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## The next society

Nov 1st 2001  
From The Economist print edition

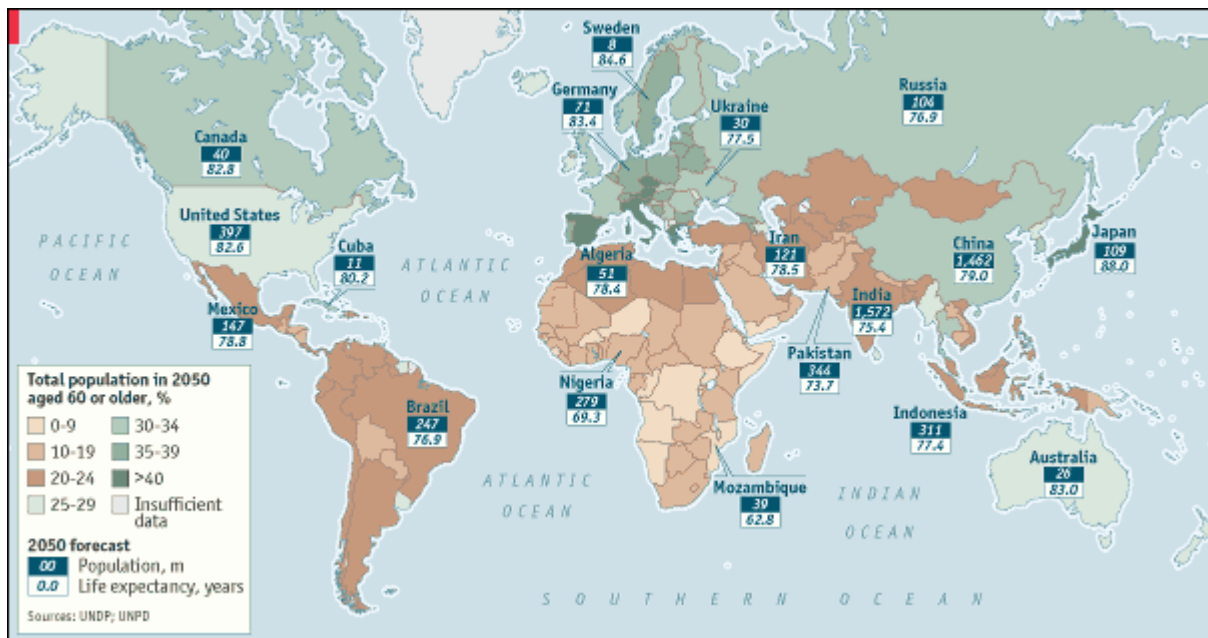


**Tomorrow is closer than you think. Peter Drucker\* explains how it will differ from today, and what needs to be done to prepare for it**

THE new economy may or may not materialise, but there is no doubt that the next society will be with us shortly. In the developed world, and probably in the emerging countries as well, this new society will be a good deal more important than the new economy (if any). It will be quite different from the society of the late 20th century, and also different from what most people expect. Much of it will be unprecedented. And most of it is already here, or is rapidly emerging.

In the developed countries, the dominant factor in the next society will be something to which most people are only just beginning to pay attention: the rapid growth in the older population and the rapid shrinking of the younger generation. Politicians everywhere still promise to save the existing pensions system, but they—and their constituents—know perfectly well that in another 25 years people will have to keep working until their mid-70s, health permitting.

What has not yet sunk in is that a growing number of older people—say those over 50—will not keep on working as traditional full-time nine-to-five employees, but will participate in the labour force in many new and different ways: as temporaries, as part-timers, as consultants, on special assignments and so on. What used to be personnel and are now known as human-resources departments still assume that those who work for an organisation are full-time employees. Employment laws and regulations are based on the same assumption. Within 20 or 25 years, however, perhaps as many as half the people who work for an organisation will not be employed by it, certainly not on a full-time basis. This will be especially true for older people. New ways of working with people at arm's length will increasingly become the central managerial issue of employing organisations, and not just of businesses.



The shrinking of the younger population will cause an even greater upheaval, if only because nothing like this has happened since the dying centuries of the Roman empire. In every single developed country, but also in China and Brazil, the birth rate is now well below the replacement rate of 2.2 live births per woman of reproductive age. Politically, this means that immigration will become an important—and highly divisive—issue in all rich countries. It will cut across all traditional political alignments. Economically, the decline in the young population will change markets in fundamental ways. Growth in family formation has been the driving force of all domestic markets in the developed world, but the rate of family formation is certain to fall steadily unless bolstered by large-scale immigration of younger people. The homogeneous mass market that emerged in all rich countries after the second world war has been youth-determined from the start. It will now become middle-age-determined, or perhaps more likely it will split into two: a middle-age-determined mass market and a much smaller youth-determined one. And because the supply of young people will shrink, creating new employment patterns to attract and hold the growing number of older people (especially older educated people) will become increasingly important.

## Knowledge is all

The next society will be a knowledge society. Knowledge will be its key resource, and knowledge workers will be the dominant group in its workforce. Its three main characteristics will be:

- Borderlessness, because knowledge travels even more effortlessly than money.
- Upward mobility, available to everyone through easily acquired formal education.
- The potential for failure as well as success. Anyone can acquire the “means of production”, ie, the knowledge required for the job, but not everyone can win.

Together, those three characteristics will make the knowledge society a highly competitive one, for organisations and individuals alike. Information technology, although only one of many new features of the next society, is already having one hugely important effect: it is allowing knowledge to spread near-instantly, and making it accessible to everyone. Given the ease and speed at which information travels, every institution in the knowledge society—not only businesses, but also schools, universities, hospitals and increasingly government agencies too—has to be globally competitive, even though most organisations will continue to be local in their activities and in their markets. This is because the Internet will keep customers everywhere informed on what is available anywhere in the world, and at what price.

This new knowledge economy will rely heavily on knowledge workers. At present, this term is widely used to describe people with considerable theoretical knowledge and learning: doctors, lawyers, teachers, accountants, chemical engineers. But the most striking growth will be in “knowledge technologists”: computer technicians, software

**Knowledge technologists are likely to become**

designers, analysts in clinical labs, manufacturing technologists, paralegals. These people are as much manual workers as they are knowledge workers; in fact, they usually spend far more time working with their hands than with their brains. But their manual work is based on a substantial amount of theoretical knowledge which can be acquired only through formal education, not through an apprenticeship. They are not, as a rule, much better paid than traditional skilled workers, but they see themselves as “professionals”. Just as unskilled manual workers in manufacturing were the dominant social and political force in the 20th century, knowledge technologists are likely to become the dominant social—and perhaps also political—force over the next decades.

**the dominant social—and perhaps also political—force over the next decades**

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## **The new protectionism**

Structurally, too, the next society is already diverging from the society almost all of us still live in. The 20th century saw the rapid decline of the sector that had dominated society for 10,000 years: agriculture. In volume terms, farm production now is at least four or five times what it was before the first world war. But in 1913 farm products accounted for 70% of world trade, whereas now their share is at most 17%. In the early years of the 20th century, agriculture in most developed countries was the largest single contributor to GDP; now in rich countries its contribution has dwindled to the point of becoming marginal. And the farm population is down to a tiny proportion of the total.

Manufacturing has travelled a long way down the same road. Since the second world war, manufacturing output in the developed world has probably tripled in volume, but inflation-adjusted manufacturing prices have fallen steadily, whereas the cost of prime knowledge products—health care and education—has tripled, again adjusted for inflation. The relative purchasing power of manufactured goods against knowledge products is now only one-fifth or one-sixth of what it was 50 years ago. Manufacturing employment in America has fallen from 35% of the workforce in the 1950s to less than half that now, without causing much social disruption. But it may be too much to hope for an equally easy transition in countries such as Japan or Germany, where blue-collar manufacturing workers still make up 25-30% of the labour force.

The decline of farming as a producer of wealth and of livelihoods has allowed farm protectionism to spread to a degree that would have been unthinkable before the second world war. In the same way, the decline of manufacturing will trigger an explosion of manufacturing protectionism—even as lip service continues to be paid to free trade. This protectionism may not necessarily take the form of traditional tariffs, but of subsidies, quotas and regulations of all kinds. Even more likely, regional blocks will emerge that trade freely internally but are highly protectionist externally. The European Union, NAFTA and Mercosur already point in that direction.

**The decline of manufacturing will trigger an explosion of manufacturing protectionism**

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## **The future of the corporation**

Statistically, multinational companies play much the same part in the world economy as they did in 1913. But they have become very different animals. Multinationals in 1913 were domestic firms with subsidiaries abroad, each of them self-contained, in charge of a politically defined territory, and highly autonomous. Multinationals now tend to be organised globally along product or service lines. But like the multinationals of 1913, they are held together and controlled by ownership. By contrast, the multinationals of 2025 are likely to be held together and controlled by strategy. There will still be ownership, of course. But alliances, joint ventures, minority stakes, know-how agreements and contracts will increasingly be the building blocks of a confederation. This kind of organisation will need a new kind of top management.

In most countries, and even in a good many large and complex companies, top management is still seen as an extension of operating management. Tomorrow's top management, however, is likely to be a distinct and separate organ: it will stand for the company. One of the most important jobs ahead for the top management of the big company of tomorrow, and especially of the multinational, will be to balance the conflicting demands on business being made by the need for both short-term and long-term results, and by the corporation's various constituencies: customers, shareholders (especially institutional investors and pension funds), knowledge employees and communities.

Against that background, this survey will seek to answer two questions: what can and should managements do

now to be ready for the next society? And what other big changes may lie ahead of which we are as yet unaware?

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\* Peter Drucker is a writer, teacher and consultant who has published 32 books, mostly on various aspects of society, economics, politics and management. Born in 1909 in Vienna, Mr Drucker was educated in Austria and England, and holds a doctorate from Frankfurt University. Since 1971 he has been Professor of Social Science and Management at Claremont Graduate University, California.



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## The new demographics

Nov 1st 2001

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### How to live with an ageing population

BY 2030, people over 65 in Germany, the world's third-largest economy, will account for almost half the adult population, compared with one-fifth now. And unless the country's birth rate recovers from its present low of 1.3 per woman, over the same period its population of under-35s will shrink about twice as fast as the older population will grow. The net result will be that the total population, now 82m, will decline to 70m-73m. The number of people of working age will fall by a full quarter, from 40m today to 30m.

The German demographics are far from exceptional. In Japan, the world's second-largest economy, the population will peak in 2005, at around 125m. By 2050, according to the more pessimistic government forecasts, the population will have shrunk to around 95m. Long before that, around 2030, the share of the over-65s in the adult population will have grown to about half. And the birth rate in Japan, as in Germany, is down to 1.3 per woman.

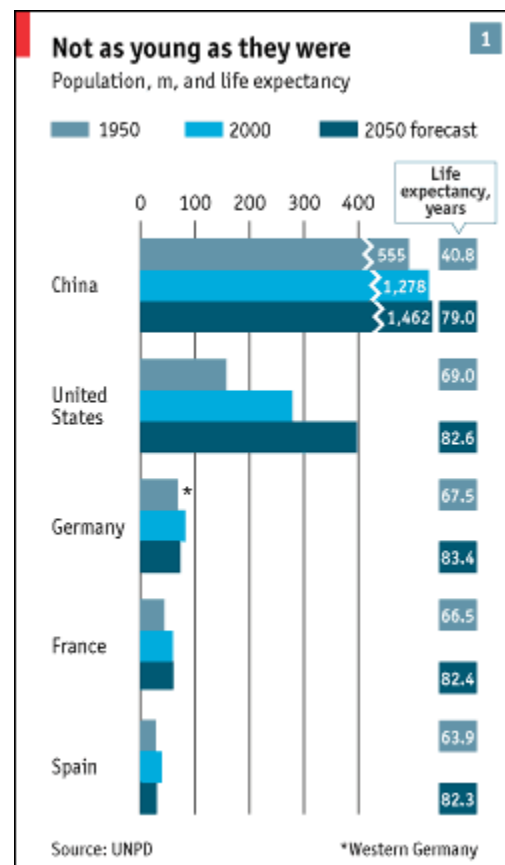
The figures are pretty much the same for most other developed countries—Italy, France, Spain, Portugal, the Netherlands, Sweden—and for a good many emerging ones, especially China. In some regions, such as central Italy, southern France or southern Spain, birth rates are even lower than in Germany or Japan.

Life expectancy—and with it the number of older people—has been going up steadily for 300 years. But the decline in the number of young people is something new. The only developed country that has so far avoided this fate is America. But even there the birth rate is well below replacement level, and the proportion of older people in the adult population will rise steeply in the next 30 years.

All this means that winning the support of older people will become a political imperative in every developed country. Pensions have already become a regular election issue. There is also a growing debate about the desirability of immigration to maintain the population and workforce. Together these two issues are transforming the political landscape in every developed country.

By 2030 at the latest, the age at which full retirement benefits start will have risen to the mid-70s in all developed countries, and benefits for healthy pensioners will be substantially lower than they are today. Indeed, fixed retirement ages for people in reasonable physical and mental condition may have been abolished to prevent the pensions burden on the working

population from becoming unbearable. Already young and middle-aged people at work suspect that there will not be enough pension money to go round when they themselves reach traditional retirement age. But politicians everywhere continue to pretend that they can save the current pensions system.



## Needed but unwanted

Immigration is certain to be an even hotter issue. The respected DIW research institute in Berlin estimates that by 2020 Germany will have to import 1m immigrants of working age each year simply to maintain its workforce. Other rich European countries are in the same boat. And in Japan there is talk of admitting 500,000 Koreans each year—and sending them home five years later. For all big countries but America, immigration on such a scale is unprecedented.

The political implications are already being felt. In 1999 fellow Europeans were shocked by the electoral success in Austria of a xenophobic right-wing party whose main plank is “no immigration”. Similar movements are growing in Flemish-speaking Belgium, in traditionally liberal Denmark and in northern Italy. Even in America, immigration is upsetting long-established political alignments. American trade unions' opposition to large-scale immigration has put them in the anti-globalisation camp that organised violent protests during the Seattle meeting of the World Trade Organisation in 1999. A future Democratic candidate for the American presidency may have to choose between getting the union vote by opposing immigration, or getting the vote of Latinos and other newcomers by supporting it. Equally, a future Republican candidate may have to choose between the support of business, which is clamouring for workers, and the vote of a white middle class that increasingly opposes immigration.

Even so, America's experience of immigration should give it a lead in the developed world for several decades to come. Since the 1970s it has been admitting large numbers of immigrants, either legally or illegally. Most immigrants are young, and the birth rates of first-generation immigrant women tend to be higher than those of their adopted country. This means that for the next 30 or 40 years America's population will continue to grow, albeit slowly, whereas in some other developed countries it will fall.



## A country of immigrants

But it is not numbers alone that will give America an advantage. Even more important, the country is culturally attuned to immigration, and long ago learned to integrate immigrants into its society and economy. In fact, recent immigrants, whether Hispanics or Asians, may be integrating faster than ever. One-third of all recent Hispanic immigrants, for instance, are reported to be marrying non-Hispanics and non-immigrants. The one big obstacle to the full integration of recent immigrants in America is the poor performance of American public schools.

Among developed countries, only Australia and Canada have a tradition of immigration similar to America's. Japan has resolutely kept foreigners out, except for a spate of Korean immigrants in the 1920s and 1930s, whose descendants are still being discriminated against. The mass migrations of the 19th century were either into empty, unsettled spaces (such as the United States, Canada, Australia, Brazil), or from farm to city within the same country. By contrast, immigration in the 21st century is by foreigners—in nationality, language, culture and religion—who move into settled countries. European countries have so far been less than successful at integrating such foreigners.

The biggest effect of the demographic changes may be to split hitherto homogeneous societies and markets. Until the 1920s or 30s, every country had a diversity of cultures and markets. They were sharply differentiated by class, occupation and residence, eg, "the farm market" or "the carriage trade", both of which disappeared some time between 1920 and 1940. Yet since the second world war, all developed countries have had only one mass culture and one mass market. Now that demographic forces in all the developed countries are pulling in opposite directions, will that homogeneity survive?

**Since the second world war, all developed countries have had only one mass culture and one mass market**

The markets of the developed world have been dominated by the values, habits and preferences of the young population. Some of the most successful and most profitable businesses of the past half-century, such as Coca-Cola and Procter & Gamble in America, Unilever in Britain and Henkel in Germany, owe their prosperity in large measure to the growth of the young population and to the high rate of family formation between 1950 and 2000. The same is true of the car industry over that period.

## The end of the single market

Now there are signs that the market is splitting. In financial services, perhaps America's fastest-growing industry over the past 25 years, it has split already. The bubble market of the 1990s, with its frantic day-trading in high-tech stocks, belonged mainly to the under-45s. But the customers in the markets for investments, such as mutual funds or deferred annuities, tend to be over 50, and that market has also been growing apace. The fastest-growing industry in any developed country may turn out to be the continuing education of already well-educated adults, which is based on values that are all but incompatible with those of the youth culture.

But it is also conceivable that some youth markets will become exceedingly lucrative. In the coastal cities of China, where the government was able to enforce its one-child policy, middle-class families are now reported to spend more on their one child than earlier middle-class families spent on their four or five children together. This seems to be true in Japan too. Many American middle-class families are spending heavily on the education of their single child, mainly by moving into expensive suburban neighbourhoods with good schools. But this new luxury youth market is quite different from the homogeneous mass market of the past 50 years. That mass market is rapidly weakening because of the decline in the numbers of young people reaching adulthood.

In future there will almost certainly be two distinct workforces, broadly made up of the under-50s and the over-50s respectively. These two workforces are likely to differ markedly in their needs and behaviour, and in the jobs they do. The younger group will need a steady income from a permanent job, or at least a succession of full-time jobs. The rapidly growing older group will have much more choice, and will be able to combine traditional jobs, non-conventional jobs and leisure in whatever proportion suits them best.

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**In future there will almost certainly be two workforces, broadly made up of the under-50s and the over-50s**

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The split into two workforces is likely to start with female knowledge technologists. A nurse, a computer technologist or a paralegal can take 15 years out to look after her children and then return to full-time work. Women, who now outnumber men in American higher education, increasingly look for work in the new knowledge technologies. Such jobs are the first in human history to be well adapted to the special needs of women as childbearers, and to their increasing longevity. That longevity is one of the reasons for the split in the job market. A 50-year working life—unprecedented in human history—is simply too long for one kind of work.

The second reason for the split is a shrinking life expectancy for businesses and organisations of all kinds. In the past, employing organisations have outlived employees. In future, employees, and especially knowledge workers, will increasingly outlive even successful organisations. Few businesses, or even government agencies or programmes, last for more than 30 years. Historically, the working lifespan of most employees has been less than 30 years because most manual workers simply wore out. But knowledge workers who enter the labour force in their 20s are likely to be still in good physical and mental shape 50 years later.

“Second career” and “second half of one's life” have already become buzzwords in America. Increasingly, employees there take early retirement as soon as their pension and Social Security (state retirement benefit) rights are guaranteed for the time when they reach traditional retirement age; but they do not stop working. Instead, their “second career” often takes an unconventional form. They may work freelance (and often forget to tell the taxman about their work, thus boosting their net income), or part-time, or as “temporaries”, or for an outsourcing contractor, or as contractors themselves. Such “early retirement to keep on working” is particularly common among knowledge workers, who are still a minority among people now reaching 50 or 55, but will become the largest single group of older people in America from about 2030.

## **Beware demographic changes**

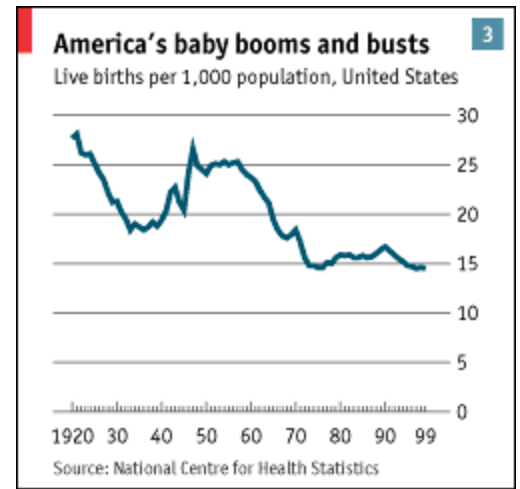
Population predictions for the next 20 years can be made with some certainty because almost everybody who will be in the workforce in 2020 is already alive. But, as American experience in the past couple of decades has shown, demographic trends can change quite suddenly and unpredictably, with fairly immediate effects. The American baby boom of the late 1940s, for instance, triggered the housing boom of the 1950s.

In the mid-1920s America had its first “baby bust”. Between 1925 and 1935 the birth rate declined by almost half, dipping below the replacement rate of 2.2 live births per woman. In the late 1930s, President Roosevelt's Commission on American Population (consisting of the country's most eminent demographers and statisticians) confidently predicted that America's population would peak in 1945 and would then start declining. But

an exploding birth rate in the late 1940s proved it wrong. Within ten years, the number of live births per woman doubled from 1.8 to 3.6. Between 1947 and 1957, America experienced an astonishing "baby boom". The number of babies born rose from 2.5m to 4.1m.

Then, in 1960-61, the opposite happened. Instead of the expected second-wave baby boom as the first boomers reached adulthood, there was a big bust. Between 1961 and 1975, the birth rate fell from 3.7 to 1.8. The number of babies born went down from 4.3m in 1960 to 3.1m in 1975. The next surprise was the "baby boom echo" in the late 1980s and early 1990s. The number of live births went up quite sharply, surpassing even the numbers of the first baby boom's peak years. With the benefit of hindsight, it is now clear that this echo was triggered by large-scale immigration into America, beginning in the early 1970s. When the girls born to these early immigrants started having children of their own in the late 1980s, their birth rates were still closer to those of their parents' country of origin than to those of their adopted country. Fully one-fifth of all children of school age in California in the first decade of this century have at least one foreign-born parent.

But nobody knows what caused the two baby busts, or the baby boom of the 1940s. Both busts occurred when the economy was doing well, which in theory should have encouraged people to have lots of children. And the baby boom should never have happened, because historically birth rates have always gone down after a big war. The truth is that we simply do not understand what determines birth rates in modern societies. So demographics will not only be the most important factor in the next society, it will also be the least predictable and least controllable one.



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## The new workforce

Nov 1st 2001

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### Knowledge workers are the new capitalists

A CENTURY ago, the overwhelming majority of people in developed countries worked with their hands: on farms, in domestic service, in small craft shops and (at that time still a small minority) in factories. Fifty years later, the proportion of manual workers in the American labour force had dropped to around half, and factory workers had become the largest single section of the workforce, making up 35% of the total. Now, another 50 years later, fewer than a quarter of American workers make their living from manual jobs. Factory workers still account for the majority of the manual workers, but their share of the total workforce is down to around 15%—more or less back to what it had been 100 years earlier.

Of all the big developed countries, America now has the smallest proportion of factory workers in its labour force. Britain is not far behind. In Japan and Germany, their share is still around a quarter, but it is shrinking steadily. To some extent this is a matter of definition. Data-processing employees of a manufacturing firm, such as the Ford Motor Company, are counted as employed in manufacturing, but when Ford outsources its data processing, the same people doing exactly the same work are instantly redefined as service workers. However, too much should not be made of this. Many studies in manufacturing businesses have shown that the decline in the number of people who actually work in the plant is roughly the same as the shrinkage reported in the national figures.

Before the first world war there was not even a word for people who made their living other than by manual work. The term "service worker" was coined around 1920, but it has turned out to be rather misleading. These days, fewer than half of all non-manual workers are actually service workers. The only fast-growing group in the workforce, in America and in every other developed country, are "knowledge workers"—people whose jobs require formal and advanced schooling. They now account for a full third of the American workforce, outnumbering factory workers by two to one. In another 20 years or so, they are likely to make up close to two-fifths of the workforce of all rich countries.

The terms "knowledge industries", "knowledge work" and "knowledge worker" are only 40 years old. They were coined around 1960, simultaneously but independently; the first by a Princeton economist, Fritz Machlup, the second and third by this writer. Now everyone uses them, but as yet hardly anyone understands their implications for human values and human behaviour, for managing people and making them productive, for economics and for politics. What is already clear, however, is that the emerging knowledge society and knowledge economy will be radically different from the society and economy of the late 20th century, in the following ways.

First, the knowledge workers, collectively, are the new capitalists. Knowledge has become the key resource, and the only scarce one. This means that knowledge workers collectively own the means of production. But as a group, they are also capitalists in the old sense: through their stakes in pension funds and mutual funds, they have become majority shareholders and owners of many large businesses in the knowledge society.

Brain, not brawn <span style="float: right;">4</span>			
Distribution of total employment, United States by occupation, %			
	1988	1998	2008*
Executive and managerial	10.3	10.5	10.7
Professional	12.5	14.1	15.6
Technicians	3.2	3.5	3.8
Marketing/sales	10.3	10.9	11.0
Administrative support	18.5	17.4	16.6
Services	15.5	16.0	16.4
Agriculture	3.5	3.2	2.8
Production, craft and repair	11.9	11.1	10.5
Operators, fabricators and labourers	14.2	13.2	12.7

Source: US Bureau of Labour Statistics \*Forecast

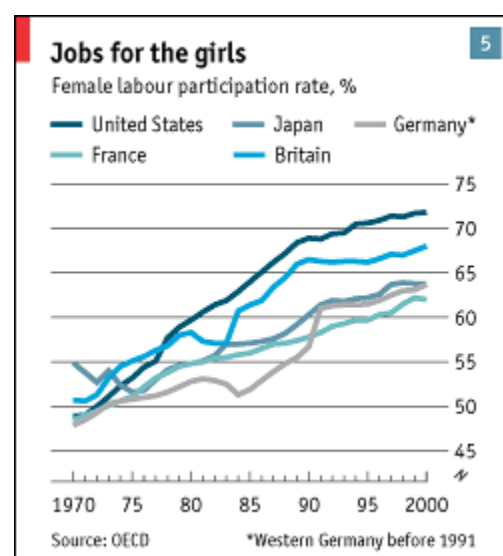
Effective knowledge is specialised. That means knowledge workers need access to an organisation—a collective that brings together an array of knowledge workers and applies their specialisms to a common end-product. The most gifted mathematics teacher in a secondary school is effective only as a member of the faculty. The most brilliant consultant on product development is effective only if there is an organised and competent business to convert her advice into action. The greatest software designer needs a hardware producer. But in turn the high school needs the mathematics teacher, the business needs the expert on product development, and the PC manufacturer needs the software programmer. Knowledge workers therefore see themselves as equal to those who retain their services, as “professionals” rather than as “employees”. The knowledge society is a society of seniors and juniors rather than of bosses and subordinates.

## His and hers

All this has important implications for the role of women in the labour force. Historically women's participation in the world of work has always equalled men's. The lady of leisure sitting in her parlour was the rarest of exceptions even in a wealthy 19th-century society. A farm, a craftsman's business or a small shop had to be run by a couple to be viable. As late as the beginning of the 20th century, a doctor could not start a practice until he had got married; he needed a wife to make appointments, open the door, take patients' histories and send out the bills.

But although women have always worked, since time immemorial the jobs they have done have been different from men's. There was men's work and there was women's work. Countless women in the Bible go to the well to fetch water, but not one man. There never was a male spinster. Knowledge work, on the other hand, is “unisex”, not because of feminist pressure but because it can be done equally well by both sexes. That said, the first modern knowledge jobs were designed for only one or the other sex. Teaching as a profession was invented in 1794, the year the Ecole Normale was founded in Paris, and was seen strictly as a man's job. Sixty years later, during the Crimean war of 1853-56, Florence Nightingale founded the second new knowledge profession, nursing. This was considered as exclusively women's work. But by 1850 teaching everywhere had become unisex, and in 2000 two-fifths of America's students at nursing school were men.

There were no women doctors in Europe until the 1890s. But one of the earliest European women to get a medical doctorate, the great Italian educator Maria Montessori, reportedly said: “I am not a woman doctor; I am a doctor who happens to be a woman.” The same logic applies to all knowledge work. Knowledge workers, whatever their sex, are professionals, applying the same knowledge, doing the same work, governed by the same standards and judged by the same results.



High-knowledge workers such as doctors, lawyers, scientists, clerics and teachers have been around for a long time, although their number has increased exponentially in the past 100 years. The largest group of knowledge workers, however, barely existed until the start of the 20th century, and took off only after the second world war. They are knowledge technologists—people who do much of their work with their hands (and to that extent are the successors to skilled workers), but whose pay is determined by the knowledge between their ears, acquired in formal education rather than through apprenticeship. They include X-ray technicians, physiotherapists, ultrasound specialists, psychiatric case workers, dental technicians and scores of others. In the past 30 years, medical technologists have been the fastest-growing segment of the labour force in America, and probably in Britain as well.

In the next 20 or 30 years the number of knowledge technologists in computers, manufacturing and education is likely to grow even faster. Office technologists such as paralegals are also proliferating. And it is no accident that yesterday's “secretary” is rapidly turning into an “assistant”, having become the manager of the boss's office and of his work. Within two or three decades, knowledge technologists will become the dominant group in the workforce in all developed countries, occupying the same position that unionised factory workers held at the peak of their power in the 1950s and 60s.

The most important thing about these knowledge workers is that they do not identify themselves as “workers” but as “professionals”. Many of them spend a good deal of their time doing largely unskilled work, eg, straightening out

patients' beds, answering the telephone or filing. However, what identifies them in their own and in the public's mind is that part of their job involves putting their formal knowledge to work. That makes them full-fledged knowledge workers.

Such workers have two main needs: formal education that enables them to enter knowledge work in the first place, and continuing education throughout their working lives to keep their knowledge up to date. For the old high-knowledge professionals such as doctors, clerics and lawyers, formal education has been available for many centuries. But for knowledge technologists, only a few countries so far provide systematic and organised preparation. Over the next few decades, educational institutions to prepare knowledge technologists will grow rapidly in all developed and emerging countries, just as new institutions to meet new requirements have always appeared in the past. What is different this time is the need for the continuing education of already well-trained and highly knowledgeable adults. Schooling traditionally stopped when work began. In the knowledge society it never stops.

Knowledge is unlike traditional skills, which change very slowly. A museum near Barcelona in Spain contains a vast number of the hand tools used by the skilled craftsmen of the late Roman empire which any craftsman today would instantly recognise, because they are very similar to the tools still in use. For the purposes of skill training, therefore, it was reasonable to assume that whatever had been learned by age 17 or 18 would last for a lifetime.

Conversely, knowledge rapidly becomes obsolete, and knowledge workers regularly have to go back to school. Continuing education of already highly educated adults will therefore become a big growth area in the next society. But most of it will be delivered in non-traditional ways, ranging from weekend seminars to online training programmes, and in any number of places, from a traditional university to the student's home. The information revolution, which is expected to have an enormous impact on education and on traditional schools and universities, will probably have an even greater effect on the continuing education of knowledge workers.

Knowledge workers of all kinds tend to identify themselves with their knowledge. They introduce themselves by saying "I am an anthropologist" or "I am a physiotherapist." They may be proud of the organisation they work for, be it a company, a university or a government agency, but they "work at the organisation"; they do not "belong to it". Most of them probably feel that they have more in common with someone who practices the same specialism in another institution than with their colleagues at their own institution who work in a different knowledge area.

Although the emergence of knowledge as an important resource increasingly means specialisation, knowledge workers are highly mobile within their specialism. They think nothing of moving from one university, one company or one country to another, as long as they stay within the same field of knowledge. There is a lot of talk about trying to restore knowledge workers' loyalty to their employing organisation, but such efforts will get nowhere. Knowledge workers may have an attachment to an organisation and feel comfortable with it, but their primary allegiance is likely to be to their specialised branch of knowledge.

Knowledge is non-hierarchical. Either it is relevant in a given situation, or it is not. An open-heart surgeon may be much better paid than, say, a speech therapist, and enjoy a much higher social status, yet if a particular situation requires the rehabilitation of a stroke victim, then in that instance the speech therapist's knowledge is greatly superior to that of the surgeon. This is why knowledge workers of all kinds see themselves not as subordinates but as professionals, and expect to be treated as such.

Money is as important to knowledge workers as to anybody else, but they do not accept it as the ultimate yardstick, nor do they consider money as a substitute for professional performance and achievement. In sharp contrast to yesterday's workers, to whom a job was first of all a living, most knowledge workers see their job as a life.

## Ever upwards

**Everybody's doing it** 6  
 % of total population enrolled in tertiary education  
 selected countries

	1970	1996	% female 1996
Brazil	0.44	1.17	52.9*
Britain	1.08	3.25	51.8
China	0.01	0.49†	33.3‡
France	1.58	3.54	54.9
India	0.44	0.65†	36.2
Indonesia	0.20	1.16§	34.8§
Iran	0.26	0.91†	38.1‡
Israel	1.86	3.59	51.3**
Mexico	0.49	1.76	47.7
South Africa	0.37	1.49*	48.0*
South Korea	0.63	5.65	36.9
Turkey	0.48	2.35	35.1
United States	4.14	5.37†	55.1§

\*1994 †1997 ‡1993 §1995 \*\*1992  
 Sources: UNESCO; UNPD

The knowledge society is the first human society where upward mobility is potentially unlimited. Knowledge differs from all other means of production in that it cannot be inherited or bequeathed. It has to be acquired anew by every individual, and everyone starts out with the same total ignorance.

Knowledge has to be put in a form in which it can be taught, which means it has to become public. It is always universally accessible, or quickly becomes so. All this makes the knowledge society a highly mobile one. Anyone can acquire any knowledge at a school, through a codified learning process, rather than by serving as an apprentice to a master.

Until 1850 or perhaps even 1900, there was little mobility in any society. The Indian caste system, in which birth determines not only an individual's status in society but his occupation as well, was only an extreme case. In most other societies too, if the father was a peasant, the son was a peasant, and the daughters married peasants. By and large, the only mobility was downward, caused by war or disease, personal misfortune or bad habits such as drinking or gambling.

Even in America, the land of unlimited opportunities, there was far less upward mobility than is commonly believed. The great majority of professionals and managers in America in the first half of the 20th century were still the children of professionals and managers rather than the children of farmers, small shopkeepers or factory workers. What distinguished America was not the amount of upward mobility but, in sharp contrast to most European countries, the way it was welcomed, encouraged and cherished.

The knowledge society takes this approval of upward mobility much further: it considers every impediment to such mobility a form of discrimination. This implies that everybody is now expected to be a "success"—an idea that would have seemed ludicrous to earlier generations. Naturally, only a tiny number of people can be outstanding successes; but a very large number are expected to be adequately successful.

In 1958 John Kenneth Galbraith first wrote about "The Affluent Society". This was not a society with many more rich people, or in which the rich were richer, but one in which the majority could feel financially secure. In the knowledge society, a large number of people, perhaps even a majority, have something even more important than financial security: social standing, or "social affluence".

## **The price of success**

The upward mobility of the knowledge society, however, comes at a high price: the psychological pressures and emotional traumas of the rat race. There can be winners only if there are losers. This was not true of earlier societies. The son of the landless labourer who became a landless labourer himself was not a failure. In the knowledge society, however, he is not only a personal failure but a failure of society as well.

Japanese youngsters suffer sleep deprivation because they spend their evenings at a crammer to help them pass their exams. Otherwise they will not get into the prestige university of their choice, and thus into a good job. These pressures create hostility to learning. They also threaten to undermine Japan's prized economic equality and turn the country into a plutocracy, because only well-off parents can afford the prohibitive cost of preparing their youngsters for university. Other countries, such as America, Britain and France, are also allowing their schools to become viciously competitive. That this has happened over such a short time—no more than 30 or 40 years—indicates how much the fear of failure has already permeated the knowledge society.

Given this competitive struggle, a growing number of highly successful knowledge workers of both sexes—business managers, university teachers, museum directors, doctors—"plateau" in their 40s. They know they have achieved all they will achieve. If their work is all they have, they are in trouble. Knowledge workers therefore need to develop, preferably while they are still young, a non-competitive life and community of their own, and some serious outside interest—be it working as a volunteer in the community, playing in a local orchestra or taking an active part in a small town's local government. This outside interest will give them the opportunity for personal contribution and achievement.



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## The manufacturing paradox

Nov 1st 2001

From The Economist print edition



### How do you get far more output with far fewer workers?

IN THE closing years of the 20th century, the world price of the steel industry's biggest single product—hot rolled coil, the steel for car bodies—plunged from \$460 to \$260 a ton. Yet these were boom years in America and prosperous times in most of continental Europe, with automobile production setting records. The steel industry's experience is typical of manufacturing as a whole. Between 1960 and 1999, both manufacturing's share in America's GDP and its share of total employment roughly halved, to around the 15% mark. Yet in the same 40 years manufacturing's physical output doubled or tripled. In 1960, manufacturing was the centre of the American economy, and of the economies of all other developed countries. By 2000, as a contributor to GDP it was easily outranked by the financial sector.

The relative purchasing power of manufactured goods (what economists call the terms of trade) has fallen by three-quarters in the past 40 years. Whereas manufacturing prices, adjusted for inflation, are down by 40%, the prices of the two main knowledge products, health care and education, have risen about three times as fast as inflation. In 2000, therefore, it took five times as many units of manufactured goods to buy the main knowledge products as it had done 40 years earlier.

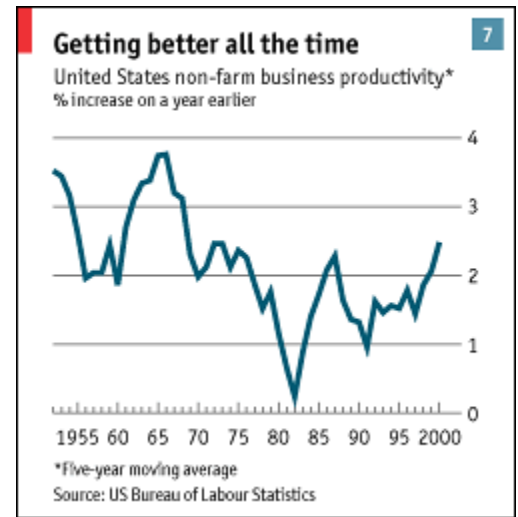
The purchasing power of workers in manufacturing has also gone down, although by much less than that of their products. Their productivity has risen so sharply that most of their real income has been preserved. Forty years ago, labour costs in manufacturing typically accounted for around 30% of total manufacturing costs; now they are generally down to 12-15%. Even in the car industry, still the most labour-intensive of the engineering branches, labour costs in the most advanced plants are no higher than 20%. Manufacturing workers, especially in America, have ceased to be the backbone of the consumer market. At the height of the crisis in America's "rust belt", when employment in the big manufacturing centres was ruthlessly slashed, national sales of consumer goods barely budged.

What has changed manufacturing, and sharply pushed up productivity, are new concepts. Information and

automation are less important than new theories of manufacturing, which are an advance comparable to the arrival of mass production 80 years ago. Indeed, some of these theories, such as Toyota's "lean manufacturing", do away with robots, computers and automation. One highly publicised example involved replacing one of Toyota's automated and computerised paint-drying lines by half a dozen hairdryers bought in a supermarket.

Manufacturing is following exactly the same path that farming trod earlier. Beginning in 1920, and accelerating after the second world war, farm production shot up in all developed countries. Before the first world war, many Western European countries had to import farm products. Now there is only one net farm importer left: Japan. Every single European country now has large and increasingly unsaleable farm surpluses. In quantitative terms, farm production in most developed countries today is probably at least four times what it was in 1920 and three times what it was in 1950 (except in Japan). But whereas at the beginning of the 20th century farmers made up the largest single group in the working population in most developed countries, now they account for no more than 3% in any developed country. And whereas at the beginning of the 20th century agriculture was the largest single contributor to national income in most developed countries, in 2000 in America it contributed less than 2% to GDP.

Manufacturing is unlikely to expand its output in volume terms as much as agriculture did, or to shrink as much as a producer of wealth and of jobs. But the most believable forecast for 2020 suggests that manufacturing output in the developed countries will at least double, while manufacturing employment will shrink to 10-12% of the total workforce.



In America, the transition has largely been accomplished already, and with a minimum of dislocation. The only hard-hit group have been African Americans, to whom the growth in manufacturing jobs after the second world war offered quick economic advancement, and whose jobs have now largely gone. But by and large, even in places that relied heavily on a few large manufacturing plants, unemployment remained high only for a short time. Even the political impact in America has been minimal.

But will other industrial countries have an equally easy passage? In Britain, manufacturing employment has already fallen quite sharply without causing any unrest, although it seems to have produced social and psychological problems. But what will happen in countries such as Germany or France, where labour markets remain rigid and where, until very recently, there has been little upward mobility through education? These countries already have substantial and seemingly intractable unemployment, eg, in Germany's Ruhr and in France's old industrial area around Lille. They may face a painful transition period with severe social upheavals.

The biggest question mark is over Japan. To be sure, it has no working-class culture, and it has long appreciated the value of education as an instrument of upward mobility. But Japan's social stability is based on employment security, especially for blue-collar workers in big manufacturing industry, and that is eroding fast. Yet before employment security was introduced for blue-collar workers in the 1950s, Japan had been a country of extreme labour turbulence. Manufacturing's share of total employment is still higher than in almost any other developed country—around a quarter of the total—and Japan has practically no labour market and little labour mobility.

Psychologically, too, the country is least prepared for the decline in manufacturing. After all, it owed its rise to great-economic-power status in the second half of the 20th century to becoming the world's manufacturing virtuoso. One should never underestimate the Japanese. Throughout their history they have shown unparalleled ability to face up to reality and to change practically overnight. But the decline in manufacturing as the key to economic success confronts Japan with one of the biggest challenges ever.

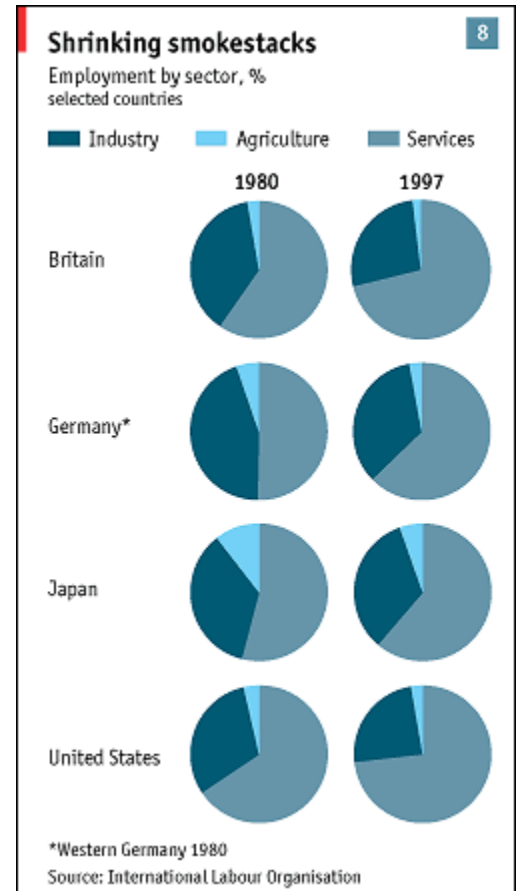
**The decline in manufacturing as the key to economic success confronts Japan with one of the biggest challenges ever**

The decline of manufacturing as a producer of wealth and jobs changes the world's economic, social and political landscape. It makes "economic miracles" increasingly difficult for developing countries to achieve. The economic miracles of the second half of the 20th century—Japan, South Korea, Taiwan, Hong Kong, Singapore—were based on exports to the world's rich countries of manufactured goods that were produced with developed-country technology and productivity but with emerging-country labour costs. This will no longer work. One way to generate economic development may be to integrate the economy of an emerging country into a developed region—which is what Vicente Fox, the new Mexican president, envisages with his proposal for total integration of "North America", ie, the United States, Canada and Mexico. Economically this makes a lot of sense, but politically it is almost

unthinkable. The alternative—which is being pursued by China—is to try to achieve economic growth by building up a developing country's domestic market. India, Brazil and Mexico also have large enough populations to make home-market-based economic development feasible, at least in theory. But will smaller countries, such as Paraguay or Thailand, be allowed to export to the large markets of emerging countries such as Brazil?

The decline in manufacturing as a creator of wealth and jobs will inevitably bring about a new protectionism, once again echoing what happened earlier in agriculture. For every 1% by which agricultural prices and employment have fallen in the 20th century, agricultural subsidies and protection in every single developed country, including America, have gone up by at least 1%, often more. And the fewer farm voters there are, the more important the “farm vote” has become. As numbers have shrunk, farmers have become a unified special-interest group that carries disproportionate clout in all rich countries.

Protectionism in manufacturing is already in evidence, although it tends to take the form of subsidies instead of traditional tariffs. The new regional economic blocks, such as the European Union, NAFTA or Mercosur, do create large regional markets with lower internal barriers, but they protect them with higher barriers against producers outside the region. And non-tariff barriers of all kinds are steadily growing. In the same week in which the 40% decline in sheet-steel prices was announced in the American press, the American government banned sheet-steel imports as “dumping”. And no matter how laudable their aims, the developed countries' insistence on fair labour laws and adequate environmental rules for manufacturers in the developing world acts as a mighty barrier to imports from these countries.



## Smaller numbers, bigger clout

Politically, too, manufacturing is becoming more influential the fewer manufacturing workers there are, especially in America. In last year's presidential election the labour vote was more important than it had been 40 or 50 years earlier, precisely because the number of trade-union members has become so much smaller as a percentage of the voting population. Feeling endangered, they have closed ranks. A few decades ago, a substantial minority of American union members voted Republican, but in last year's election more than 90% of union members are thought to have voted Democrat (though their candidate still lost).

For over 100 years, America's trade unions have been strong supporters of free trade, at least in their rhetoric, but in the past few years they have become staunchly protectionist and declared enemies of “globalisation”. No matter that the real threat to manufacturing jobs is not competition from abroad, but the rapid decline of manufacturing as a creator of work: it is simply incomprehensible that manufacturing production can go up while manufacturing jobs go down, and not only to trade unionists but also to politicians, journalists, economists and the public at large. Most people continue to believe that when manufacturing jobs decline, the country's manufacturing base is threatened and has to be protected. They have great difficulty in accepting that, for the first time in history, society and economy are no longer dominated by manual work, and a country can feed, house and clothe itself with only a small minority of its population engaged in such work.

**Most people have great difficulty in accepting that society and economy are no longer dominated by manual work**

The new protectionism is driven as much by nostalgia and deep-seated emotion as by economic self-interest and political power. Yet it will achieve nothing, because “protecting” ageing industries does not work. That is the clear lesson of 70 years of farm subsidies. The old crops—corn (maize), wheat, cotton—into which America has pumped countless billions since the 1930s—have all done poorly, whereas unprotected and unsubsidised new crops—such as soya beans—have flourished. The lesson is clear: policies that pay old industries to hold on to redundant people can only do harm. Whatever money is being spent should instead go on subsidising older laid-off workers, and retraining and redeploying younger ones.

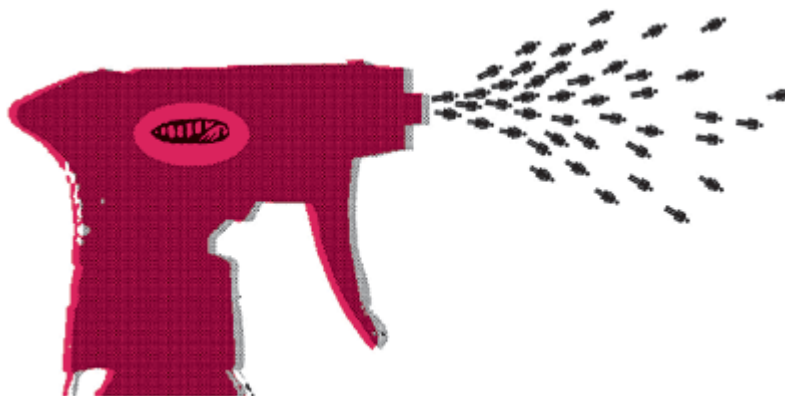
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## Will the corporation survive?

Nov 1st 2001

From The Economist print edition



### Yes, but not as we know it

FOR most of the time since the corporation was invented around 1870, the following five basic points have been assumed to apply:

- The corporation is the "master", the employee is the "servant". Because the corporation owns the means of production without which the employee could not make a living, the employee needs the corporation more than vice versa.
- The great majority of employees work full-time for the corporation. The pay they get for the job is their only income and provides their livelihood.
- The most efficient way to produce anything is to bring together under one management as many as possible of the activities needed to turn out the product.

The theory underlying this was not developed until after the second world war, by Ronald Coase, an Anglo-American economist, who argued that bringing together activities into one company lowers "transactional costs", and especially the cost of communications (for which theory he received the 1991 Nobel prize in economics). But the concept itself was discovered and put into practice 70 or 80 years earlier by John D. Rockefeller. He saw that to put exploration, production, transport, refining and selling into one corporate structure resulted in the most efficient and lowest-cost petroleum operation. On this insight he built the Standard Oil Trust, probably the most profitable large enterprise in business history. The concept was carried to an extreme by Henry Ford in the early 1920s. The Ford Motor Company not only produced all parts of the automobile and assembled it, but it also made its own steel, its own glass and its own tyres. It owned the plantations in the Amazon that grew the rubber trees, owned and ran the railroad that carried supplies to the plant and carried the finished cars from it, and planned eventually to sell and service Ford cars too (though it never did).

- Suppliers and especially manufacturers have market power because they have information about a product or a service that the customer does not and cannot have, and does not need if he can trust the brand. This explains the

profitability of brands.

- To any one particular technology pertains one and only one industry, and conversely, to any one particular industry pertains one and only one technology. This means that all technology needed to make steel is peculiar to the steel industry; and conversely, that whatever technology is being used to make steel comes out of the steel industry itself. The same applies to the paper industry, to agriculture or to banking and commerce.

On this assumption were founded the industrial research labs, beginning with Siemens's, started in Germany in 1869, and ending with IBM's, the last of the great traditional labs, founded in America in 1952. Each of them concentrated on the technology needed for a single industry, and each assumed that its discoveries would be applied only in that industry.

## **Everything in its place**

Similarly, everybody took it for granted that every product or service had a specific application, and that for every application there was a specific product or material. So beer and milk were sold only in glass bottles; car bodies were made only from steel; working capital for a business was supplied by a commercial bank through a commercial loan; and so on. Competition therefore took place mainly within an industry. By and large, it was obvious what the business of a given company was and what its markets were.

Every one of these assumptions remained valid for a whole century, but from 1970 onwards every one of them has been turned upside down. The list now reads as follows:

- The means of production is knowledge, which is owned by knowledge workers and is highly portable. This applies equally to high-knowledge workers such as research scientists and to knowledge technologists such as physiotherapists, computer technicians and paralegals. Knowledge workers provide "capital" just as much as does the provider of money. The two are dependent on each other. This makes the knowledge worker an equal—an associate or a partner.

- Many employees, perhaps a majority, will still have full-time jobs with a salary that provides their only or main income. But a growing number of people who work for an organisation will not be full-time employees but part-timers, temporaries, consultants or contractors. Even of those who do have a full-time job, a large and growing number may not be employees of the organisation for which they work, but employees of, eg, an outsourcing contractor.

- There always were limits to the importance of transactional costs. Henry Ford's all-inclusive Ford Motor Company proved unmanageable and became a disaster. But now the traditional axiom that an enterprise should aim for maximum integration has become almost entirely invalidated. One reason is that the knowledge needed for any activity has become highly specialised. It is therefore increasingly expensive, and also increasingly difficult, to maintain enough critical mass for every major task within an enterprise. And because knowledge rapidly deteriorates unless it is used constantly, maintaining within an organisation an activity that is used only intermittently guarantees incompetence.

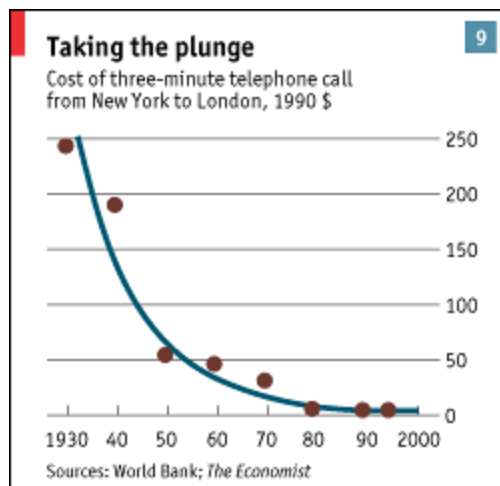
The second reason why maximum integration is no longer needed is that communications costs have come down so fast as to become insignificant. This decline began well before the information revolution. Perhaps its biggest cause has been the growth and spread of business literacy. When Rockefeller built his Standard Oil Trust, he had great difficulty finding people who knew even the most elementary book-keeping or had heard of the most common business terms. At the time there were no business textbooks or business courses, so the transactional costs of making oneself understood were extremely high. Sixty years later, by 1950 or 1960, the large oil companies that succeeded the Standard Oil Trust could confidently assume that their more senior employees were business literate.

By now the new information technology—Internet and e-mail—have practically eliminated the physical costs of communications. This has meant that the most productive and most profitable way to organise is to disintegrate. This is being extended to more and more activities.

Outsourcing the management of an institution's information technology, data processing and computer system has become routine. In the early 1990s most American computer firms, eg, Apple, even outsourced the

production of their hardware to manufacturers in Japan or Singapore. In the late 1990s practically every Japanese consumer-electronics company repaid the compliment by outsourcing the manufacturing of its products for the American market to American contract manufacturers.

In the past few years the entire human-resources management of more than 2m American workers—hiring, firing, training, benefits and so on—has been outsourced to professional employee organisations. This sector, which ten years ago barely existed, is now growing at a rate of 30% a year. It originally concentrated on small and medium-sized companies, but the biggest of the firms, Exult, founded only in 1998, now manages employment issues for a number of *Fortune* 500 companies, including BP, a British-American oil giant, and Unisys, a computer maker. According to a study by McKinsey, a consultancy, outsourcing human-relations management in this way can save up to 30% of the cost, and increase employee satisfaction as well.



- The customer now has the information. As yet, the Internet lacks the equivalent of a telephone book that would make it easy for users to find what they are looking for. It still requires pecking and hunting. But the information is somewhere on a website, and search firms to find it for a fee are rapidly developing. Whoever has the information has the power. Power is thus shifting to the customer, be it another business or the ultimate consumer. Specifically, that means the supplier, eg, the manufacturer, will cease to be a seller and instead become a buyer for the customer. This is already happening.

General Motors (GM), still the world's largest manufacturer and for many years its most successful selling organisation, last year announced the creation of a major business that will buy for the ultimate car consumer. Although wholly owned by GM, the business will be autonomous, and will buy not only General Motors cars, but whatever car and model most closely fits the individual customer's preferences, values and wallet.

- Lastly, there are few unique technologies any more. Increasingly, the knowledge needed in a given industry comes out of some totally different technology with which, very often, the people in the industry are unfamiliar. No one in the telephone industry knew anything about fibreglass cables. They were developed by a glass company, Corning. Conversely, more than half the important inventions developed since the second world war by the most productive of the great research labs, the Bell Laboratory, have been applied mainly outside the telephone industry.

The Bell Lab's most significant invention of the past 50 years was the transistor, which created the modern electronics industry. But the telephone company saw so little use for this revolutionary new device that it practically gave it away to anybody who asked for it—which is what put Sony, and with it the Japanese, into the consumer-electronics business.

## Who needs a research lab?

Research directors, as well as high-tech industrialists, now tend to believe that the company-owned research lab, that proud 19th-century invention, has become obsolete. This explains why, increasingly, development and growth of a business is taking place not inside the corporation itself but through partnerships, joint ventures, alliances, minority participation and know-how agreements with institutions in different industries and with a different technology. Something that only 50 years ago would have been unthinkable is becoming common: alliances between institutions of a totally different character, say a profit-making company and a university department, or a city or state government and a business that contracts for a specific service such as cleaning the streets or running prisons.

Practically no product or service any longer has either a single specific end-use or application, or its own market. Commercial paper competes with the banks' commercial loans. Cardboard, plastic and aluminium compete with glass for the bottle market. Glass is replacing copper in cables. Steel is competing with wood and plastic in providing the studs around which the American one-family home is constructed. The deferred annuity is pushing aside traditional life insurance—but, in turn, insurance companies rather than financial-service institutions are becoming the managers of commercial risks.

A “glass company” may therefore have to redefine itself by what it is good at doing rather than by the material in which it has specialised in the past. One of the world’s largest glass makers, Corning, sold its profitable business making traditional glass products to become the number one producer and supplier of high-tech materials. Merck, America’s largest pharmaceutical company, diversified from making drugs into wholesaling every kind of pharmacy product, most of them not even made by Merck, and a good many by competitors.

The same sort of thing is happening in the non-business sectors of the economy. One example is the free-standing “birthing centre” run by a group of obstetricians that competes with the American hospital’s maternity ward. And Britain, long before the Internet, created the “Open University”, which allowed people to get a university education and obtain a degree without ever setting foot in a classroom or attending a lecture.

## The next company

One thing is almost certain: in future there will be not one kind of corporation but several different ones. The modern company was invented simultaneously but independently in three countries: America, Germany and Japan. It was a complete novelty and bore no resemblance to the economic organisation that had been the “economic enterprise” for millennia: the small, privately owned and personally run firm. As late as 1832, England’s McLane Report—the first statistical survey of business—found that nearly all firms were privately owned and had fewer than ten employees. The only exceptions were quasi-governmental organisations such as the Bank of England or the East India Company. Forty years later a new kind of organisation with thousands of employees had appeared on the scene, eg, the American railroads, built with federal and state support, and Germany’s Deutsche Bank.

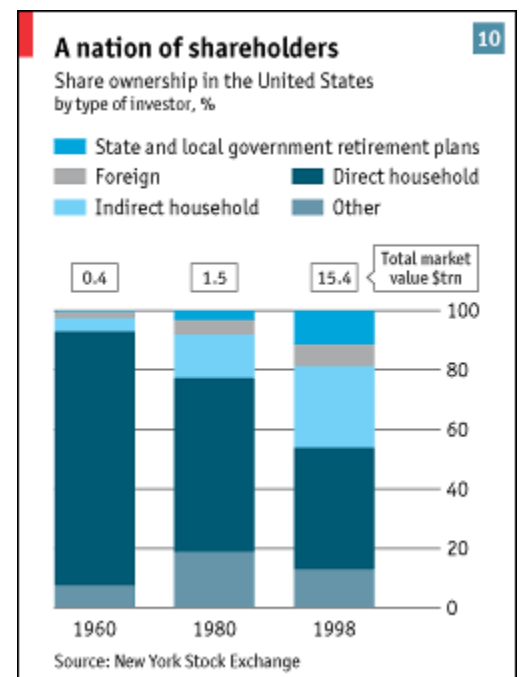
Wherever the corporation went, it acquired some national characteristics and adapted to different legal rules in each country. Moreover, very large corporations everywhere are being run quite differently from the small owner-managed kind. And there are substantial internal differences in culture, values and rhetoric between corporations in different industries. Banks everywhere are very much alike, and so are retailers or manufacturers. But banks everywhere are different from retailers or manufacturers. Otherwise, however, the differences between corporations everywhere are more of style than of substance. The same is true of all other organisations in modern society: government agencies, armed forces, hospitals, universities and so on.

The tide turned around 1970, first with the emergence of new institutional investors such as pension funds and mutual trusts as the new owners, then—more decisively—with the emergence of knowledge workers as the economy’s big new resource and the society’s representative class. The result has been a fundamental change in the corporation.

A bank in the next society will still not look like a hospital, nor be run like one. But different banks may be quite different from one another, depending on how each of them responds to the changes in its workforce, technology and markets. A number of different models is likely to emerge, especially of organisation and structure, but perhaps also of recognitions and rewards.

The same legal entity—eg, a business, a government agency or a large not-for-profit organisation—may well contain several different human organisations that interlock, but are managed separately and differently. One of these is likely to be a traditional organisation of full-time employees. Yet there may also be a closely linked but separately managed human organisation made up mainly of older people who are not employees but associates or affiliates. And there are likely to be “perimeter” groups such as the people who work for the organisation, even full-time, but as employees of an outsourcing contractor or of a contract manufacturer. These people have no contractual relationship with the business they work for, which in turn has no control over them. They may not have to be “managed”, but they have to be made productive. They will therefore have to be deployed where their specialised knowledge can make the greatest contribution. Despite all the present talk of “knowledge management”, no one yet really knows how to do it.

Just as important, the people in every one of these organisational categories will have to be satisfied. Attracting them and holding them will become the central task of people management. We already know what does not work: bribery. In the past ten or 15 years many businesses in America have used bonuses or stock options to attract and



keep knowledge workers. It always fails.

According to an old saying, you cannot hire a hand: the whole man always comes with it. But you cannot hire a man either; the spouse almost always comes with it. And the spouse has already spent the money when falling profits eliminate the bonus or falling stock prices make the option worthless. Then both the employee and the spouse feel bitter and betrayed.

Of course knowledge workers need to be satisfied with their pay, because dissatisfaction with income and benefits is a powerful disincentive. The incentives, however, are different. The management of knowledge workers should be based on the assumption that the corporation needs them more than they need the corporation. They know they can leave. They have both mobility and self-confidence. This means they have to be treated and managed as volunteers, in the same way as volunteers who work for not-for-profit organisations. The first thing such people want to know is what the company is trying to do and where it is going. Next, they are interested in personal achievement and personal responsibility—which means they have to be put in the right job. Knowledge workers expect continuous learning and continuous training. Above all, they want respect, not so much for themselves but for their area of knowledge. In that regard, they have moved several steps beyond traditional workers, who used to expect to be told what to do, although later they were increasingly expected to “participate”. Knowledge workers, by contrast, expect to make the decisions in their own area.

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**The management of knowledge workers should be based on the assumption that the corporation needs them more than they need the corporation**

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## **From corporation to confederation**

Eighty years ago, GM first developed both the organisational concepts and the organisational structure on which today's large corporations everywhere are based. It also invented the idea of a distinct top management. Now it is experimenting with a range of new organisational models. It has been changing itself from a unitary corporation held together by control through ownership into a group held together by management control, with GM often holding only a minority stake. GM now controls but does not own Fiat, itself one of the oldest and largest car makers. It also controls Saab in Sweden and two smaller Japanese car makers, Suzuki and Isuzu.

At the same time GM has divested itself of much of its manufacturing by spinning off into a separate company, called Delphi, the making of parts and accessories that together account for 60-70% of the cost of producing a car. Instead of owning—or at least controlling—the suppliers of parts and accessories, GM will in future buy them at auction and on the Internet. It has joined up with its American competitors, Ford and DaimlerChrysler, to create an independent purchasing co-operative that will buy for its members from whatever source offers the best deal. All the other car makers have been invited to join.

GM will still design its cars, it will still make engines, and it will still assemble. It will also still sell its cars through its dealer network. But in addition to selling its own cars, GM intends to become a car merchant and a buyer for the ultimate consumer, finding the right car for the buyer no matter who makes it.

## **The Toyota way**

GM is still the world's largest car manufacturer, but for the past 20 years Toyota has been the most successful one. Like GM, Toyota is building a worldwide group, but unlike GM, Toyota has organised its group round its core competence in manufacturing. The company is moving away from having multiple suppliers of parts and accessories, ultimately aiming for no more than two suppliers for any one part. These suppliers will be separate and independent companies, owned locally, but Toyota will in effect run their manufacturing operation for them. They will get the Toyota business only if they agree to being inspected and “advised” by a special Toyota manufacturing consulting organisation. And Toyota will also do most of the design work for the suppliers.

This is not a new idea. Sears Roebuck did the same for its suppliers in the 1920s and 1930s. Britain's Marks & Spencer, although in deep trouble now, was the world's most successful retailer for 50 years, maintaining its pre-eminence largely by keeping an iron grip on its suppliers. It is rumoured in Japan that Toyota intends ultimately to market its manufacturing consultancy to non-car companies, turning its manufacturing core competence into a separate big business.

Yet another approach is being explored by a large manufacturer of branded and packaged consumer goods. Some 60% of the company's products are sold in the developed countries through some 150 retail chains. The company plans to create a worldwide website that will take orders direct from customers in all countries, either to be picked up in the retail store nearest to them or to be delivered by that store to their home. But—and this is the true innovation—the website will also take orders for non-competing packaged and branded consumer products made by other, and especially smaller, firms. Such firms have great difficulty in getting their wares on to increasingly crowded supermarket shelves. The multinational's website could offer them direct access to customers and delivery through an established large retailer. The pay-off for the multinational and the retailer would be that both get a decent commission without having to invest any money of their own, without risk and without sacrificing shelf space to slow-moving items.

There are already a good many variations on this theme: the American contract manufacturers, already mentioned, who now make the products for half a dozen competing Japanese consumer-electronics firms; a few independent specialists who design software for competing information-hardware makers; the independent specialists who design credit cards for competing American banks and also often market and clear the cards for the bank. All the bank does is the financing.

These approaches, however different, still all take the traditional corporation as their point of departure. But there are also some new ideas that do away with the corporate model altogether. One example is a "syndicate" being tested by several non-competing manufacturers in the European Union. Each of the constituent companies is medium-sized, family-owned and owner-managed. Each is a leader in a narrow, highly engineered product line. Each is heavily export-dependent. The individual companies intend to remain independent, and to continue to design their products separately. They will also continue to make them in their own plants for their main markets, and to sell them in these markets. But for other markets, and especially for emerging or less developed countries, the syndicate will arrange for the making of the products, either in syndicate-owned plants producing for several of the members or by local contract manufacturers. The syndicate will handle the delivery of all members' products and service them in all markets. Each member will own a share of the syndicate, and the syndicate, in turn, will own a small share of each member's capital. If this sounds familiar, it is because the model is the 19th century farmers' co-operative.

As the corporation moves towards a confederation or a syndicate, it will increasingly need a top management that is separate, powerful and accountable. This top management's responsibilities will cover the entire organisation's direction, planning, strategy, values and principles; its structure and its relationship between its various members; its alliances, partnerships and joint ventures; and its research, design and innovation. It will have to take charge of the management of the two resources common to all units of the organisation: key people and money. It will represent the corporation to the outside world and maintain relationships with governments, the public, the media and organised labour.

## Life at the top

An equally important task for top management in the next society's corporation will be to balance the three dimensions of the corporation: as an economic organisation, as a human organisation and as an increasingly important social organisation. Each of the three models of the corporation developed in the past half-century stressed one of these dimensions and subordinated the other two. The German model of the "social market economy" put the emphasis on the social dimension, the Japanese one on the human dimension and the American one ("shareholder sovereignty") on the economic dimension.

None of the three is adequate on its own. The German model achieved both economic success and social stability, but at the price of high unemployment and dangerous labour-market rigidity. The Japanese model was strikingly successful for 20 years, but faltered at the first serious challenge; indeed it has become a major obstacle to recovery from Japan's present recession. Shareholder sovereignty is also bound to flounder. It is a fair-weather model that works well only in times of prosperity. Obviously the enterprise can fulfill its human and social functions only if it prospers as a business. But now that knowledge workers are becoming the key employees, a company also needs to be a desirable employer to be successful.

Crucially, the claim to the absolute primacy of business gains that made shareholder sovereignty possible has also highlighted the importance of the corporation's social function. The new shareholders whose emergence since 1960 or 1970 produced shareholder sovereignty are not "capitalists". They are employees who own a stake in the

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**Corporations,  
therefore, will  
have to pay**

business through their retirement and pension funds. By 2000, pension funds and mutual funds had come to own the majority of the share capital of America's large companies. This has given shareholders the power to demand short-term rewards. But the need for a secure retirement income will increasingly focus people's minds on the future value of the investment. Corporations, therefore, will have to pay attention both to their short-term business results and to their long-term performance as providers of retirement benefits. The two are not irreconcilable, but they are different, and they will have to be balanced.

**attention both to their short-term business results and to their long-term performance as providers of retirement benefits**

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Over the past decade or two, managing a large corporation has changed out of all recognition. That explains the emergence of the "CEO superman", such as Jack Welch of GE, Andy Grove of Intel or Sanford Weill of Citigroup. But organisations cannot rely on finding supermen to run them; the supply is both unpredictable and far too limited. Organisations survive only if they can be run by competent people who take their job seriously. That it takes genius today to be the boss of a big organisation clearly indicates that top management is in crisis.

## **Impossible jobs**

The recent failure rate of chief executives in big American companies points in the same direction. A large proportion of CEOs of such companies appointed in the past ten years were fired as failures within a year or two. But each of these people had been picked for his proven competence, and each had been highly successful in his previous jobs. This suggests that the jobs they took on had become undoable. The American record suggests not human failure but systems failure. Top management in big organisations needs a new concept.

Some elements of such a concept are beginning to emerge. For instance, Jack Welch at GE has built a top-management team in which the company's chief financial officer and its chief human-resources officer are near-equals to the chief executive, and are both excluded from the succession to the top job. He has also given himself and his team a clear and publicly announced priority task on which to concentrate. During his 20 years in the top job, Mr Welch has had three such priorities, each occupying him for five years or more. Each time he has delegated everything else to the top managements of the operating businesses within the GE confederation.

A different approach has been taken by Asea Brown Boveri (ABB), a huge Swedish-Swiss engineering multinational. Goran Lindahl, who retired as chief executive earlier this year, went even further than GE in making the individual units within the company into separate worldwide businesses and building up a strong top management team of a few non-operating people. But he also defined for himself a new role as a one-man information system for the company, travelling incessantly to get to know all the senior managers personally, listening to them and telling them what went on within the organisation.

A largish financial-services company tried another idea: appointing not one CEO but six. The head of each of the five operating businesses is also CEO for the whole company in one top management area, such as corporate planning and strategy or human resources. The company's chairman represents the company to the outside world and is also directly concerned with obtaining, allocating and managing capital. All six people meet twice a week as the top management committee. This seems to work well, but only because none of the five operating CEOs wants the chairman's job; each prefers to stay in operations. Even the man who designed the system, and then himself took the chairman's job, doubts that the system will survive once he is gone.

In their different ways, the top people at all of these companies were trying to do the same thing: to establish their organisation's unique personality. And that may well be the most important task for top management in the next society's big organisations. In the half-century after the second world war, the business corporation has brilliantly proved itself as an economic organisation, ie, a creator of wealth and jobs. In the next society, the biggest challenge for the large company—especially for the multinational—may be its social legitimacy: its values, its mission, its vision. Increasingly, in the next society's corporation, top management will, in fact, be the company. Everything else can be outsourced.

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**In the next society, the biggest challenge for the large company may be its social legitimacy: its values, its mission, its vision**

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Will the corporation survive? Yes, after a fashion. Something akin to a corporation will have to co-ordinate the next society's economic resources. Legally and perhaps financially, it may even look much the same as today's corporation. But instead of there being a single model adopted by everyone, there will be a range of models to choose from.



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## The way ahead

Nov 1st 2001

From The Economist print edition

### The time to get ready for the next society is now

THE next society has not quite arrived yet, but it has got far enough for action to be considered in the following areas:

- The future corporation.** Enterprises—including a good many non-businesses, such as universities—should start experimenting with new corporate forms and conducting a few pilot studies, especially in working with alliances, partners and joint ventures, and in defining new structures and new tasks for top management. New models are also needed for geographical and product diversification for multinational companies, and for balancing concentration and diversification.

- People policies.** The way people are managed almost everywhere assumes that the workforce is still largely made up of people who are employed by the enterprise and work full-time for it until they are fired, quit, retire or die. Yet already in many organisations as many as two-fifths of the people who work there are not employees and do not work full-time.



Today's human-resources managers also still assume that the most desirable and least costly employees are young ones. In America, especially, older people, and particularly older managers and professionals, have been pushed into early retirement to make room for younger people who are believed to cost less or to have more up-to-date skills. The results of this policy have not been encouraging. Generally speaking, after two years wage costs per employee for the younger recruits tend to be back where they were before the "oldies" were pushed out, if not higher. The number of salaried employees seems to be going up at least as fast as production or sales, which means that the new young hires are no more productive than the old ones were. But in any event, demography will make the present policy increasingly self-defeating and expensive.

The first need is for a people policy that covers all those who work for an enterprise, whether they are employed by it or not. After all, the performance of every single one of them matters. So far, no one seems to have devised a satisfactory solution to this problem. Second, enterprises must attract, hold and make productive people who have reached official retirement age, have become independent outside contractors or are not available as full-time permanent employees. For example, highly skilled and educated older people, instead of being retired, might be offered a choice of continuing relationships that convert them into long-term "inside outsiders", preserving their skill and knowledge for the enterprise and yet giving them the flexibility and freedom they expect and can afford.

There is a model for this, but it comes from academia rather than business: the professor emeritus, who has vacated his chair and no longer draws a salary. He remains free to teach as much as he wants, but gets paid only for what he does. Many emeriti do retire altogether, but perhaps as many as half continue to teach part-time, and many continue to do full-time research. A similar arrangement might well suit senior professionals in a business. A big American corporation is currently trying out such an arrangement for older top-level people in its law and tax departments, in research and development and in staff jobs. But for people in operating work, eg, sales or manufacturing, something different needs to be developed.

•**Outside information.** Perhaps surprisingly, it can be argued that the information revolution has caused managements to be less well informed than they were before. They have more data, to be sure, but most of the information so readily made available by IT is about internal company matters. As this survey has shown, though, the most important changes affecting an institution today are likely to be outside ones, about which present information systems offer few clues.

One reason is that information about the outside world is not usually available in computer-useable form. It is not codified, nor is it usually quantified. This is why IT people, and their executive customers, tend to scorn information about the outside world as “anecdotal”. Moreover, far too many managers assume, wrongly, that the society they have known all their lives will remain the same forever.

Outside information is now becoming available on the Internet. Although this is still in totally disorganised form, it is now possible for managements to ask what outside information they need, as a first step towards devising a proper information system for collecting relevant information about the outside world.

•**Change agents.** To survive and succeed, every organisation will have to turn itself into a change agent. The most effective way to manage change successfully is to create it. But experience has shown that grafting innovation on to a traditional enterprise does not work. The enterprise has to become a change agent. This requires the organised abandonment of things that have been shown to be unsuccessful, and the organised and continuous improvement of every product, service and process within the enterprise (which the Japanese call *kaizen*). It requires the exploitation of successes, especially unexpected and unplanned-for ones, and it requires systematic innovation. The point of becoming a change agent is that it changes the mindset of the entire organisation. Instead of seeing change as a threat, its people will come to consider it as an opportunity.

## And then?

So much for getting ready for the future that we can already see taking shape. But what about future trends and events we are not even aware of yet? If there is one thing that can be forecast with confidence, it is that the future will turn out in unexpected ways.

Take, for example, the information revolution. Almost everybody is sure of two things about it: first, that it is proceeding with unprecedented speed; and second, that its effects will be more radical than anything that has gone before. Wrong, and wrong again. Both in its speed and its impact, the information revolution uncannily resembles its two predecessors within the past 200 years, the first industrial revolution of the later 18th and early 19th centuries and the second industrial revolution in the late 19th century.

The first industrial revolution, triggered by James Watt's improved steam engine in the mid-1770s, immediately had an enormous impact on the West's imagination, but it did not produce many social and economic changes until the invention of the railroad in 1829, and of pre-paid postal service and of the telegraph in the decade thereafter. Similarly, the invention of the computer in the mid-1940s, the information revolution's equivalent of the steam engine, stimulated people's imagination, but it was not until 40 years later, with the spread of the Internet in the 1990s, that the information revolution began to bring about big economic and social changes.

Equally, today we are puzzled and alarmed by the growing inequality in income and wealth and by the emergence of the “super-rich”, such as Microsoft's Bill Gates. Yet the same sudden and inexplicable growth in inequality, and the same emergence of the “super-rich” of their day, characterised both the first and the second industrial revolutions. Relative to the average income and average wealth of their time and country, those earlier super-rich were a good deal richer than a Bill Gates is relative to today's average income and wealth in America.

These parallels are close and striking enough to make it almost certain that, as in the earlier industrial revolutions, the main effects of the information revolution on the next society still lie ahead. The decades of the 19th century following the first and second industrial revolutions were the most innovative and most fertile periods since the 16th century for the creation of new institutions and new theories. The first industrial revolution turned the factory into the central production organisation and the main creator of wealth. Factory workers became the first new social class since the appearance of knights in armour more than 1,000 years earlier. The house of Rothschild, which emerged as the world's dominant financial power after 1810, was not only the first investment bank but also the first multinational company since the 15th century Hanseatic League and the Medici. The first industrial revolution brought forth,

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**The main effects  
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among many other things, intellectual property, universal incorporation, limited liability, the trade union, the co-operative, the technical university and the daily newspaper. The second industrial revolution produced the modern civil service and the modern corporation, the commercial bank, the business school, and the first non-menial jobs outside the home for women.

The two industrial revolutions also bred new theories and new ideologies. The Communist Manifesto was a response to the first industrial revolution; the political theories that together shaped the 20th-century democracies—Bismarck's welfare state, Britain's Christian Socialism and Fabians, America's regulation of business—were all responses to the second one. So was Frederick Winslow Taylor's "scientific management" (starting in 1881), with its productivity explosion.

## **Big ideas**

Following the information revolution, once again we see the emergence of new institutions and new theories. The new economic regions—the European Union, NAFTA and the proposed Free-Trade Area of the Americas—are neither traditionally free-trade nor traditionally protectionist. They attempt a new balance between the two, and between the economic sovereignty of the national state and supranational economic decision-making. Equally, there is no real precedent for the Citigroups, Goldman Sachs or ING Barings that have come to dominate world finance. They are not multinational but transnational. The money they deal in is almost totally beyond the control of any country's government or central bank.

And then there is the upsurge in interest in Joseph Schumpeter's postulates of "dynamic disequilibrium" as the economy's only stable state; of the innovator's "creative destruction" as the economy's driving force; and of new technology as the main, if not the only, economic change agent—the very antithesis of earlier economic theories based on the idea of equilibrium as a healthy economy's norm, monetary and fiscal policies as the drivers of a modern economy and technology as an "externality".

All this suggests that the greatest changes are almost certainly still ahead of us. We can also be sure that the society of 2030 will be very different from that of today, and that it will bear little resemblance to that predicted by today's best-selling futurists. It will not be dominated or even shaped by information technology. IT will, of course, be important, but it will be only one of several important new technologies. The central feature of the next society, as of its predecessors, will be new institutions and new theories, ideologies and problems.

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