60

4  Division Renewal and the Corporate Laboratories  86

5  Planned Transformation  115

6  Unexpected Transformation  153

7  Second Watershed  185

8  The Secret Sauce  216

9  Disruptive Forces  257

10  Marks on Paper  293

11  We Need to Be Number One  319

12  Looking Forward  355

13  Strategic Turmoil  386

14  Amicable Separation  416

15  Indigestion  436

16  Who Decides Who Decides?  467

Epilogue: Where Now?  509
Figures

FIGURE 2.1. HP and Tektronix revenue growth, 1953–1954 56
FIGURE 2.2. HP and Tektronix profit growth, 1953–1954 56
FIGURE 3.1. Hewlett-Packard employees, 1953–1957 62
FIGURE 3.2. Management crisis points and revised approaches as function of size 63
FIGURE 3.3. Corporate vintage chart, 1952–1959 80
FIGURE 3.4. Oscilloscope vintage chart, 1956–1961 81
FIGURE 3.5. A satisfying Brunnergram 82
FIGURE 3.6. A disturbing Brunnergram 83
FIGURE 4.1. Hewlett-Packard organization model 87
FIGURE 4.2. Digital Equipment Company organization model 87
FIGURE 4.3. Loveland product line orders, 1972–1984 92
FIGURE 4.4. Loveland core product line plus computing orders, 1972–1984 93
FIGURE 4.8. Santa Clara counters compared with all other Frequency and Time orders, 1972–1984 96
FIGURE 4.9. Three Instrument divisions compared with Microwave Group orders 1975–1984 97
FIGURE 5.1. Three market transformations: Audio-visual to microwave, frequency domain to scientific instrumentation, electrical engineering test to scientific systems 151

FIGURE 6.2. Orders for the two HP personal computing product lines, 1976–1980 179


FIGURE 7.2. Orders for HP enterprise computing product lines, 1976–1980 207

FIGURE 12.1. HP and DEC revenue growth, 1984–1988 357

FIGURE 12.2. IBM, HP, and DEC profit, 1984–1988 357

FIGURE 12.3. IBM, HP, and DEC revenue growth rate, 1988–1992 362

FIGURE 12.4. IBM, HP, and DEC profit, 1988–1992 362


FIGURE 13.2. IBM, HP, and DEC profit, 1991–1995 387


FIGURE 14.2. Growth rate per year PC (Wintel) computer vendors, 1995–1998 420

FIGURE A.1. The 1st transformation—audio-video test → microwave test 517

FIGURE A.2. The 2nd transformation—frequency domain test → scientific test 517

FIGURE A.3. The 3rd transformation—electrical engineering test → scientific systems 517

FIGURE A.4. The 4th transformation—scientific systems → business computing 518

FIGURE A.5. The 5th transformation—computing → printing and imaging 518

FIGURE A.6. The 6th transformation—enterprise → professional services 518
FIGURE E.1. Comparison stock prices for HP and Intel during September 2000 538

FIGURE E.2. Comparison stock prices during September 2001, after the HP-Compaq merger announcement and the 9/11 terrorist attack 538