

Drucker

Innovation and Entrepreneurship

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Peter F.

Drucker

Innovation and Entrepreneurship

Practice and Principles

With a foreword by Joseph Maciariello



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*This Book is Dedicated
With All My Love
To
Doris
The Innovator and Entrepreneur*

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CONTENTS

FOREWORD TO THE ROUTLEDGE CLASSICS EDITION	ix
PREFACE	xix
Introduction: The Entrepreneurial Economy	1
PART I THE PRACTICE OF INNOVATION	
1 Systematic Entrepreneurship	25
2 Purposeful Innovation and the Seven Sources for Innovative Opportunity	36
3 Source: The Unexpected	45
4 Source: Incongruities	69
5 Source: Process Need	84
6 Source: Industry and Market Structures	93
7 Source: Demographics	108
8 Source: Changes in Perception	121
9 Source: New Knowledge	131

10	The Bright Idea	159
11	Principles of Innovation	163

PART II THE PRACTICE OF ENTREPRENEURSHIP

12	Entrepreneurial Management	175
13	The Entrepreneurial Business	180
14	Entrepreneurship in the Service Institution	217
15	The New Venture	230

PART III ENTREPRENEURIAL STRATEGIES

16	'Fustest with the Mostest'	257
17	'Hit Them Where They Ain't'	270
18	Ecological Niches	286
19	Changing Values and Characteristics	299

	Conclusion: The Entrepreneurial Society	311
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	SUGGESTED READINGS	328
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	INDEX	330
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FOREWORD TO THE ROUTLEDGE CLASSICS EDITION

Peter Drucker's book *Innovation and Entrepreneurship* followed naturally from his long-term search for mechanisms 'to create a stable society and a stable polity that would preserve traditions of the past and yet make possible change, indeed very rapid change in anticipation of and in response to rapid changes in the environment' (Drucker, 1992, p. 58). This was the subject of his very first monograph, *Friedrich Julius Stahl: His Conservative Theory of the State* published in 1933. His long-term goal was to do for a society of organizations what Julius Stahl, and two other statesmen, Wilhelm von Humboldt, and Joseph von Radowitz did for Germany during the nineteenth century (Drucker, 1992, pp. 58–59).

We see, for example, Drucker pointing to the founding of the University of Berlin by Humboldt in 1810 as a major innovation because Humboldt was able to use the university to help bring about

the '*Rechtsstaat*' (the Lawful State), in which an autonomous and self-governing elite of civil servants and general staff

officers was in full control of the political and military sphere; an autonomous and self-governing elite of educated people organized around self-governing universities provided a 'liberal' cultural sphere; and in which there was an autonomous and largely unrestricted economy. (p. 194)

The *Rechtsstaat* consisted of two *conserving* institutions—a professionally trained military and civil service balanced by two *innovating* institutions, a university, based upon academic freedom in research and teaching, and an economy founded on Adam Smith's free market principles. These four institutions were presided over by a strong executive, a monarch, along the lines of the 'presider' or 'president' provided for in the American Constitution.

The work of the three political philosophers and statesmen, Stahl, Humboldt and Radowitz, succeeded superbly in establishing a political philosophy that through the *Rechtsstaat* provided stability in Germany in which both *continuity* and *change* were achieved. This stability lasted until World War I when total discontinuity erupted.

Drucker's professional mission was thus established: build a political and social theory that allows society to avoid major discontinuities like those which occurred in Europe from 1914 until after World War II. The social theory would have to be appropriate to the realities faced by a society yet consistent with fundamental values and beliefs that served society well in the past.

The book thus emerged from his lifelong ambition to manage the change required by the discontinuities faced by society in order to produce continuity. And as Drucker mentions in the preface to the first UK edition, while he discussed the subject of innovation and entrepreneurship in virtually all of his management books for decades, this book was the first attempt to present the subject in a systematic form and in its entirety. It is his only book in which he expresses the desire that it be accepted 'as a

seminal work'. The book has achieved that status; it is a seminal work on systematic innovation and entrepreneurship.

DRUCKER'S METHODOLOGY

Drucker almost always worked with a methodology yet only in this book is his methodology described. Drucker intended but never wrote the book 'The Future that Has Already Happened' (Drucker, 1992, p. 61) detailing his overall methodology, although Chapter 11 of his 1964 book *Managing for Results* is called 'Making the Future Today.' In Chapter 11 he describes how to analyze changes that have already happened but are not widely perceived. So, while Drucker never wrote the book 'The Future that Has Already Happened,' readers of this book will find in Part I, especially in Chapters 3–9, something very close to the methodology Drucker actually used in all of his work as a Social Ecologist, as he systematically looked for changes that had already happened but were not yet widely perceived. These changes present opportunities for innovation. As he describes opportunities for innovation he is also describing the methodology he used to discern opportunities for his own innovations in management and entrepreneurship.

Drucker does describe his methodology for this book in the Preface (pp. xiv–xxi). He led a seminar in the mid-1950s at New York University for a small group of people interested in new ventures. Participants included people who had already introduced a new venture. These were people from mostly large, for-profit and non-profit organizations. The ideas developed in the seminar were tested during the two-year period in which the seminar was held. Drucker further tested and refined the ideas in his own consulting work over approximately a 20-year period of time in all sectors of the economy. The book is the result of this process of developing a theory of innovation, testing the theory, and then distilling a systematic process of innovation and entrepreneurship from practice.

INNOVATION AND MANAGEMENT

Systematic innovation must be integral to the process of management in all organizations. Each of society's institutions must be capable of innovation and change if a society of organizations is to maintain its stability even during normal times because, paraphrasing Schumpeter, 'dynamic disequilibrium brought on by the innovating entrepreneur, rather than equilibrium and optimization, is the "norm" of a healthy economy and the central reality for economic theory and economic practice' (p. 32). What is true during normal times is especially true during extraordinary times of turbulence and discontinuous change.

Drucker defines innovation as 'the act that endows resources with a new capacity to create wealth' (p. 36). The work of the entrepreneur is to innovate and to successfully manage innovation. This book is therefore dedicated to providing a systematic method for institutionalizing the management of change in organizations for their good and for the good of society. Drucker provides a system for doing this but it is a complex system, with many intricacies that intellectual giants including Kenneth G. Wilson, Nobel Laureate (Physics, 1982), have pondered in their application of Drucker's work to innovation in organizations.¹

ORGANIZATION OF THE BOOK

The book is subdivided into three major parts: Purposeful innovation, Entrepreneurial management, and Entrepreneurial strategies.

Purposeful innovation—the systematic search for sources of innovation opportunities

The discipline of systematic innovation involves the purposeful search for sources of innovation. Drucker refers to these sources

of innovation as ‘windows’ of opportunity. ‘Window’ is a very apt term because each window is a distinct opportunity for innovation, but one can see certain aspects of other opportunities for innovation by looking through a single window.

There are four windows within the firm – the unexpected event, incongruities, process need, changes in market structure; and three windows outside the firm – demographics, changes in perception, and new knowledge. You may identify opportunities for innovation by applying the ones that are most relevant for you at this point in time. Each opportunity is likely to be relevant for you at some point.

Drucker recognized that change and discontinuity are normal parts of existence in free societies, and individuals, organizations and nations must recognize this in order to survive and prosper. The social ecologist seeks to extrapolate these changes into the future, and uncover opportunities they create. And against all this change comes the increased need for you and me to be vigilant because unless we stay ahead of change we may become victims of change. The earlier changes are discerned, the earlier the opportunities they create can be converted into innovations.

Converting opportunities into successful innovations requires good management practices. Drucker thus devotes Part II to the management processes required to convert opportunities into successful innovations.

Entrepreneurial management

Entrepreneurship is the managerial process for creating and managing innovation. If such a culture does not exist management must create it. Without it systematic innovation will not take place.

Drucker dealt directly with a number of organizations that have such a culture. These include 3M, Procter and Gamble, Hewlett Packard (as a startup), Edward Jones (as a small mid-western

brokerage firm), and the General Electric Company (U.S.). The elements that comprise an entrepreneurial culture are described in Chapters 12–15 and are enumerated below.

The entrepreneurial organization is opportunity-focused. Without neglecting important problems, it must give priority to the new and innovative. This includes requiring periodic reports on the status of projects that are in the innovation pipeline, presentations by those who have succeeded and can be held up as examples for the entire organization to follow, and regular informal sessions held by top management with junior people asking about potential opportunities they see and how the organization may capitalize upon them. These actions by management signal the seriousness which the organization places on innovation and entrepreneurial management.

Such a climate requires that we routinely make room for the new by abandoning the old. This requires establishing a systematic process of planned abandonment within which we periodically evaluate all our products, processes and services. Once we have freed up resources we can focus our attention on innovation for '[n]othing so powerfully concentrates a manager's mind on innovation as the knowledge that the present product or service will be abandoned within the foreseeable future' (p. 186). Innovation must not be looked upon as a threat to be avoided but as an opportunity to be encouraged.

Performance of innovation must be appraised periodically within an organization just like all other activities, only the period between appraisals must allow sufficient time for measurable progress to materialize.

Ultimately, the management of innovation involves placing our bets on people and on projects that seem to have promise. Over time, some people and organizational units will prove themselves to be more innovative than others. The most innovative people should be assigned to the most promising projects. Then progress should be appraised in accordance with the nature

of the particular innovation. More innovative projects require a longer time period between initiation and performance assessment. I once worked with a well-known Industrial Psychologist who objected vehemently to annual evaluations of his research progress. If we measure performance of innovation activity too quickly, we may generate pressures on a person or group to produce results in the most expedient manner. This is an example of 'pulling up the radishes'² before they are ready for harvest. It simply stunts the growth of the innovative activity.

Some, perhaps most, innovations will fail; this is the nature of innovation and of business risk. The question when evaluating an overall innovation program is: 'Do the benefits of innovations that succeed significantly overcome the losses of those that fail?'

We should adopt specific practices regarding organization, staffing and rewards for innovative activity. The new should not be forced to carry the overhead burden that is carried by the mature until the new matures and becomes capable of carrying these charges. This often requires physical separation of the new from the old within the organization structure.

Resource Allocation should be done in accordance with the resources of people and money that an innovative project can effectively use at a given point in time. If the project is in its infancy, it is a waste of resources to heavily staff it. On the other hand, if a project is approaching breakthrough, the maximum amount of resources it can effectively absorb should be applied. And here is where a tradeoff must be made between supporting the old and established projects versus the new and coming. The new is the future; the old and established is the past and present.

Significant rewards should be allocated to those who produce innovative results. Rewards should be proportionate to the magnitude of the impact of the innovation on the organization's wellbeing. Innovation involves the creation of new wealth; it is not a zero-sum game where the pot of money to be divided

among people is fixed. Organizations can and should be generous with the fruits of innovation.

Innovations require a clear market focus. There are numerous examples of innovations that end up serving markets that are different from those expected by the innovator. For example, the mainframe computer was originally designed as a scientific machine and while it did have scientific uses, it became the backbone of International Business Machines (IBM) serving accounting and other business-related uses. Drucker cites a number of other examples, but I will focus on one that is extreme but instructive. Novocain is a local anesthetic that is primarily used by dentists. But its German inventor intended it for use by doctors who, at the time, preferred to use total anesthesia. Drucker tells of the inventor traveling throughout Germany speaking against the use of Novocain for dentistry because 'He had not designed it for that purpose!' (p. 233) The Novocain example illustrates two important aspects of innovative marketing: first, there is the difficulty of doing market research for something new, and second, and equally important, what counts in the market is what customers consider value, not what the innovator believes customers should consider value. The innovator should have a clear market focus but if actual uses for the innovation differ from intended uses, the innovator should focus on the market and 'run with success' and not let his or her own pride associated with the invention create a market for a competitor who does not have the inventor's pride but has a clear market focus, such as Thomas Watson Sr. of IBM.

Entrepreneurial strategies

The strategy or strategies selected not only influence the specific kinds of opportunities entrepreneurs seek for innovation, but also how they manage their innovations. We thus see the interrelationships among the three parts of the book. Each part

works with the other two to create a system of entrepreneurship and innovation.

Drucker identifies four entrepreneurial strategies that innovators may choose from when searching for a clear market focus – being first with the most, hitting them where they are not, finding and occupying a specialized niche, and changing the economic characteristics of a product, market or industry. Entrepreneurs may use one or more of the four strategies and the strategies, like the windows of opportunity, overlap.

THE ENTREPRENEURIAL SOCIETY AND ECONOMY

As we make the transition from manual and service work to knowledge work, developed economies are experiencing major discontinuities. Unemployment has been very high in Western democracies since shortly after the turn of the century. Political discussions do not always recognize the fundamental shifts that are taking place in the nature of work. Education, especially in Science, Technology, Engineering and Math along with Information Technology must be intensified in our schools if we are to keep up with the nature of changes going on in the workforce, economy and society. Schools must become accountable for performance (Drucker, 1993, pp. 194–209).

Individual knowledge workers must keep their knowledge current or else they too will face diminished prospects in the workforce. Organizations must seek to be ahead of change and innovate if they are to maintain continuity, survive and prosper, especially in this major period of transition.

In the United States, for example, as we experience these discontinuities we must choose if we are going to move more towards a welfare society or embrace whole-heartedly efforts to turn ourselves into an entrepreneurial society. A number of individual states are already showing the way towards the entrepreneurial so there is significant hope.

The message of Drucker's book is more relevant today than in 1985 when it was published because we are experiencing a transition in Western societies that many of us are not ready for because we are not ready to embrace change to retain continuity. I hope this foreword encourages you to master the contents of the re-issue of Drucker's seminal book, become a change leader, and apply its enduring lessons to your life and work. Best wishes.

Joseph A. Maciariello
Claremont, California, U.S.A.
April 28, 2014

NOTES

- 1 Kenneth Wilson (1936–2013), in a number of conversations with me between 2009 and 2013 shared his experiences while at The Ohio State University applying Drucker's concepts of innovation and entrepreneurship to his own work in primary and secondary education. He asked me a number of probing questions about Drucker's ideas. Thinking through these questions with Wilson helped me better understand the complexities of Drucker's system of innovation.
- 2 Peter F. Drucker as Revised Updated by Joseph A. Maciariello, *Management: Revised Edition*, New York: HarperCollins, 2008, p. 327.

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PREFACE

'Innovation' and 'entrepreneurship' have become 'buzz words' in the ten years since this book was written and first published. And, it has been a decade of innovations, in all areas – international affairs, politics, economics, technology, business. The most innovative area may well have been management itself – with 'outsourcing' and 'downsizing', 'economic value analysis' and 're-engineering' sweeping the management world. But, predictably, the next decade will require even more innovation, and especially from business and business executives. For, surely, the next decade will be a decade of changes fully as unprecedented and fully as sweeping as were the changes in that remarkable decade of 1984 to 1994 – and the changes will surely occur in all major areas, in politics and economics, technology and business. And in such a period of rapid change the best – perhaps the only – way a business can hope to prosper, if not to survive, is to innovate. It is the only way to convert change into opportunity.

This, however, requires that innovation itself be organized as a systematic activity. It requires that the business itself be organized

to be a successful innovator. It requires both a discipline of innovation and a discipline of entrepreneurship that is a discipline how to make innovation effective in the market place. *And this is what this book is all about.*

Even though the words 'innovation' and 'entrepreneurship' are now as familiar as they were strange to executives and management people a decade ago, the *practice* of both is still largely confined to companies that practiced both a decade ago – that is to the companies from whom the author learned how to be an innovator and an entrepreneur. Most of the other firms – the great majority of both, big and small businesses – still believe that innovation is inspiration and entrepreneurship good luck. The one exception – and it is one that should give us in the West grounds for considerable apprehension – are the Japanese. A good many Japanese businesses – and not only the well-known and very large ones – have re-organized their innovative and entrepreneurial activities in the last ten years, largely on the lines advocated in this book. We in the West, in the last ten years, have concentrated on the way we are organized internally. These are the concerns of Tom Peters' *In Search of Excellence*, of economic value analysis (first advocated by me as early as 1964, in *Managing for Results* – also now re-published as a Butterworth-Heinemann paperback); of re-engineering; of out-sourcing, and so on. These changes are badly needed. But in the meantime the Japanese have restructured the way they do *innovation*. And they have done so by re-structuring *innovation* as a systematic, organized, purposeful activity. Their great advances in these last ten years have not been in technology or in manufacturing processes; they have not been in lower costs; they have not been in marketing. In all these areas the West today may well be ahead of the Japanese – in most manufacturing industries and in all services. But the Japanese, in the last ten years, have made *innovation* systematic, purposeful and discipline; and they have made entrepreneurial strategies similarly systematic, purposeful and a discipline. They have not done

anything spectacular and nothing requiring genius. They have only accepted that *innovation* is a discipline with its own – fairly simple – rules, and that entrepreneurship too is a discipline with its own, fairly simple, rules.

The thesis of this book is precisely that: innovation is a discipline, with its own, fairly simple, rules. And so is entrepreneurship. Neither of them requires geniuses. Neither of them will be done if we wait for inspiration and for the ‘kiss of the muse’. *Both are work*. And only those businesses and those business executives who accept this are likely to survive, let alone to do well, in the turbulent decade ahead.

Peter F. Drucker
Claremont, California
Christmas 1993

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INTRODUCTION

The Entrepreneurial Economy

I

Since the mid-seventies, such slogans as 'the no-growth economy', the 'deindustrialization of America', and a long-term 'Kondratieff stagnation of the economy' have become popular and are invoked as if axioms. Yet the facts and figures belie every one of these slogans. What is happening in the United States is something quite different: a profound shift from a 'managerial' to an 'entrepreneurial' economy.

In the two decades 1965 to 1985, the number of Americans over sixteen (thereby counted as being in the work force under the conventions of American statistics) grew by two-fifths, from 129 to 180 million. But the number of Americans in paid jobs grew in the same period by one-half, from 71 to 106 million. The labour force growth was fastest in the second decade of that period, the decade from 1974 to 1984, when total jobs in the American economy grew by a full 24 million.

In no other peacetime period has the United States created as many new jobs, whether measured in percentages or in absolute numbers. And yet the ten years that began with the 'oil shock' in the late fall of 1973 were years of extreme turbulence, of 'energy

crises', of the near-collapse of the 'smokestack' industries, and of two sizeable recessions.

The American development is unique. Nothing like it has happened yet in any other country. Western Europe during the period 1970 to 1984 actually *lost* jobs, 3 to 4 million of them. In 1970, western Europe still had 20 million more jobs than the United States; in 1984, it had almost 10 million less. Even Japan did far less well in job creation than the United States. During the twelve years from 1970 to 1982, jobs in Japan grew by a mere 10 per cent, that is, at less than half the U.S. rate.

But America's performance in creating jobs during the seventies and early eighties also ran counter to what every expert had predicted twenty-five years ago. Then most labour force analysts expected the economy, even at its most rapid growth, to be unable to provide jobs for all the boys of the 'baby boom' who were going to reach working age in the seventies and early eighties – the first large cohorts of 'baby boom' babies having been born in 1949 and 1950. Actually, the American economy had to absorb twice that number. For – something nobody even dreamed of in 1970 – married women began to rush into the labour force in the mid-seventies. The result is that today, in the mid-eighties, every other married woman with young children holds a paid job, whereas only one out of every five did so in 1970. And the American economy found jobs for these, too, in many cases far better jobs than women had ever held before.

And yet 'everyone knows' that the seventies and early eighties were periods of 'no growth', of stagnation and decline, of a 'deindustrializing America', because everyone still focuses on what were the growth areas in the twenty-five years after World War II, the years that came to an end around 1970.

In those earlier years, America's economic dynamics centred in institutions that were already big and were getting bigger: the Fortune 500, that is, the country's largest businesses; governments,

whether federal, state, or local; the large and super-large universities; the large consolidated high school with its six thousand or more students; and the large and growing hospital. These institutions created practically all the new jobs provided in the American economy in the quarter century after World War II. And in every recession during this period, job loss and unemployment occurred predominantly in small institutions and, of course, mainly in small businesses.

But since the late 1960s, job creation and job growth in the United States have shifted to a new sector. The old job creators have actually *lost* jobs in these last twenty years. Permanent jobs (not counting recession unemployment) in the Fortune 500 have been shrinking steadily year by year since around 1970, at first slowly, but since 1977 or 1978 at a pretty fast clip. By 1984, the Fortune 500 had lost permanently at least 4 to 6 million jobs. And governments in America, too, now employ fewer people than they did ten or fifteen years ago, if only because the number of schoolteachers has been falling as school enrolment dropped in the wake of the 'baby bust' of the early sixties. Universities grew until 1980; since then, employment there has been declining. And in the early eighties, even hospital employment stopped increasing. In other words, we have not in fact created 35 million new jobs; we have created 40 million or more, since we had to offset a permanent job shrinkage of at least 5 million jobs in the traditional employing institutions. And all these new jobs must have been created by small and medium-sized institutions, most of them small and medium-sized businesses, and a great many of them, if not the majority, new businesses that did not even exist twenty years ago. According to *The Economist*, 600,000 new businesses are being started in the United States every year now – about seven times as many as were started in each of the boom years of the fifties and sixties.

II

'Ah,' everybody will say immediately, 'high tech'. But things are not quite that simple. Of the 40 million-plus jobs created since 1965 in the economy, high technology did not contribute more than 5 or 6 million. High tech thus contributed no more than 'smokestack' lost. All the additional jobs in the economy were generated elsewhere. And only one or two out of every hundred new businesses – a total of ten thousand a year – are remotely 'high-tech', even in the loosest sense of the term.

We are indeed in the early stages of a major technological transformation, one that is far more sweeping than the most ecstatic of the 'futurologists' yet realize, greater even than *Megatrends* or *Future Shock*. Three hundred years of technology came to an end after World War II. During those three centuries the model for technology was a mechanical one: the events that go on inside a star such as the sun. This period began when an otherwise almost unknown French physicist, Denis Papin,¹ envisaged the steam engine around 1680. They ended when we replicated in the nuclear explosion the events inside a star. For these three centuries advance in technology meant – as it does in mechanical processes – more speed, high temperatures, higher pressures. Since the end of World War II, however, the model of technology has become the biological process, the events inside an organism. And in an organism, processes are not organized around energy in the physicist's meaning of the term. They are organized around information.

There is no doubt that high tech, whether in the form of computers or telecommunication, robots on the factory floor or office automation, biogenetics or bio-engineering, is of immeasurable qualitative importance. High tech provides the excitement and the headlines. It creates the vision for entrepreneurship and innovation in the community, and the receptivity for them. The willingness of young, highly trained people to go to work

for small and unknown employers rather than for the giant bank or the worldwide electrical equipment maker is surely rooted in the mystique of 'high tech' – even though the overwhelming majority of these young people work for employers whose technology is prosaic and mundane. High tech also probably stimulated the astonishing transformation of the American capital market from near-absence of venture capital as recently as the mid-sixties to near-surplus in the mid-eighties. High tech is thus what the logicians used to call the *ratio cognoscendi*, the reason why we perceive and understand a phenomenon rather than the explanation of its emergence and the cause of its existence.

Quantitatively, as has already been said, high tech is quite small still, accounting for not much more than one-eighth of the new jobs. Nor will it become much more important in terms of new jobs within the near future. Between now and the year 2000, no more than one-sixth of the jobs we can expect to create in the American economy will be high-tech jobs in all likelihood. In fact, if high tech were, as most people think, the entrepreneurial sector of the U.S. economy, then we would indeed face a 'no-growth' period and a period of long-term stagnation in the trough of a 'Kondratieff wave'.

The Russian economist Nikolai Kondratieff was executed on Stalin's orders in the mid-1930s because his econometric model predicted, accurately as it turned out, that collectivization of Russian agriculture would lead to a sharp decline in farm production. The 'fifty-year Kondratieff cycle' was based on the inherent dynamics of technology. Every fifty years, so Kondratieff asserted, a long technological wave crests. For the last twenty years of this cycle, the growth industries of the last technological advance seem to be doing exceptionally well. But what look like record profits are actually repayments of capital which is no longer needed in industries that have ceased to grow. This situation never lasts longer than twenty years, then there is a sudden crisis, usually signalled by some sort of panic. There follow twenty years of stagnation,

during which the new, emerging technologies cannot generate enough jobs to make the economy itself grow again – and no one, least of all government, can do much about this.²

The industries that fuelled the long economic expansion after World War II – automobiles, steel, rubber, electrical apparatus, consumer electronics, telephone, but also petroleum³ – perfectly fit the Kondratieff cycle. Technologically, all of them go back to the fourth quarter of the nineteenth century or, at the very latest, to before World War I. In none of them has there been a significant breakthrough since the 1920s, whether in technology or in business concepts. When the economic growth began after World War II, they were all thoroughly mature industries. They could expand and create jobs with relatively little new capital investment, which explains why they could pay sky-rocketing wages and workers' benefits and simultaneously show record profits. Yet, as Kondratieff had predicted, these signs of robust health were as deceptive as the flush on a consumptive's cheek. The industries were corroding from within. They did not become stagnant or decline slowly. Rather, they collapsed as soon as the 'oil shocks' of 1973 and 1979 dealt them the first blows. Within a few years they went from record profits to near-bankruptcy. As soon became abundantly clear, they will not be able to return to their earlier employment levels for a long time, if ever.

The high-tech industries, too, fit Kondratieff's theory. As Kondratieff had predicted, they have so far not been able to generate more jobs than the old industries have been losing. All projections indicate that they will not do much more for long years to come, at least for the rest of the century. Despite the explosive growth of computers, for instance, data processing and information handling in all their phases (design and engineering of both hardware and software, production, sales and service) are not expected to add as many jobs to the American economy in the late 1980s and early 1990s as the steel and automotive industries are almost certain to lose.

But the Kondratieff theory fails totally to account for the 40 million jobs which the American economy actually did create. Western Europe, to be sure, has so far been following the Kondratieff script. But not the United States, and perhaps not Japan either. Something in the United States offsets the Kondratieff 'long wave of technology'. Something has already happened that is incompatible with the theory of long-term stagnation.

Nor does it appear at all likely that we have simply postponed the Kondratieff cycle. For in the next twenty years the need to create new jobs in the U.S. economy will be a great deal lower than it has been in the last twenty years, so that economic growth will depend far less on job creation. The number of new entrants into the American work force will be up to one-third smaller for the rest of the century – and indeed through the year 2010 – than it was in the years when the children of the 'baby boom' reached adulthood, that is, 1965 until 1980 or so. Since the 'baby bust' of 1960–61, the birth cohorts have been 30 per cent lower than they were during the 'baby boom' years. And with the labour force participation of women under fifty already equal to that of men, additions to the number of women available for paid jobs will from now on be limited to natural growth, which means that they will also be down by about 30 per cent.

For the future of the traditional 'smokestack' industries, the Kondratieff theory must be accepted as a serious hypothesis, if not indeed as the most plausible of the available explanations. And as far as the inability of new high-tech industries to offset the stagnation of yesterday's growth industries is concerned, Kondratieff again deserves to be taken seriously. For all their tremendous qualitative importance as vision makers and pace-setters, quantitatively the high-tech industries represent tomorrow rather than today, especially as creators of jobs. They are the makers of the future rather than the makers of the present.

But as a theory of the American economy that can explain its behaviour and predict its direction, Kondratieff can be

considered disproven and discredited. The 40 million new jobs created in the U.S. economy during a 'Kondratieff long-term stagnation' cannot be explained in Kondratieff's terms.

I do not mean to imply that there are no economic problems or dangers. Quite the contrary. A major shift in the technological foundations of the economy such as we are experiencing in the closing quarter of the twentieth century surely presents tremendous problems, economic, social, and political. We are also in the throes of a major political crisis, the crisis of that great twentieth-century success the Welfare State, with the attendant danger of an uncontrolled and seemingly uncontrollable but highly inflationary deficit. There is surely sufficient danger in the international economy, with the world's rapidly industrializing nations, such as Brazil or Mexico, suspended between rapid economic takeoff and disastrous crash, to make possible a prolonged global depression of 1930 proportions. And then there is the frightening spectre of the runaway armaments race. But at least one of the fears abroad these days, that of a Kondratieff stagnation, can be considered more a figment of the imagination than reality for the United States. There we have a new, an entrepreneurial economy.

It is still too early to say whether the entrepreneurial economy will remain primarily an American phenomenon or whether it will emerge in other industrially developed countries. In Japan, there is good reason to believe that it is emerging, albeit in its own, Japanese form. But whether the same shift to an entrepreneurial economy will occur in western Europe, no one can yet say. Demographically, western Europe lags some ten to fifteen years behind America: both the 'baby boom' and the 'baby bust' came later in Europe than in the United States. Equally, the shift to much longer years of schooling started in western Europe some ten years later than in the United States or in Japan; and in Great Britain it has barely started yet. If, as is quite likely, demographics has been a factor in the emergence of the entrepreneurial economy in the United States, we could well see a similar

development in Europe by 1990 or 1995. But this is speculation. So far, the entrepreneurial economy is purely an American phenomenon.

III

Where did all the new jobs come from? The answer is from anywhere and nowhere; in other words, from no one single source.

The magazine *Inc.*, published in Boston, has printed each year since 1982 a list of the one hundred fastest-growing, publicly owned American companies more than five years and less than fifteen years old. Being confined to publicly owned companies, the list is heavily biased towards high tech, which has easy access to underwriters, to stock market money, and to being traded on one of the stock exchanges or over the counter. High tech is fashionable. Other new ventures, as a rule, can go public only after long years of seasoning, and of showing profits for a good deal more than five years. Yet only one-quarter of the 'Inc. 100' are high-tech; three-quarters remain most decidedly 'low-tech', year after year.

In 1982, for instance, there were five restaurant chains, two women's wear manufacturers, and twenty health-care providers on the list, but only twenty to thirty high-tech companies. And whilst America's newspapers in 1982 ran one article after the other bemoaning the 'deindustrialization of America', a full half of the *Inc.* firms were manufacturing companies; only one-third were in services. Although word had it in 1982 that the Frost Belt was dying, with the Sun Belt the only possible growth area, only one-third of the 'Inc. 100' that year were in the Sun Belt. New York had as many of these fast-growing young, publicly owned companies as California or Texas. And Pennsylvania, New Jersey, and Massachusetts – while supposedly dying, if not already dead – also had as many as California or Texas, and as many as New York. Snowy, Minnesota, had seven. The *Inc.* lists for 1983 and 1984

showed a very similar distribution, in respect both to industry and to geography.

In 1983, the first and second companies on another *Inc.* list – the ‘*Inc. 500*’ list of fast-growing, young, privately held companies – were, respectively, a building contractor in the Pacific Northwest (in a year in which construction was supposedly at an all-time low) and a California manufacturer of physical exercise equipment for the home.

Any inquiry among venture capitalists yields the same pattern. Indeed, in their portfolios, high tech is usually even less prominent. The portfolio of one of the most successful venture capital investors does include several high-tech companies: a new computer software producer, a new venture in medical technology, and so on. But the most profitable investment in this portfolio, the new company that has been growing the fastest in both revenues and profitability during the three years 1981–83, is that most mundane and least high-tech of businesses, a chain of barbershops. And next to it, both in sales growth, and profitability, comes a chain of dentistry offices, followed by a manufacturer of handtools and by a finance company that leases machinery to small businesses.

Among the businesses I know personally, the one that has created the most jobs during the five years 1979–84, and has also grown the fastest in revenues and profits, is a financial services firm. Within five years this firm alone has created two thousand new jobs, most of them exceedingly well paid. Though a member of the New York Stock Exchange, only about one-eighth of its business is in stocks. The rest is in annuities, tax-exempt bonds, money-market funds and mutual funds, mortgage-trust certificates, tax-shelter partnerships, and a host of similar investments for what the firm calls ‘the intelligent investor’. Such investors are defined as the well-to-do but not rich professional, small businessman, or farmer, in small towns or in the suburbs, who makes more money than he spends and thus looks for

places to put his savings, but who is also realistic enough not to expect to become rich through investment.

The most revealing source of information about the growth sectors of the U.S. economy I have been able to find is a study of the one hundred fastest-growing 'mid-size' companies, that is, companies with revenues of between \$25 million and \$1 billion. This study was conducted during 1981–83 for the American Business Conference by two senior partners of McKinsey & Company, the consulting firm.⁴

These mid-sized growth companies grew at three times the rate of the Fortune 500 in sales and in profits. The Fortune 500 have been losing jobs steadily since 1970. But these mid-sized growth companies added jobs between 1970 and 1983 at three times the rate of job growth in the entire U.S. economy. Even in the depression years 1981–82 when jobs in U.S. industry declined by almost 2 per cent, the hundred mid-sized growth companies increased their employment by one full percentage point. The companies span the economic spectrum. There are high-tech ones among them, to be sure. But there are also financial services companies – the New York investment and brokerage firm of Donaldson, Lufkin & Jenrette, for instance. One of the best performers in the group is a company making and selling living-room furniture; another one is making and marketing doughnuts; a third, high-quality chinaware; a fourth, writing instruments; a fifth, household paints; a sixth has expanded from printing and publishing local newspapers into consumer marketing services; a seventh produces yarns for the textile industry; and so forth. And where 'everybody knows' that growth in the American economy is exclusively in services, more than half of these 'mid-sized growth' companies are in manufacturing.

To make things more confusing still, the growth sector of the U.S. economy during the last ten to fifteen years, while entirely non-governmental, includes a fairly large and growing number of enterprises that are not normally considered businesses,

though quite a few are now being organized as profit-making companies. The most visible of these are, of course, in the health-care field. The traditional American community hospital is in deep trouble these days. But there are fast-growing and flourishing hospital chains, both 'profit' and (increasingly) 'not-for-profit' ones. Even faster growing are the 'freestanding' health facilities, such as hospices for the terminally ill, medical and diagnostic laboratories, freestanding surgery centres, freestanding maternity homes, psychiatric 'walk-in' clinics, or centres for geriatric diagnosis and treatment.

The public schools are shrinking in almost every American community. But despite the decline in the total number of children of school age as a result of the 'baby bust' of the 1960s, a whole new species of non-profit but private schools is flourishing. In the small California city in which I live, a neighbourhood babysitting cooperative, founded around 1980 by a few mothers for their own children, had by 1984 grown into a school with two hundred students going on into the fourth grade. And a 'Christian' school founded a few years ago by the local Baptists is taking over from the city of Claremont a junior high school built fifteen years ago and left standing vacant for lack of pupils for the last five years. Continuing education of all kinds, whether in the form of executive management programmes for mid-career managers or refresher courses for doctors, engineers, lawyers, and physical therapists, is booming; even during the severe 1982–83 recession, such programmes suffered only a short setback.

One additional area of entrepreneurship, and a very important one, is the emerging 'Fourth Sector' of public-private partnerships in which government units, either states or municipalities, determine performance standards and provide the money. But then they contract out a service – fire protection, garbage collection, or bus transportation – to a private business on the basis of competitive bids, thus ensuring both better service and substantially lower costs. The city of Lincoln, Nebraska, has been a pioneer in this area

since Helen Boosalis was first elected mayor in 1975 – the same Lincoln, Nebraska, where a hundred years ago the Populists and William Jennings Bryan first started us on the road to municipal ownership of public services. Pioneering work in this area is also being done in Texas – in San Antonio and in Houston, for instance – and especially in Minneapolis at the Hubert Humphrey Institute of the University of Minnesota. Control Data Corporation, a leading computer manufacturer also in Minneapolis, is building public-private partnerships in education and even in the management and rehabilitation of prisoners. And if there is one action that can save the postal service in the long run – for surely there is a limit to the public's willingness to pay ever larger subsidies and ever higher rates for ever-shrinking service – it may be the contracting out of first-class service (or what's still left of it ten years hence) to the 'Fourth Sector,' through competitive bids.

IV

Is there anything at all that these growth enterprises have in common other than growth and defiance of the Kondratieff stagnation? Actually, they are all examples of 'new technology', all new applications of knowledge to human work, which is, after all, the definition of technology. Only the 'technology' is not electronics or genetics or new materials. The 'new technology' is entrepreneurial management.

Once this is seen, then the astonishing job growth of the American economy during the last twenty, and especially the last ten years can be explained. It can even be reconciled with the Kondratieff theory. The United States – and to some extent also Japan – is experiencing what might be called an 'atypical Kondratieff cycle'.

Since Joseph Schumpeter first pointed it out in 1939, we have known that what actually happened in the United States and in Germany in the fifty years between 1873 and World War I does

not fit the Kondratieff cycle. The first Kondratieff cycle, based on the railway boom, came to an end with the crash of the Vienna Stock Exchange in 1873, a crash that brought down stock exchanges worldwide and ushered in a severe depression. Great Britain and France did then enter a long period of industrial stagnation during which the new emerging technologies – steel, chemicals, electrical apparatus, telephone, and finally, automobiles – could not create enough jobs to offset the stagnation in the old industries, such as railway construction, coal mining, or textiles.

But this did not happen in the United States or in Germany, nor indeed in Austria, despite the traumatic impact of the Viennese stock market crash from which Austrian politics never quite recovered. These countries were severely jolted at first. Five years later they had pulled out of the slump and were growing again, fast. In terms of ‘technology’, these countries were no different from stagnating Britain or France. What explains their different economic behaviour was one factor, and one factor, only: the entrepreneur. In Germany, for instance, the single most important economic event in the years between 1870 and 1914 was surely the creation of the Universal Bank. The first of these, the Deutsche Bank, was founded by Georg Siemens in 1870⁵ with the specific mission of finding entrepreneurs, financing entrepreneurs, and forcing upon them organized, disciplined management. In the economic history of the United States the entrepreneurial bankers such as J. P. Morgan in New York played a similar role.

Today, something very similar seems to be happening in the United States and perhaps also to some extent in Japan.

Indeed, high tech is the one sector that is not part of this new ‘technology’, this ‘entrepreneurial management’. The Silicon Valley high-tech entrepreneurs still operate mainly in the nineteenth-century mould. They still believe in Benjamin Franklin’s dictum: ‘If you invent a better mousetrap the world will beat a path to your door.’ It does not yet occur to them to ask what makes a mousetrap ‘better’ or for whom?