MID-CYCLE TRENDS

Mid-Cycle Trends

countries, taking the mobility of retirement to global lengths. In this conversation, creative thinking becomes an icon of human advantage, and the workplace where work is accomplished as a conversation between machines with humans trying to keep up.

geographic distance will literally compete for the same jobs. Asia. In cyberspace, there is no distance between two points, and workers once separated by vast mobility of white-collar work that could eventually overshadow the shift of manufacturing to over differing values may become the key question for the future of economic globalization. And system into distinct dialects. Whether these dialects will work in a symbiotic harmony or clash example, are already evident and will likely mature into a fragmentation of the global capitalist

The Fragmentation of Capitalism

Three distinctive regional dialects of capitalism—entrepreneurial, culture, and rational capitalism—are described in this forecast. This forecast also includes a wonderful conversation with world-renown economist, Dr. Krugman, who sees a future in which “ideas are dreamed up in the United States, they are interpreted in different ways in Europe, and they are turned into consumer items in China.”

Redistributed Resources

In this forecast, we compare the rich to the poor to understand the impacts of globalization and the changing values of the global economy. Our forecast on economic and environmental experts who point to 2003’s Yes Network—on 2003’s 2020—examines the different ways that the Wealth Effect and the Specialization Effect are likely to shape the U.S. and Chinese economies over the next decade.

The Growth of Jobbies

In this forecast, we anticipate the effects that boomers will have as they age into families and work. This forecast provides a globally mobile world, where travel is easy and digital intimacy with friends activities across their lives.

Families and Work Institute, tracks recent trends in how workers integrate diverse important in the workplace. An interview with Ellen Galinsky, president of the

The Longevity Revolution, joins us for an interview in which he takes a long and inspiring view

Jean Hagan, a visual summary of the key forecasts and IFTF research, will complete our basic forecast set. Our goal in

Roy Amara

In 1978, Roy Amara, who teaches sociology at the Institute, launched the first Ten-Year Forecast. In the years since, he has guided the staff—first as president and more recently as a sage mentor—on identifying issues, pursuing research, and encouraging excellence as we work together to understand the future. Roy Amara has been the nucleus of the Ten-Year Forecast in helping to look back over the many years of his commitment and contributions and express our appreciation. We hereby dedicate the 2004 Ten-Year Forecast to him, bringing in his vision and looking forward to many more years of his mentorship.

We explore these long-cycle changes in a new format this year. With all that is unfolding, there aren’t enough pages in a phone book to address every important issue on the horizon. Thus in this volume, we have collected a set of perspectives that has discerned, long and short, setting specific issues within this larger context.

LANG A mantra at the Institute for the Future, this principle is particularly important in times that come more than the usual Quantum of surprise and uncertainty. Indeed, this decade has so preoccupied us with surprises that nearly halfway into it, it is the first decade in a century to look back over the many years of his commitment and contributions and express our appreciation. We hereby dedicate the 2004 Ten-Year Forecast to him, bringing in his vision and looking forward to many more years of his mentorship.

Over all that is unfolding, there aren’t enough pages in a phone book to address every important issue on the horizon. Thus in this volume, we have collected a set of perspectives that has discerned, long and short, setting specific issues within this larger context.
Several trends, already evident, represent the leading edge of longer cycles. For example, the rise of “personalized medicine” is geographically informed by the globalization of scientific information and昱 whose photonic coordinates of the physical world—rapidly changing the way we move in both physical and virtual space. A new space of “cybernomadic citizenship” is transforming human identity and physical landscapes as they begin to think information—which is in turn transformed—also becomes political.

Cybernomads will quickly discover a rich new world of addressable spaces in which devices know where they are, and that human identities can run their digital avatars—sometimes just as an address—sometimes just as a public interface. This will in turn rapidly change the way we think about our well-being, our health, and our personal identity. 

Looking globally, some see not only that it is increasingly becoming the future of culture—economic, scientific, cultural—in the decades to come, fulfilling the old adage that civilizations move slowly and steadily. This trend is already changing the way we move in both physical and virtual space.

Into the Distance

The longer cycles have impacts that stretch beyond the nominally decade-scaled impacts into our one-year forecasts. The 21st century opened as the century of the nation-state, but closed with corporations as the most powerful actors on the global stage. What is next?

A power shift appears headed toward granting increased leverage to non-governmental organizations and other cross-border entities that have neither the territory of nation-states nor the formal structure of corporations. Add to fractured citizenship, global mobility, and economic fragmentation, and it no longer seems radical or outlandish to wonder if the future citizen will continue to exist as—simply put—a less powerful entity in the next half-century. Or to put the question another way, will the United States still exist in 2050?

Our forecast already provides a new frame for analyzing the complex forces that could shape the next half-century. Or to put the question another way, will China dominate the global economy? Will it also dominate space as it seeks to build both scientific presence and economic power? And, what of the nation-state? Will it continue to exist as a meaningful—or at least powerful—entity in the next half-century? Or to put the question another way, will the United States still exist in 2050? We’ll be the first to “Citizens of the World” be a Winnebago-driving boomer who winters in Mexico, meditates in a cyberspace-based Zen monastery, and vacations in Afghanistan, performing public service in a Doctors Without Borders clinic?

Cafeteria Citizenship

We know for certain that cooperation is being transformed by technology, especially with the rise of social software. In a landmark interview, Howard Rheingold joins the discussion to examine the future of localization.

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Natural Capital

Of course, this way of thinking about global politics and economics as a field of competition may reflect the changes that are happening all over the world. It may also be the beginning of a new, more ambitious, more powerful economic system: one that is truly global. And perhaps, just perhaps, we’ll see that the world is changing, and perhaps, just perhaps, we’ll see that the world is in the midst of a profound transformation, with implications for all of us.
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In this conversation, creative thinking becomes an icon of human advantage, and the workplace where work is accomplished as a conversation between machines with humans trying to keep up.

The Increasing Fragmentation of Capitalism

Three distinctive regional datasets of capitalism—entrepreneurial, culture, and rampancy capitalism—are described in this forecast. They also include a worldwide conversation with world-renowned economists, in Britain Arthur, who sees a future in which “the United States, they are interconnected in different ways such as creative hot spots and they turned into consumer items in China.”

Meanwhile, the very notion of business is changing, and the post-industrial world may be one where work is accomplished as a conversation between machines with humans trying to keep up. In this conversation, creative thinking becomes an icon of human advantage, and the workplace where work is accomplished as a conversation between machines with humans trying to keep up.

The Growth of Jobbies

In 1978, Roy Amara, who was then president of the Institute, launched the first Ten-Year Forecast. In the years since, he has guided the staff—for as president and more recently as a sage mentor—in identifying issues, pursuing research, and encouraging excellence so as to work together to understand the future of the world.

We explore those long-cycle changes in a new format this year. With all that is unfolding, there aren’t enough pages in a phone book to address every important issue on the horizon. Thus, in this volume, we have collected a set of perspectives that have no name. Perhaps it is because events are still too new to allow a label to settle in. Or perhaps the name-defining event has yet to occur.

In the face of this uncertainty, long looks-back can reveal much about what the future is likely to hold. As Mark Twain observed, history doesn’t repeat itself, but it often rhymes: cycles thus revealed can put a trajectory on current events and leach the surprise out of possibilities on the horizon. This year’s Ten-Year Forecast, our 26th edition, thus places particular emphasis on cycles we have discerned, long and short, setting specific issues within this larger context.

As you are twice as far as you are looking forward.
Cyborgs will quickly discover a rich new world of existentially in which devices where they are, and their human counterparts can see their digital avatars—true avatars in the sense that they are not just abstract avatars but specific points in geospace. More important, they will renegotiate a disparate set of relationships, produced by the networks of which they are a part and that define all of us. This is why why the author Andy Clark. People will be able to flex with their physical presence, sometimes including machines that are part, part-human, business-like into that body. That even for those who don’t choose implantation, immediate future will proliferate as ubiquitous and unobtrusive companions to daily life, extending and personalizing the world as we live and perhaps even our ability to think together. More now for our neural machine that think with us? Perhaps sooner than we expect, according to Internet visionary Vint Cerf.

At the same time, the genomic revolution is gathering speed, and an early impact is the arrival of genetic testing. Long before grand visions of personalized drugs arrive, genetic testing will lead to semi-customizable drugs with our best tools and technologies.”

The Addressable World

Looking locally, some steps further ahead, China will increasingly become the leader in—economic, scientific, cultural—in the decades to come, fulfilling the old saw that civilization moves steadily westward. But how will this translate into specifics? Will China dominate the global economy? Will it also dominate space as it seeks to build both scientific prowess and an infrastructure for commercialization of earth-observation data?

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The “unbundling” of citizenship rights and responsibilities and the emergence of new types of citizenship—citizens of wealth, of affinity, and of physical–digital places are tracked here. In a deeply insightful interview, Vint Cerf, author of Internet, describes the “radicalization of citizenship” that can access natural boundaries.

Furthermore, a new form of digital citizenship comes into focus: the impact of social networking on the relationship between consumer, citizen, and nation. More important, a new theory of cooperation appears to be in the making.

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Long Cycles
Several trends, already visible, represent the leading edge of longer cycles. For example, the rise of "geoengineering" and "European Union" have real implications for the physical-urban—world—are rapidly changing the way we move in both physical and virtual space. A new space of "Cybernomads" and "Geowebs" is emerging, transforming human identity and physical landscapes as they help to link information with other—themselves and—themselves—on their daily routes of travel.

Cybernomads will quickly discover a rich new world of addressable spaces in which devices know where they are, and with human sensors can use these devices for more—than just an addressable—source of data. But at specific points in geospace. More important, they will inaugurate a deepening man–machine symbiosis, in which devices know where to find data. For example, a Cybernomad will be able to find her doctor's address in her phone, which will also be able to find her doctor's address in her phone. For this reason, we do not choose implants, intimate and personal systems that are deeply woven into the fabric of daily life, extending our personal and social systems into a single, seamless whole. But even for those who don't choose implants, intimate systems that are deeply woven into the fabric of daily life, extending our personal and social systems into a single, seamless whole.

Looking globally, some see a little bigger than the world will eventually become the locus of a new—era—biological–economic–cultural—era—on the decline, fulfilling the old dream of civilization—ends. But how will this translate into addressable—spaces? We will be able to find data. For example, a Cybernomad will be able to find her doctor's address in her phone, which will also be able to find her doctor's address in her phone. For this reason, we do not choose implants, intimate systems that are deeply woven into the fabric of daily life, extending our personal and social systems into a single, seamless whole.

At the same time, the generative revolutions is gathering speed, and an early impact in the evolution of geno—science is taking shape beyond our current ability to track the human genome. One trend is toward a specific treat−or−prevent option, where individual patients can be treated for their own specific genetic predispositions. But even for those who don't choose implants, intimate systems that are deeply woven into the fabric of daily life, extending our personal and social systems into a single, seamless whole.

The Addressable World
This forecast charts the path to a not−too−distant future in which information is embedded in objects and spaces, and where people, machines, and information—on the Internet is linked to a specific geographic location, and location services help other people, local services, and even personal properties. In a guest interview, Paul Fraser, a leading Internet entrepreneur, discusses the impact of the Internet to a new—space of man–machine symbiosis, in which devices know where to find data. For example, a Cybernomad will be able to find her doctor's address in her phone, which will also be able to find her doctor's address in her phone. For this reason, we do not choose implants, intimate systems that are deeply woven into the fabric of daily life, extending our personal and social systems into a single, seamless whole.

Evolution
As the Internet grows in depth and scope, new—era—biological–economic–cultural—era—on the decline, fulfilling the old dream of civilization—ends. But how will this translate into addressable—spaces? We will be able to find data. For example, a Cybernomad will be able to find her doctor's address in her phone, which will also be able to find her doctor's address in her phone. For this reason, we do not choose implants, intimate systems that are deeply woven into the fabric of daily life, extending our personal and social systems into a single, seamless whole.

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The Unbundling of Citizenship
"Cybernomads" is emerging, transforming human identity and physical landscapes as they help to link information with other—themselves and—themselves—on their daily routes of travel.

Flexible Citizenship
The "unbundling" of citizenship rights and responsibilities and the emergence of new types of citizens—citizens of wealth, of affinity, and of physical–digital places are tracked here. In a deeply insightful interview, Howard Rheingold, a popular author of "Social Software," reflects on "the dis—of the growth of social software. In a landmark interview, Howard Rheingold joins the discussion to examine the future of localization.

Not−So−Personalized Medicine
The longest cycles have impacts that stretch beyond the nominal decade scale implied in any ten−year forecast. The 20th century was an era—of innovation and a new way of thinking about cooperation that will transform strategic thinking the way that the discovery of microorganisms trans—formed medicine. We know for certain that cooperation is being transformed by technology, especially with the rise of "social software" that facilitates the formation and tracking of networks as well as the reputa—national boundaries. Perhaps it is a world in which openness wins over closed systems, and as Howard Rheingold sees it, this forecast maps the intersection of water scarcity, bioregionalism, and the growth of green politics to won—of the growth of social software. In a landmark interview, Howard Rheingold joins the discussion to examine the future of localization.

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Already Well Worn

Some transformative cycles are already well underway. Changing notions of capitalism, for example, are already evident and will likely mature into a fragmentation of the global capitalist system into distinct dialects. Whether that will result in a synthetic harmony or clash over differing values may become the big question for the future of economic globalization. And of course, the present concern with offshoring is but the opening act in a radical increase in geographic distance will literally compete for the same jobs.

Meanwhile, the very notion of business is changing, and the post-industrial world may be one where work is accomplished as a confluence between machines and human beings. In cyberspace, there is no distance between two points, and workers once separated by vast geographic distance will all be working around the corner, perhaps by face-to-face conversations, but more likely by email or by phone.
A cluster take a variety of new and unexpected forms over the next few decades, corporate strategy will also need to adapt to reflect new business practices and new political constellations.

As more and more of the manufacturing innovation will be interpreted in different ways in Europe, and they’re very broadly speaking, it’s a world economy, regional strategies may need to re-think their strengths to the markets they wish to succeed in.

In the future, what will count is not the gadgets and gizmos, it appears that the consequence of capitalism’s ascendance is a divergence of capitalist models. Everything is always in the process of becoming something else, and capitalism is no exception.

Entrepreneurial capitalism excels at trials and errors, makes quick decisions, and is dynamic, entrepreneurial culture that we have here in the United States is a special case. We’ve been innovation-oriented in manufacturing, but Europe is more technology-oriented, more so even than Japan, the home of the automobile. Europeans like to think in terms of big enterprises like Siemens or Ericsson while the Swedes prefer more flexible arrangements. Europeans are more willing to pay for new technology in the market. Europeans have become technophiles. Europeans are much more likely to be interested in the newest, best technology and to try it in the world.

Japanese innovation is usually based on new devices digitally. It’s a steady evolution of the neural network that often, but not always, maps onto a country. The shape of several capitalist forms can already be perceived, and over the next few decades will become more and more distinct, and changes, concerns on a corporate. These companies are accustomed to using new technology in their products and services. For example, traditional Japanese businesses, such as Sony, have used technology to develop new consumer electronics products. However, the United States is different from Japan and European businesses. The United States is a special case. We’ve been innovation-oriented in manufacturing. If Brian Arthur is right that there’s no distance between two points. So what, in cyberspace, is the primary node—of the global economy. (See our forecast on innovation.)

A cluster take a variety of new and unexpected forms over the next few decades.

How does the fragmentation of capitalism change the practice of business strategy?

The exchange made me realize that in Europe, “technology” is synonymous with manufacturing. Europeans have become technophiles. What’s different in the United States—and in Japan and European businesses. The United States is a special case. We’ve been innovation-oriented in manufacturing. In the future, what will count is not the gadgets and gizmos, it appears that the consequence of capitalism’s ascendance is a divergence of capitalist models. Everything is always in the process of becoming something else, and capitalism is no exception.

The culture of Silicon Valley reflects this view of technology as a tool for innovation. In the United States, high tech is synonymous with manufacturing. Europeans have become technophiles. What’s different in the United States—and in Japan and European businesses. The United States is a special case. We’ve been innovation-oriented in manufacturing. In the future, what will count is not the gadgets and gizmos, it appears that the consequence of capitalism’s ascendance is a divergence of capitalist models. Everything is always in the process of becoming something else, and capitalism is no exception.

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Institute for the Future TEN-YEAR FORECAST

Economics: The Fragmentation of Capitalism

A decade and a half after the fall of the Berlin Wall, there is no question that capitalism is the world’s dominant economic system. Everywhere around the planet, and not just in the United States, market-based economic systems are on the rise. Meanwhile, in the wake of the global financial crisis, prospects for a new global order are dim. In fact, just after a brief convergence, it appears that the consequences of capitalism’s many earlier experiments continues to be an open question: What is the future of capitalism?

In many ways, the rise of capitalism over the next few decades?

In the United States, technology equals manufacturing. But since the 1960s, high tech has been defined in Europe, that's a hit-and-run model, in which you get people from other countries to come into your company, put them in a lab, and have them produce an entire generation's worth of products. The culture of Silicon Valley reflects this view of tech. By comparison, Japan is a special case. In Asia, you have innovators who aren't just engineers or computer programmers or designers. Steve Jobs or Marc Andreesen in that environment.

How do Asian economies compare? It seems to me that Japan is a special case because it straddles the Asian and Western economies. Japan has become very important as a market for Asian companies, and while it celebrates its high-tech successes, has already become a force strong in the global economy. In Japan, when they want to do some new kind of innovation, they may bring in people from other countries, but they don't really get attached to them, so as to speak, they tend to be free agents.

Yes, China, Singapore, and the rest of East Asia are organized differently from Japan, but they're organized differently from the United States as well. For example, in China, workers are organized into labor unions, but they don't have real power. They can't strike, they can't negotiate contracts, and they don't have real rights. But in China, if you want to do something, you can do it. And the Chinese government, which may not be very democratic, does what it can to promote innovation.

How do you see these regional differences play out in the marketplace?

Regulatory battles have become an important factor in determining the success of companies in different regions. The shape of several capitalist forms can be quite different, and the differences can be quite significant. For example, in the United States, large companies have a lot of power, and they can use that power to influence regulatory decisions. In Europe, large companies are subject to strict regulation, and they have less power to influence regulatory decisions. In Asia, large companies are often able to influence regulatory decisions, and they can use that power to promote innovation.

In the United States, when you want to do something new, you usually need to diversify to respond to new business practices and new political contexts. In Europe, the regulatory environment is much more stable, and it is more difficult to change it. In Asia, the regulatory environment is much more dynamic, and it is easier to change it.

The most obvious impacts of divergent forms of capitalism are in the global economy. The United States is the largest economy in the world, and it is the dominant economy in the world. But since the 1960s, high tech has been defined in the United States, and it has been defined as a manufacturing business. In Europe, large factories, and churning out things that are important is considered "seasoned." On the other hand, in the United States, high tech has been defined in terms of small companies, and small companies are considered to be "innovative." In Asia, large companies are considered to be "innovative," but they are not considered to be "innovative" in the United States.

What happens when you try to apply these regional differences to the global economy?

What happens when you try to apply these regional differences to the global economy? It is difficult to say, but it is likely that the differences will become more pronounced as the global economy becomes more integrated. The United States is the largest economy in the world, and it is the dominant economy in the world. But since the 1960s, high tech has been defined in the United States, and it has been defined as a manufacturing business. In Europe, large factories, and churning out things that are important is considered "seasoned." On the other hand, in the United States, high tech has been defined in terms of small companies, and small companies are considered to be "innovative." In Asia, large companies are considered to be "innovative," but they are not considered to be "innovative" in the United States.

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What happens when you try to apply these regional differences to the global economy? It is difficult to say, but it is likely that the differences will become more pronounced as the global economy becomes more integrated. The United States is the largest economy in the world, and it is the dominant economy in the world. But since the 1960s, high tech has been defined in the United States, and it has been defined as a manufacturing business. In Europe, large factories, and churning out things that are important is considered "seasoned." On the other hand, in the United States, high tech has been defined in terms of small companies, and small companies are considered to be "innovative." In Asia, large companies are considered to be "innovative," but they are not considered to be "innovative" in the United States.
A capitalist take a variety of new and unexpected forms over the next few decades, corporate strategy will also need to adapt. In order to succeed, businesses and political entities will have to answer questions such as:

**What does the impermanence of change put the business enterprise into?**

- How likely is anything to last? How quickly do technologies, strategies, and worldviews change?
- How to adapt to a world of perpetual innovation and self-organizing networks?
- How do we scale a global phenomenon in the age of ‘networking’ and the digital revolution?

The United States is a special case. We have been innovating in manufacturing—first through mass production invented on the assembly line; more recently, through online manufacturing. It started in England, moved to Germany, and has gone on to make a new product mass manufactures. It started in England, moved to Germany, and has gone on to make a new product growth to happen in big companies. But since the 1960s, high tech has been defined as mass production invented on the assembly line; the auto industry was mass manufacturing. The first economic revolution in the 20th century was mass manufacturing. It started in England, moved to Germany, and has gone on to make a new product,...

**What are the regional differences in technological innovation and business practice?**

- The creation of wealth has shifted from manufacturing to service sectors may provide a broad-brush picture of the segmentation of economies into various manufacturing and service sectors.
- In the same way that consumer markets are fragmenting, companies used to focus on core competences, they will have to develop strategies that take into account multiple—and changing—contexts on a corporation. Where are you located? How well do you communicate with your customers? How do you measure your success? Where do you do your local regional differences play a role in innovating for the future?

**What are the regional differences in technological innovation and business practice?**

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The United States: Entrepreneurial Capitalism

Entrepreneurial capitalism is a capitalistic form that excels in the production of both goods and ideas. It is driven by the market forces of competition and innovation, as well as the cultural values of individualism and self-reliance. The United States is often cited as the prototypical example of entrepreneurial capitalism, where the emphasis is on creating new businesses and developing new technologies.

Global Production Networks (geography)

The United States is a major player in global production networks, leveraging its strong infrastructure and skilled workforce. The country excels in high-value-added sectors such as aerospace, pharmaceuticals, and biotechnology. Its global footprint is evident in the aerospace industry, where companies like Boeing and Airbus are key players.

Cultural Capitalism

Cultural capitalism is a capitalistic form that emphasizes the connection between economic activity and cultural expression. This form of capitalism is often associated with European countries, which prioritize cultural values in their economic policies. Examples include France and Germany, where the state plays a significant role in supporting the arts and culture.

Network Capitalism

Network capitalism is a capitalistic form that focuses on the development and management of networks. It is characterized by the interconnectedness of various entities, such as businesses, governments, and individuals. This form of capitalism is often associated with East Asia, where the state and market work together to foster innovation and economic growth.

Table: Features of Three Capitalist Forms

<table>
<thead>
<tr>
<th>Key Value</th>
<th>Politics</th>
<th>Innovation</th>
<th>Market Regulation</th>
<th>Entrepreneurship</th>
<th>Social and Economic Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Capitalism</td>
<td>Free market</td>
<td>Fashionismo</td>
<td>Social and Cultural Capitalism</td>
<td>Independence</td>
<td>Pragmatic Materialism</td>
</tr>
<tr>
<td>Entrepreneurial Capitalism</td>
<td>Government intervention</td>
<td>Push the Envelope</td>
<td>Entrepreneurial Capitalism</td>
<td>Independence</td>
<td>Pragmatic Materialism</td>
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<tr>
<td>Network Capitalism</td>
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<td>Social and Cultural Capitalism</td>
<td>Independence</td>
<td>Pragmatic Materialism</td>
</tr>
</tbody>
</table>

Trends in Value Chains of New Businesses

<table>
<thead>
<tr>
<th>Region</th>
<th>2005</th>
<th>Total</th>
<th>2020</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>50%</td>
<td>100%</td>
<td>45%</td>
<td>90%</td>
</tr>
<tr>
<td>China</td>
<td>15%</td>
<td>30%</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Europe</td>
<td>10%</td>
<td>20%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>Japan</td>
<td>30%</td>
<td>60%</td>
<td>35%</td>
<td>70%</td>
</tr>
</tbody>
</table>

1 Boeing's Sonic eCruiser

The Sonic eCruiser was a proposed near-supersonic commercial passenger airplane that was announced in 2000 but never reached production. Despite its promising design and potential for reducing flight times, the project faced numerous challenges, including high development costs and technological difficulties. The aircraft was eventually canceled in 2001, leaving the market for supersonic travel largely unfulfilled.

2 Growth of Exports of Parts and Components Worldwide

This chart illustrates the growth in the export of parts and components worldwide from 1980 to 2000, with a particular emphasis on the period of 1990–2000. The data shows a significant increase in exports, driven by globalization and the growth of production networks.

3 Airbus' A380

The Airbus A380 is a jumbo jet airliner that was designed and manufactured by Airbus Group. It was the world's largest passenger airliner when it entered service in 2007, offering a capacity of up to 853 passengers. The A380 exemplifies the strengths of network capitalism, where multiple suppliers and partners collaborate to produce a complex product.
### UNITED STATES: ENTREPRENEURIAL CAPITALISM

Entrepreneurial capitalism is a capitalist form that emphasizes dynamic change and individualism. This is the form of capitalism that has chosen to place a high value on freedom and flexibility, with a strong emphasis on innovation and the creation of new products and services. In the United States, entrepreneurial capitalism is characterized by a culture that values risk-taking, creativity, and the pursuit of personal or business goals. The government typically plays a limited role in the economy, allowing businesses to operate with a high degree of independence and autonomy.

### EUROPE: CULTURAL CAPITALISM

Cultural capitalism is a form of capitalism that emphasizes the importance of cultural continuity and identity. This is the form of capitalism that has chosen to place a high value on tradition and the preservation of cultural heritage. In Europe, cultural capitalism is characterized by a culture that values respect for the past, the importance of family and community, and the preservation of local customs and traditions. The government typically plays a significant role in the economy, with policies and regulations designed to protect cultural continuity and promote social cohesion.

### GLOBAL PRODUCTION NETWORKS (DEVELOPED ECONOMIES)

Global production networks drive growth in the developed economies.

- **The United States**: Entrepreneurial Capitalism
- **Europe**: Cultural Capitalism

#### Table: Global Production Networks

<table>
<thead>
<tr>
<th>Country</th>
<th>National Identity</th>
<th>Economic System</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Capitalism</td>
<td>Entrepreneurial Capitalism</td>
</tr>
<tr>
<td>Europe</td>
<td>Culturalism</td>
<td>Cultural Capitalism</td>
</tr>
</tbody>
</table>

#### Chart: Growth of Exports of Parts and Components Worldwide

- **China**: 20% of the market
- **Malaysia**: 10% of the market
- **Korea**: 5% of the market
- **Mexico**: 3% of the market
- **United States**: 1% of the market

#### Source: United Nations, Comtrade; World Bank.

#### Figure: Shares of Total Developing Country Exports of Parts and Components

- **China**: 50% of the market
- **Malaysia**: 20% of the market
- **Korea**: 10% of the market
- **Mexico**: 5% of the market
- **United States**: 1% of the market


### ASIA: NETWORK CAPITALISM

Network capitalism is a system in which capitalists serve a social and economic function. In Asia, network capitalism is characterized by a culture that values the importance of family and community, and the preservation of local customs and traditions. The government typically plays a significant role in the economy, with policies and regulations designed to promote economic growth and social cohesion.

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**The World Bank reports**: a growing share of global trade is produced by a number of different suppliers globally. As production networks become the growth infrastructure for the global economy, those cultures that excel in managing networks will likely have the competitive advantage.

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**BUSINESS CASE STUDY IN STRATEGIC ADVANTAGE**

Boeing's Sonic eCruiser and Airbus' A380 are examples of how network capitalism operates. Boeing abandoned its plans to build the Sonic eCruiser, an aircraft capable of space flight, but was eventually pulled ahead. In 2004, it will begin assembling the first A380, a super-jumbo that will dwarf Boeing's 747. Boeing had to abandon its plans to build the Sonic eCruiser for lack of a near-term profitability model.
Global Production Networks | DIVERSITY

Airbus provides insight into how differences in capitalist forms will translate into strategic advantages for some firms.

**Airbus' A380**

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**SECTION: NETWORK CAPITALISM**

Network capitalism is a system in which capitalists serve a social need by developing a product that is socially and culturally valued. This section discusses how network capitalism operates and what challenges it faces.

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**SECTION: CULTURAL CAPITALISM**

Cultural capitalism is driven by the desire to create unique and valuable products that reflect cultural and social values. This section explores how cultural capitalism operates and its impact on society.

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**SECTION: ENTREPRENEURIAL CAPITALISM**

Entrepreneurial capitalism is focused on innovation and making profits. This section examines how entrepreneurial capitalism operates and its role in the economy.

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EUROPE: CULTURAL CAPITALISM

Cultural capitalism is less than comfortable with showboat solo entrepreneurs; it’s suspicious of their intentions and concerned about the larger community implications of innovation. There is a traditional recognition that presence matters, and entertainment often overshadows substance. Moreover, cultural capitalism is less willing to applaud the new, the experimental, or the extreme. It doesn’t have the same sense of urgency as entrepreneurial capitalism. And it would rather see a consumer take the time to appreciate a good thing than to experience it as a fleeting novelty. Ultimately, the new experience served up to consumers.

Network capitalism is a system in which capitalists serve a social unit larger than their nuclear family, but smaller than an entire community. It is a more flexible capitalism that moves with the times, changes in response to consumers, shifts in technology, and the market itself. It is a more dynamic capitalism than its predecessors. Network capitalism is also a more inclusive one, where the European community is an example. Europe is a collection of economically separate states, but that doesn’t mean they don’t work well together. Or that they aren’t interested in seeing their citizens live happy, healthy lives.

Network capitalism is a system that is more comfortable with showboat solo entrepreneurs; it’s suspicious of their intentions and concerned about the larger community implications of innovation. There is a traditional recognition that presence matters, and entertainment often overshadows substance. Moreover, network capitalism is less willing to applaud the new, the experimental, or the extreme. It doesn’t have the same sense of urgency as entrepreneurial capitalism. And it would rather see a consumer take the time to appreciate a good thing than to experience it as a fleeting novelty. Ultimately, the new experience served up to consumers.

GLOBAL PROFILES NETWORK (Airbus)

The technical challenges are among the most daunting of any major new aircraft program in recent decades. Airbus had to develop a new cockpit, a new fly-by-wire system, a new structural design, a new engine, and a new production line. It was a massive undertaking. But the result is a plane that is more fuel-efficient, more comfortable, and more enjoyable to fly than any other in its class.

AIRCRAFT CASE STUDY IN STRATEGIC ADVANTAGE

Boeing and Airbus are two of the world’s leading commercial airplane manufacturers. They are both part of larger conglomerates, with Boeing being owned by The Boeing Company and Airbus being owned by the European Union. Both companies have been in business for over 100 years, with Boeing being founded in 1916 and Airbus in 1987.

Boeing has always been known for its innovation and leadership in the commercial aviation industry. They were the first to introduce a wide-body commercial airplane, the 747, in 1970. They also introduced the 777, which is the largest commercial airplane in the world. Boeing is headquartered in Chicago, Illinois.

Airbus, on the other hand, is known for its focus on engineering and design. They have a long history of producing aircraft, with their first aircraft being produced in 1969. Airbus is headquartered in Toulouse, France.

Despite their differences, both companies have been successful in the commercial aviation industry. They have both been able to produce airplanes that are efficient, reliable, and comfortable for passengers. They have also been able to maintain a strong presence in the global aviation market.

However, in recent years, there has been a lot of competition between the two companies. Boeing and Airbus have been in a battle for market share, with each company trying to gain an advantage over the other.

The Airbus A380 builds on the strength of scale and long development horizons of having a European capital.
Economics: The Fragmentation of Capitalism

Markets are not just global; they are also very complex, with layers, and key players in the making of economies—especially in the realm of high tech?

We're looking at a global economy where the center of power is shifting. Some European countries, and Germany in particular, have been used to thinking that they are the center of the global economy and that they set the trends.

The biggest surprise may be the power of the Asian economies. They are very different from Europe and the United States in terms of how they make decisions and how they organize the economy. In Europe, the decisions are made at a national level, whereas in Asia, the decisions are made at a regional level, often involving several countries.

The exchange made me realize that in Europe, “technocracy” is very important, whereas in Asia, personal relationships are very important. The culture of Silicon Valley reflects this view of technology, whereas in Asia, technology is seen as a means to an end, not an end in itself.

Q: Why is this a problem for European countries?

A: European countries are used to thinking in terms of big enterprises like Siemens or Ericsson. They are used to thinking in terms of building new systems that you can sell to other countries. This is a very different way of thinking from the Asian approach, which is more about networking and making partnerships.

Q: What's different in the United States—and in Japan as well?

A: In the United States, the culture of Silicon Valley reflects a dynamic, entrepreneurial culture that we have here in the United States. Technology and technical skill aren't problems in the United States. They are very strong in technical skills and in innovation. However, they have a problem with networking and making partnerships.

In Japan, the culture is very different. They value networking and making partnerships very highly. They are very good at it, and they have a very strong tradition of doing it. It is part of their culture.

Q: What implications does this have for the future of capitalism?

A: It means that capitalism is changing in ways that we cannot predict. The shape of several capitalist forms can no longer be predicted. The implications of these changes are likely to be profound. The nature of capitalism in Asia, and while it celebrates the entrepreneurial culture that we have here in the United States, Technology and technical skill aren't problems in the United States. They are very strong in technical skills and in innovation. However, they have a problem with networking and making partnerships.

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Theodore Roszak is Emeritus Professor of History at California State University, Hayward. He is the author of many books addressing the counter-culture generation.

The baby boomers are choosing to remain active and to age in place. As they resolve to have their ideals and their activity they brought to their working lives.

In the equivalent of corporate brain drain, volunteer organizations an intimate window on life in the rest of the world. Cybersurfing netizens know vastly more about life without written permission. All rights reserved.

Demographics: The Globally Mobile Boomers

TEN-YEAR FORECAST

INSTITUTE FOR THE FUTURE

WITH DEMOGRAPHIC TRENDS, THE WORLD CHANGES.

It has been a profoundly transformative, spiritual experience—even life, and they are not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. As a result, they’re not just more inclined to visit; they may well move there. 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Theodore Roszak is Emeritus Professor of History at California State University, Hayward. He is the author of several books, including "The Return of Our Heroes: The Counter-Culture Generation.

We, the young and the middle-aged, used to laugh at the old and think of them as being "decadent" or "dissolute." But in my parents' generation, we were talking about a different kind of elderly generation. The boomers are healthier, more vigorous, more productive, more active, and less dependent on others for services than any other generation in modern times.

What do you see as the responsibilities of elders?

I think that we're talking about a kind of elder that is totally different from any that have ever come before. And to me, the most straightforward responsibility of the elder is to bequests. Bequests are a very important part of what it is to be an elder.

To my publisher defined it as "a book for elderly people." Now, I think that means two things. One is that it's a book for elderly people, and the other is a book for the people who are going to be elderly in the near future. And the people who are going to be elderly in the near future are the people who are elderly now.

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The Fast Rich.

These are the young wealthy people that are creating their own market, their own taste, their own fashion, their own design. And they are creating it in a way that is going to be very influential for our culture.

The Longevity Revolution.

What do you see as the longevity revolution?

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The Future of Elders.

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Aging was no longer defined primarily by dependency, frailty, or social marginality. As life expectancy increased, people were not only living longer; they were also living stronger. And the longer people lived, the more the tasks and responsibilities of everyday life were transformed.

So far we've talked about how the longevity revolution is changing our ideas of what it means to age. The next 10 or 20 years will be a transitional period in which people will make sense of this new reality, and experience the economic, philosophical, more spiritual phase of life, in which people are neither as young nor as old as they have been in the past. Life is a series of distinct intervals.

Q: What's driving the longevity revolution?

A: There are at least three driving forces:

1. The Baby Boomers are Driving Change: They're not just more inclined to visit; they're more inclined to remain. Instead of the Mediterranean as their vacation destination, they're staying home and raising 3.7 children. If we could afford it, we'd all stay home and raise our children there.

2. Advancing Longevity: People are living longer, healthier, and more productive lives. It's not just the average lifespan that has increased, but the average productive lifespan. People are working longer and living longer. The average age of retirement is increasing, as is the average age of death. The average age of death is 85, but the average age of retirement is 65. So for the past 20 years, people have been working longer and living longer.

3. New Delivery Systems: What's new about the way we deliver services? The Baby Boomers are the first generation to have it both ways: they want access to all the new technology, but they also want access to all the old technology. They want to be able to access everything they need, but they also want to be able to access everything they want. They're the ones who will fail quickly at doing what they're not used to doing.

Q: What do you see as the responsibilities of elders?

A: There are at least three responsibilities of elders:

1. The Business of Elders: They have a profound impact on the economy, and they will continue to have an impact on the economy. They have a profound impact on the economy because they have a profound impact on the economy. They have a profound impact on the economy because they have a profound impact on the economy. They have a profound impact on the economy because they have a profound impact on the economy.

2. The Political Role of Elders: They have a profound impact on politics. They're the ones who will fail quickly at doing what they're not used to doing. They're the ones who will fail quickly at doing what they're not used to doing. They're the ones who will fail quickly at doing what they're not used to doing. They're the ones who will fail quickly at doing what they're not used to doing.

3. The Social Role of Elders: They have a profound impact on society. They're the ones who will fail quickly at doing what they're not used to doing. They're the ones who will fail quickly at doing what they're not used to doing. They're the ones who will fail quickly at doing what they're not used to doing. They're the ones who will fail quickly at doing what they're not used to doing.

Q: What are the economic consequences of the longevity revolution?

A: There are at least three economic consequences of the longevity revolution:

1. New Delivery Systems: In a sense, we've already afforded it. In the beginning of the Industrial Revolution, people were working in the countryside. They were working in the countryside because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land.

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Q: What's “revolutionary” about longevity?

A: The phrase “longevity revolution” is to enrich and deepen the activity they brought to their working lives. It is the latest step in a life that will return to some of the ideals and sense of purpose that previously counted on retirees may find that boomers rival digitally literate youth in terms of advantage on those companies that develop network infrastructures. Locales such as St. Luis Potosí in Mexico might anticipate new ways to use these addresses to rationize marketing, distribution, and services. In a sense, we've already afforded it. In the beginning of the Industrial Revolution, people were working in the countryside. They were working in the countryside because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land. They were working on the land because they were working on the land.
### WHERE U.S. ELDERS WILL LIVE

<table>
<thead>
<tr>
<th>Country</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>435</td>
<td>2025</td>
<td>637</td>
</tr>
<tr>
<td>France</td>
<td>435</td>
<td>2025</td>
<td>637</td>
</tr>
</tbody>
</table>

**Notes:**
- Data for Europe will be updated after Euro 2020.
- Data for Latin America will be updated after 2022.
- Data for Asia was last updated for 2015.

**Source:** U.S. Census Bureau

### THE ECONOMICS IS IN THE AIR

**Boomers are not likely to sit around in the backyard or sit in their porches until they die.**

Historically, these individuals have been key in the growth of the economy, and they continue to be a driving force. In recent years, many have also become entrepreneurs, starting new businesses and creating jobs. This new wave of entrepreneurship has helped to fuel the economy and keep it growing.

**Source:** AARP, “The Economic Impact of Aging Americans,” 2014.

### THE WORKFORCE IS AGING, TOO

#### 5 Percent of Workers Aged 50–70 Who Say… Is Somewhat or Very Much

<table>
<thead>
<tr>
<th>Activity</th>
<th>2000</th>
<th>2003</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working for enjoyment</td>
<td>8</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Fewer hours</td>
<td>8</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Doing volunteer work</td>
<td>13</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Traveling</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Doing things never done before</td>
<td>12</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Having more fun</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Spending more time with family &amp; friends</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

**Source:** AARP, “The Economic Impact of Aging Americans,” 2014.

### AIRPORTS AS CITIES


<table>
<thead>
<tr>
<th>Year</th>
<th>Average Daily Passenger Traffic (Millions)</th>
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<tbody>
<tr>
<td>1954</td>
<td>0.05</td>
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<tr>
<td>1962</td>
<td>0.15</td>
</tr>
<tr>
<td>1970</td>
<td>0.7</td>
</tr>
<tr>
<td>1980</td>
<td>1.05</td>
</tr>
<tr>
<td>1990</td>
<td>1.25</td>
</tr>
<tr>
<td>2000</td>
<td>2.0</td>
</tr>
</tbody>
</table>

**Source:** U.S. Bureau of Transportation Statistics; U.S. Census Bureau.

### CITIZENS OF FLIGHT

#### Millions of Registered Recreation Vehicles

<table>
<thead>
<tr>
<th>Year</th>
<th>Millions</th>
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</thead>
<tbody>
<tr>
<td>1970</td>
<td>1.0</td>
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<tr>
<td>1980</td>
<td>2.0</td>
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<tr>
<td>1990</td>
<td>3.0</td>
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<tr>
<td>2000</td>
<td>4.0</td>
</tr>
<tr>
<td>2002</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Source:** U.S. Bureau of Transportation Statistics; U.S. Census Bureau.

### MORE U.S. CITIZENS LIVE ABROAD

#### Number of Native-Born Americans Emigrating Annually

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>1990</td>
<td>5,000</td>
</tr>
<tr>
<td>1995</td>
<td>10,000</td>
</tr>
<tr>
<td>2000</td>
<td>15,000</td>
</tr>
<tr>
<td>2005</td>
<td>20,000</td>
</tr>
<tr>
<td>2010</td>
<td>25,000</td>
</tr>
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</table>

**Source:** U.S. Bureau of Transportation Statistics; U.S. Census Bureau.

### THE RV CONSUMER: A NEW WAY TO TRAVEL

#### Sales of recreational vehicles, by state of purchase:

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<tbody>
<tr>
<td>California</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Texas</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Florida</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
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**Source:** U.S. Bureau of Transportation Statistics; U.S. Census Bureau.

### THE Boomers Are Here

#### Millions of Registered Recreation Vehicles by State of Purchase

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**Source:** U.S. Bureau of Transportation Statistics; U.S. Census Bureau.

### CITIZENS OF THE WORLD


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**Source:** U.S. Bureau of Transportation Statistics; U.S. Census Bureau.
WHERE U.S. ELDERS WILL LIVE

While the share of people over 60 in the U.S. has increased over the past 50 years, it is expected to continue growing in the coming decades, reaching around 30% of the population by 2050. This trend is not unique to the U.S. but is shared by many developed nations, as populations worldwide are aging. This aging demographic has significant implications for healthcare, social services, and the economy.

According to the U.S. Census Bureau, by 2050, the number of people over 60 in the U.S. is projected to reach 78 million, compared to 40 million in 2015. This growth is driven by a combination of factors, including lower fertility rates, increased life expectancy, and improved health care. The share of the population aged 65 and over is expected to increase from 15% in 2015 to 22% in 2050.

The changing demographics of aging populations are also affecting international migration patterns. While the U.S. is not a top destination for older migrants, other developed countries, particularly in Europe, are seeing increases in the number of elderly people emigrating. This trend is driven by factors such as higher life expectancy, better health care, and lower costs of living in some countries.

Despite the challenges of providing for an aging population, there are opportunities for innovation and growth in fields such as healthcare, technology, and social services. Policymakers and businesses alike will need to adapt to these changes to ensure that the needs of an aging population are met.

The future of aging populations is a complex issue with many variables to consider. As the world continues to age, it will be important to invest in education, healthcare, and social programs to ensure a sustainable future for all.
WHERE U.S. ELDERS WILL LIVE

The aging population may justify the retirement states of Florida and Arizona. In fact, each state with more than 17% of its population over 60 has seen a net loss of elderly people. However, the data is not always clear. In some cases, people over 60 can move to a state and later return to another state. This can lead to an increase in the number of people over 60 in the United States.

The number of elderly people in a state can be expected to increase in the future. However, the increase in the number of elderly people in a state can also be expected to decrease. This can happen when people move back to their home state or when people die.

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WHERE U.S. ELDERS WILL LIVE

United States
China
Female
Brazil

12

105
Female

435

197

41

Source: Population Reference Bureau.

21

The aging population may justify the
sent about 290 million people com-
Chinese population over 60 will be
Population of the world. The number of
Asia overall.

Europe
countries, the growth of

ever, mask some important differ-

Meanwhile, in France, as in other

Boomers enjoy all

the traditional benefits of retirement—more fun,

enthusiastic about having

These estimates are not certain because

According to an AARP survey conducted in

The RV Consumer:

Among the reasons cited for frequent

spending more time

the money, or doing volunteer and charity work. These

According to a 2001 survey by the

While the number of native-born Americans

Nearly 25% of households headed

BOOMERS BUY RVs

The most popular reasons for American

for participation in RV travel. Among the

nearly 2 million passengers per

on the road, traveling through

Unfortunately, the data

Nearby East: Another popular place

Source: University of Michigan Survey Research Center.

Dayton, OH 166,000

Source: U.S. Bureau of Transportation Statistics.

DALLAS, TX

3,000


Source: University of Michigan Survey Research Center.

According to a 2001 survey by the

the money, or doing volunteer and charity work. These

4.2. ELDERLY WILL LIVE

The next two decades, roughly every

most likely to be within 200 miles of their

Entirely, Europe has a trend toward

unemployment rates of Florida and Arizona. In

Europe is expected to be over 60 by

over 80 in the future.

Millions

The number of overseas travelers

Breaking the national record in

The number of domestic travelers

Source: U.S. Bureau of Transportation Statistics.

Source: U.S. Census Bureau.

New York 4,100

Chicago, IL (ORD) 2,800

Los Angeles, CA (LAX) 1,300

Atlanta, GA (ATL) 800


Arlington, VA 190,000

Rochester, NY 220,000

Trav eling

Spending more time

Not work for pay

Work/never retire


CITIZENS OF THE ROAD:

Traveling

Spending more time


Staying Ahead of the Curve,

Source: U.S. Bureau of Transportation Statistics.

CITIZENS OF FLIGHT:

Nearly 31 million Americans

U.S. citizens are

Source: U.S. Bureau of Transportation Statistics.

Note: Data are for domestic travel only.

Will have increased

Source: U.S. Bureau of Transportation Statistics.

For domestic travel only.

2. Percent of World Population by Age

Male
Female

12 8

10

5

2000

2005

2010

2015

2020

Source: U.S. Census Bureau.

2000

2015

2030

1 Percent of Total Regional Population Over 60
We are faced with the task that the revolution we
are to lead must transform all our old age and
they will affect all of society.

In industrial societies, we are faced with the
same task that our grandparents faced: how
to lead a revolution that will transform society.

In the industrial world, it is a revolution
in technology, and best business sense into health
care. When you're older, you need help from family,
companions, and society. If one disappears, society
will collapse. Companionship, business, and
society constitute one of the important revolutions.

What is the economic consequence of the
longevity revolution? The baby boomers are
the most prosperous generation ever seen. Their
children are the most prosperous ever seen. They
will leave society a homogeneous “elderly”
population, but to distinct and influential
populations wherever they go, and forward thinking companies
must prepare for them.

The baby boomers are driving change. They are
seeking new products and services as they retire—and they’re
moving into money for less money than for
meaning.

The baby boomers are a new generation of
people who have the option to walk out on
work.

For instance, there are some mobile
cities: the chance to live a long, healthy life. It’s here.
The values that created industrial society all have
to give way to society and the economy.

Aging will no longer be defined primarily by dependency
and frailty, or social marginality. As life expectancy
extends, perhaps due to breakthroughs in biotechnology,
and frailty, or social marginality. As life expectancy
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Aihwa Ong is Professor of Anthropology at the University of California, Berkeley. She is the author of a number of books, including *Buddha Is Hiding*, and has written extensively about the changing meaning of citizenship in Southeast Asia, China, and the United States.

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To learn more about Aihwa Ong and her work, visit [Aihwa Ong’s official website](http://www.aihwai-ong.com).

For more information on the changing meaning of citizenship, read *Buddha Is Hiding* by Aihwa Ong. The book explores how citizenship is being redefined in the face of globalization, and how people are negotiating the rights and responsibilities of new types of citizenship.

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© 2004 Institute for the Future.
Aihwa Ong is Professor of Anthropology at the University of California, Berkeley. She is the author of several books, including *Citizenship and the Predicament of the Public Sphere*. Her research focuses on transnational political and cultural formations, human rights, citizenship, and neoliberalism in East Asia and Southeast Asia.
Aihwa Ong is Professor of Anthropology at the University of California, Berkeley. She is the author of numerous works on contemporary capitalism, transnational regimes, and citizenship. Ong is interested in the intersection of citizenship and global networks and how they affect the lives of people all over the world. She focuses on the ways in which corporations and non-governmental organizations (NGOs) contribute to the development and distribution of citizenship, and how citizens themselves actively engage with this process. Ong’s work explores the concepts of human rights, globalization, and the ways in which individuals and groups navigate the complexities of contemporary citizenship.

Ong’s research has been widely recognized, and she has received numerous awards for her contributions to the field of anthropology and global studies. She has been a fellow at the National Endowment for the Humanities, and has held appointments at several universities and institutions around the world. Ong’s work has been influential in shaping the discourse on citizenship, globalization, and the role of corporations in shaping the world.

In her most recent work, Ong describes the new "latitudes of citizenship" that are shaping the lives of people across the globe. She argues that the traditional notion of citizenship is being redefined by globalization, and that new forms of citizenship are emerging as a result. Ong’s work examines the ways in which corporations and NGOs are contributing to this process, and how citizens themselves are engaging with these changes. Ong’s work is shaped by a deep understanding of the complexities of globalization, and she offers a nuanced perspective on the ways in which citizens are navigating this new landscape.

The research and perspectives in Ong’s work have been influential in shaping the discourse on citizenship, globalization, and the role of corporations in shaping the world. Her work has been widely recognized, and she has received numerous awards for her contributions to the field of anthropology and global studies. Ong’s work continues to shape the way we think about the complex interplay between globalization, citizenship, and the role of corporations in shaping the world.
The total number of international migrants is estimated to be about 175 million people, or roughly 2.4% of the world’s population. The United States is the country with the largest number of immigrants, about 28 million in 2000, and its migrant population is growing at a rate of about 1.6% every year. In 2000, 40% of the world’s migrants lived in developing countries, while 60% lived in developed countries. The total number of migrants worldwide is projected to reach more than 280 million, or 3.8% of the total population, by 2050. The percentage of migrants in the world’s population is expected to increase from about 2% in 1990 to 3% in 2050. 60% of the world’s migrants live in developing countries, while 40% live in developed countries. The percentage of migrants in the world’s population is expected to increase from about 2% in 1990 to 3% in 2050. The total number of migrants worldwide is projected to reach more than 280 million, or 3.8% of the total population, by 2050. The percentage of migrants in the world’s population is expected to increase from about 2% in 1990 to 3% in 2050.
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3. New Emerging Roles of Religion—are uncoupling citizenship rights and responsibilities from

6. Right to protect health, mental health

3. Right to health care

4. Right to health education

5. Right to health freedom

CITIZENSHIP UNBUNDLING

CORPORATIONS AND ACCESS AND ORGANIZE

INNOVATE VALUE

Right to protection of health, mental health

Right to assemble

Right to freedom of expression

Right to education

Right to travel

Right to be employed

Right to personal security

Right to privacy of persons

Right to privacy of communications

Right to privacy of personal data

Right to the freedom of movement

Right to freedom of association

RIGHT TO ASSEMBLE

RIGHT TO FREEDOM OF EXPRESSION

RIGHT TO EDUCATION

RIGHT TO TRAVEL

RIGHT TO FREEDOM OF MOVEMENT

RIGHT TO FREEDOM OF ASOCIATION

RIGHT TO PRIVACY OF PERSONS

RIGHT TO PRIVACY OF COMMUNICATIONS

RIGHT TO PRIVACY OF PERSONAL DATA

RIGHT TO THE FREEDOM OF MOVEMENT

FOUR STRATEGIC CAPABILITIES

Conduct oneself ethically and professionally, and take

responsibility for one’s actions, outcomes, and com- plexities

Contribute to the development of the information society

Manage multiple affinities

Uphold tenets of the legal system

Right to health care

Right to health education

Right to health freedom

Right to health protection

RIGHT TO HEALTH

RIGHT TO HEALTH CARE

Right to health care

Right to health education

Right to health freedom

Right to health protection

Ways of Belonging

From Geo-Locales to

From Migrant Workers

From a Primary Way

BIOLOGICAL CITIZENSHIP

As welfare states have been dismantled, non-governmental organizations (NGOs)

may reflect a shift in responsibility for some services from nation-states to

international organizations—as well as the need for cultural and religious belonging

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The United States is the country with the largest number of immigrants.

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As global mobility increases, fewer migrants are becoming citizens in their new
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Understanding these focal points, and the transnational forces—from globalization and the Internet to the resurgence of international organizations—as well as the need for cultural and religious belonging, has led scholars of citizenship to talk about the notion of “biological citizenship,” which refers to our biological makeup and how it shapes our identities, rights, duties, and moral obligations.

In response to the growth of migrant populations, many countries have policies to attract “the right” immigrants. H1B visas in the United States that are for professionals in the tech sector have been one catalyst for this. Immigration is not limited to developed countries, and in many places, NGOs may reflect a shift in responsibility for some services from nation-states to local communities. A rise in chronic disease and obesity, an aging population in many developed countries, and increased environmental disasters like Chernobyl and Bhopal have been one catalyst for this.
CITIZENSHIP TRENDS

Today, people live in a world where international trade, communication technologies, and cultural flows increase the globalization of life chances. While globalization can be a double-edged sword, it can also be an important strategy for enhancing the capacity of societies to deal with these new challenges. In the next decade, states will be challenged to integrate an increasingly fragmented world. As welfare states have been dismantled, non-governmental organizations (NGOs) have taken on increasing responsibility for providing some of the benefits formerly provided by the state. However, rapid global economic growth and the rapid growth of U.S. immigrants masks some important global facts.

1 Three Emerging Types of Citizenship

As welfare states have been dismantled, new governance institutions have emerged in response to increasing globalization and economic interdependence. NGOs, citizens, and migration policies are at the vanguard of a new network of citizenship education. They focus on “eight civic skills required in the future.”

Willingness to change one’s identity or experience or classification.

Performance-based systems, such as “What Education for What Citizenship.” They focus on “three civic skills required in the future.”

Citizenship is no longer limited to national governments. As welfare states have been dismantled, non-governmental organizations (NGOs) have taken on increasing responsibility for providing some of the benefits formerly provided by the state. However, rapid growth of U.S. immigrants masks some important global facts. Immigration is not limited to developed countries, as shown in the United Nations, International Migration Report 2002. The rapid growth of U.S. immigrants masks some important global facts. Immigration is not limited to developed countries, as shown in the United Nations, International Migration Report 2002. The rapid growth of U.S. immigrants masks some important global facts. Immigration is not limited to developed countries, as shown in the United Nations, International Migration Report 2002. The rapid growth of U.S. immigrants masks some important global facts. Immigration is not limited to developed countries, as shown in the United Nations, International Migration Report 2002. The rapid growth of U.S. immigrants masks some important global facts. Immigration is not limited to developed countries, as shown in the United Nations, International Migration Report 2002. The rapid growth of U.S. immigrants masks some important global facts. Immigration is not limited to developed countries, as shown in the United Nations, International Migration Report 2002. The rapid growth of U.S. immigrants masks some important global facts.
In your most recent work, you write, “Asian managers...
The Chinese economy is a major player in the world economy.

Globalization and free trade have two direct impacts: the specialization of resources and the redistribution of wealth. Many of these adjustments have positive and negative sides to them, but they are necessary for the development of the global economy. The result is that China reaps even more benefits from globalization, as the rest of the world continues with more developing countries entering the world economy—most of its 1.2 billion people are currently subsistence farmers being lured off their land and into commerce by multinational companies.

The benefits from the globalization are a continuous adjustment to a small economy. Many of these changes have positive and negative sides to them, but they are necessary for the development of the global economy. The result, in the short term, will be a brutally competitive new order for many manufacturing sectors. Unfortunately for these workers in the manufacturing sector, the low-skill jobs and many of the high-skill blue collar jobs from the industrialized countries are also moving up the ranks over the next two decades. Furthermore, its growth is a reflection of the effects of current non-profits and civil society organizations.

The United States is a world leader in innovation, and it is home to some of the world’s largest companies. However, the United States is not immune to the effects of globalization. The country’s manufacturing sector has been hit hard by the loss of jobs in the textile and apparel industries, which historically have been strong sectors in the U.S. economy. As a result, many U.S. companies are finding it necessary to move their operations offshore to lower-cost locations. This has led to job losses in the United States, as many of these jobs are in high-skill occupations.

As companies in the manufacturing sector continue to shift their operations overseas, it becomes increasingly important to consider the effects on the local economies. In addition, the loss of manufacturing jobs has a significant impact on the overall economic well-being of a country. For example, the United States has experienced a marked decline in manufacturing jobs in recent years, which has had a negative impact on the country’s economic growth.

The U.S. manufacturing sector has been hit hard by the loss of jobs in the textile and apparel industries, which historically have been strong sectors in the U.S. economy. As a result, many U.S. companies are finding it necessary to move their operations offshore to lower-cost locations. This has led to job losses in the United States, as many of these jobs are in high-skill occupations.

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China has become the sixth largest economy in the world and will continue to grow in the future.

The United States, with its mature innovative markets, is unlikely to see China as a major competitor in high-technology products, but real decline in jobs in goods manufacturing is an indicator, compared to 5% for the United States. If China becomes the second largest economy by 2020, then China could be number 2 within a decade, and with those shifts occurring, the United States will have new political clout for developing nations, including everything from negotiating trade deals to giving loans and aid.

The United States has been a staunch supporter of globalization and free trade despite its costs. How do you see the costs and benefits—and their future implications for the U.S.?
The bottom line is that globalization is causing a structural realignment of the world economy. A significant number of job opportunities are shifting to developing nations, increasing the wealth of middle class wealth to developing nations. These losses will, of course, be weighed against the growing wealth of the middle class wealth to developing nations. These losses will, of course, be weighed against the growing wealth of the middle class wealth to developing nations.

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GLOBALIZATION: REDISTRIBUTION OF RESOURCES

**INTERVIEW**

Scott Vollrath joined IFTF in 2003, bringing with him a strong background in economics and China studies. Scott compares growth prospects for the United States and China by examining factors such as population, resources, infrastructure, and policies. He argues that the United States has a larger domestic market and more developed infrastructure, while China has a larger population and abundant natural resources. Scott also discusses the implications of these differences for future economic growth in both countries.

**PERSPECTIVES 2004**

The world economy today is not the world economy of 1950. It is a world economy with new players and new rules in the twenty-first century, and the world’s most powerful economies are no longer the same. This is due to a number of factors: globalization, multinational corporations, and technological change. This new global economy is likely to reallocate jobs, shift class structure worldwide, and ultimately alter political leadership in the world.

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Manufacturing jobs due to globalization.

While manufacturing jobs will continue to build its growth on this

Despite manufacturing growth, the real driver of the U.S. economy has been the service sector.

However, over the long term, manufacturing sector saw a significant erosion.

The apparel industry was particularly hard-hit with the new cybernomadic relationship.

Of course, such sustained growth is virtually impossible to achieve. Nevertheless, China is expected to continue propelling itself forward.

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With an annual growth rate of nearly 10% per year, China is expected to continue propelling itself forward.

With an annual growth rate of nearly 10% per year, China is expected to continue propelling itself forward.

China could be No. 2 by 2020 with an annual growth rate of nearly 10% per year.
While manufacturing jobs grew nearly 600% since 1965, the United States also experienced a significant shift in its economy. Today, the service sector drives the economy, with service jobs growing at a rapid pace since the 1960s. The United States today has about 380,000 manufacturing jobs, a decline of 63% in the last 35 years. The apparel industry was particularly hard hit because most of its jobs are low-skill and labor-intensive. Cheap foreign apparel produced at a very low premium on quality. Emerging economies will increasingly take over the production of commodities—products that are differentiated primarily by price, not by design or innovation. This dramatic decline could be due to globalization or a natural correction to rapid employment growth following recessions and a natural correction to rapid employment growth following recessions and a natural correction to rapid employment growth following recessions and a natural correction to rapid employment growth following recessions.

However, with the most recent economic downturn, there has been a significant shift in the number of jobs available. The United States has seen a decline in its middle class, with many high-skilled and high-wage jobs lost due to global restructuring. Even high-skill jobs, such as information technology and engineering, are not immune. Service sector jobs have generally been more resistant than manufacturing jobs. The apparel industry, for example, saw a significant erosion of its labor force in many industrialized nations.

The apparel industry is perhaps an example of the fate of many manufacturing jobs in the United States. In the last couple decades, many countries, particularly Asian nations, have gone through a period of rapid economic development. As the American economy and its role in the world have declined, emerging economies have taken over the production of certain goods, such as textiles and leather products. The apparel industry is perhaps an example of the fate of many manufacturing jobs in the United States.

In the United States, 41% of the sub-industries within the durable goods sector are already experiencing extreme pressure to outsource or relocate. In the nondurable goods sector, the pressure is even greater, with 56% of the jobs in those sub-industries already following suit. It’s highly likely that these sub-industries will continue to experience significant job losses in the near future. The United States is losing low-skill manufacturing jobs to emerging economies. This trend will continue as emerging economies follow suit. It’s highly likely that these sub-industries will continue to experience significant job losses in the near future.
The United States is losing low-skill manufacturing jobs, but new sources of globalization could provide it with new and higher-pay manufacturing jobs. Absent a major change in government policy, manufacturing jobs will continue to be lost to developing countries. Related industries—such as textile and leather products—are already following suit. It's highly probable that these developments will not be limited to manufacturing jobs. Manufacturing is sensitive and information-based economy. In the United States, 41% of the sub-industries that produce innovative or highly differentiated products are high-value and low-value—will move to developing countries. In the last couple decades, many articles including “cyborg” have appeared in scientific journals. For decades, the intellectual and entrepreneurial opportunities afforded by the United States have led to a brain drain in many developing nations, especially in Asia. Now, how-and technology. Quite literally, transhuman, and post-human. A check of LexisNexis shows that 65% of the world’s scientific output was produced by the United States in the last two decades. The United States is losing low-skill manufacturing jobs to China, which has the world’s largest population. China is expected to achieve middle-income status by 2020 and McDonald’s may never return to this country. If tens of millions of Chinese and Indians become middle-income, it only needs to achieve an average living standard currently enjoyed by the industrialized world to go to them. Thus, these nations own innovative industries. This dramatic decline could be due to the United States has been a sharp decrease in the number of jobs in these sectors. The United States is losing low-skill manufacturing jobs to China, which has the world’s largest population. China is expected to achieve middle-income status by 2020 and McDonald’s may never return to this country. 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**SERVICES DRIVE THE INCOME POLARIZATION**

**American Century Investments**

In the United States, the wealthy class hold 50% of the wealth, and this wealth is distributed very unevenly. At the top of the income pyramid, only 1% of households hold the lion’s share of wealth. While some economists believe that this distribution is the result of the 1980s and 1990s, a large body of evidence suggests that this income inequality has a longer history. In fact, the United States has seen a steady increase in income inequality since 1945, with the steepest growth beginning in the 1960s. The United States is now the most unequal society in the developed world, with the top 10% of households holding 50% of the wealth.

**Who are the Wealthy?**

Over the last 35 years in the United States, the wealthy class (defined as the top 10% of households by income) has seen a steady increase in wealth and income. While manufacturing jobs grew nearly 40% over the 20 years following World War II, non-manufacturing jobs grew nearly 600% since 1969, with the steepest growth beginning in the 1980s. The United States, the wealthiest country in the world, is now the most unequal society in the developed world, with the top 10% of households holding 50% of the wealth.

**HOW IS WEALTH DISTRIBUTION CHANGING?**

In the United States, 41% of the sub-industries in manufacturing experienced job losses and are now in a recession. The apparel industry was particularly hard hit because most of its jobs are in the textile and clothing industries. Related industries—such as textile and leather products—are currently competing with the skill set of the emerging nations. Indian scientists and engineers are flooding the world labor pool with innovative jobs that the U.S. economy has been using to drive its economic growth. However, with the most recent economic downturn, there is a growing pressure to outsource high-value jobs, which have historically paid high wages and been a major source of pride in the United States. Today there are about 3.5 million manufacturing jobs in the United States. This number is expected to decline by 20% over the next decade, to grow their base in emerging nations while gaining high-skill “innovative” jobs.

**WHICH JOBS ARE MOST LIKELY TO REPEAT?**

Leather tanning, finishing, & products

Textile & fabric finishing mills

Dolls, toys, & games

Electrical equipment

Audio & video equipment

Computer & peripheral equipment

Other nonferrous metal production

Iron & steel mills & ferroalloy production

Curtain & linen mills

Other fabricated metal products

Fabricated metal hardware

Cutlery & hand tools

Alumina & aluminum production

Glass & glass products

Clay products & refractories

**CHINA COULD BE NO. 2 BY 2020**

China is growing tremendously in the last couple decades, many articles including “cyborg” have been coined from China. China is now the world’s sixth largest economy. Growing at this rate, it would surpass Japan to become the second largest economy in the world. China is the economic hub of the world, becoming the economic hub of the world. It is expected that China will become the economic hub of the world in the next 2 decades.

**JOB-READY HIGH-TECH JOBS**

The United States already has a well-developed economy. In the United States, 41% of the sub-industries in manufacturing are currently in a recession. The apparel industry was particularly hard hit because most of its jobs are in the textile and clothing industries. Related industries—such as textile and leather products—are currently competing with the skill set of the emerging nations. Indian scientists and engineers are flooding the world labor pool with innovative jobs that the U.S. economy has been using to drive its economic growth. However, with the most recent economic downturn, there is a growing pressure to outsource high-value jobs, which have historically paid high wages and been a major source of pride in the United States. Today there are about 3.5 million manufacturing jobs in the United States. This number is expected to decline by 20% over the next decade, to grow their base in emerging nations while gaining high-skill “innovative” jobs.

**5 JOB RELocations: Current and Future**

<table>
<thead>
<tr>
<th>Job</th>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical equipment</td>
<td>10%</td>
<td>30%</td>
</tr>
<tr>
<td>Textile &amp; clothing</td>
<td>5%</td>
<td>20%</td>
</tr>
<tr>
<td>Computer &amp; peripheral</td>
<td>20%</td>
<td>35%</td>
</tr>
<tr>
<td>Electrical equipment</td>
<td>15%</td>
<td>25%</td>
</tr>
<tr>
<td>Audio &amp; video</td>
<td>10%</td>
<td>15%</td>
</tr>
</tbody>
</table>

**EconoMICS OF GROWTH TO ECONOMIC POLICIES**

Service sector jobs have generally been more recession-proof than manufacturing jobs. In the United States, service manufacturing is growing nearly 20% over the 20 years following World War II, with the steepest growth beginning in the 1980s. The apparel industry was particularly hard hit because most of its jobs are in the textile and clothing industries. Related industries—such as textile and leather products—are currently competing with the skill set of the emerging nations. Indian scientists and engineers are flooding the world labor pool with innovative jobs that the U.S. economy has been using to drive its economic growth. However, with the most recent economic downturn, there is a growing pressure to outsource high-value jobs, which have historically paid high wages and been a major source of pride in the United States.

**WHERE ARE WE headed?**

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**OVERVIEW**

While manufacturing employment has been flat, signaling the transition to a high-value service economy, non-manufacturing employment has been increasing. Service jobs grew nearly 600% since 1969, with the steepest growth beginning in the 1980s. The apparel industry was particularly hard hit because most of its jobs are in the textile and clothing industries. Related industries—such as textile and leather products—are currently competing with the skill set of the emerging nations. Indian scientists and engineers are flooding the world labor pool with innovative jobs that the U.S. economy has been using to drive its economic growth. However, with the most recent economic downturn, there is a growing pressure to outsource high-value jobs, which have historically paid high wages and been a major source of pride in the United States.
The Chinese bid for economic leadership?

Q: How will companies need to alter their offerings to remain competitive with emerging players.

In general, jobs that are lower on the value chain will be commoditized and eliminated. Advantaged locations will have to support innovation for higher value-added products.

Shifting Leaders: China's Growth

The United States has seen a steady growth in the Chinese economy. Presently the United States' economy is about 15% of the world's economy, while China's is about 5%.

Shifting Jobs: Not Just Manufacturing

The United States' growth is driven by services, while China's growth is driven by manufacturing. This creates opportunities in both countries, but the benefits are unevenly distributed.

Shifting Income: Re-Shoring

What should companies consider when deciding to move manufacturing jobs to China?

Off-shore workers tend to be unskilled or highly skilled. Many companies, such as Sony, have outsourced entire product-development processes to China.

Q: Is the U.S. economy too diversified?

Re-shoring will arise more often. A good strategy here will be to send the work to countries with a large, skilled workforce.

Business

Jobs, wealth, and political power will shift as the global economy integrates the developing world.

Globalization and free trade have two direct impacts: the Specialization Effect and the Off-shoring Effect. Overall, U.S. consumers will benefit from reduced prices and increased consumption, while China will benefit from increased economic output. The result is that China reaps even larger economic incentive to upgrade labor from the bottom to the top of the value chain as a result of globalization.

The large economic incentive to upgrade labor from the bottom to the top of the value chain as a result of globalization.

The bottom line is that globalization is causing a structural realignment of labor in the world economy. Many of these adjustments have painful side effects such as the loss of jobs and the displacement of workers.

For companies in such economic structures, the agglomeration of all skilled workers in one place results in a large number of slow-moving laborers at the top of the value chain and an even larger number of fast-moving laborers at the bottom.笛卡尔士兵

Q: How can globalization be managed to avoid structural realignment of labor?

Shifting Leaders: China's Growth

China's growth is expected to continue for some time. The Chinese government has been successful in promoting economic growth and has implemented policies that encourage innovation and entrepreneurship.

Meanwhile in the industrial world—and in Europe and the United States—a polarized economy and declining social mobility have brought wealth and power to a wealthy middle class—already defined as “McJobs” in the Merriam-Webster dictionary.

Shifting income: Re-Shoring

Q: Is there a way to stop this trend of globalization?

Shifting Leaders: China's Growth

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The Specialization Effect. Overall, U.S. consumers will benefit from reduced prices and increased consumption, while China will benefit from increased economic output.
Can you give an example of a topic on which you have a particular expertise or interest?

Paul Hawken

I think the most important thing is that globalization is happening on every level of society. We're losing our boundaries, our boundaries are being removed, and we're losing our sense of place. It's really very forward thinking. It's about the second law of thermodynamics, where disorder increases, so you have to have a common set of rules worldwide so that expansion can take place. Localization is a way of bringing our boundaries back and keeping our sense of place.

Q: Do you think there is the political will today to really make a difference in people's lives?

Paul Hawken

I don't know how this will play itself out, but it doesn't need a political will. It needs people who are interested in the process of the governance that it's taken for granted. Corruption is so embedded, so seeded in the very processes of the governance that it's taken for granted. It's really very forward thinking. It's about the second law of thermodynamics, where disorder increases, so you have to have a common set of rules worldwide so that expansion can take place. Localization is a way of bringing our boundaries back and keeping our sense of place.

Q: How might bioregional identities impact brands?

Paul Hawken

I think that we're going to see a migration of brands becoming more place-specific. The idea is to sell a sense of place and sell a sense of the environment. It's really very forward thinking. It's about the second law of thermodynamics, where disorder increases, so you have to have a common set of rules worldwide so that expansion can take place. Localization is a way of bringing our boundaries back and keeping our sense of place.

Q: How can the politicization of water impact your business markets?

Paul Hawken

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Q: In a changing political dynamic, how might small businesses such as restaurants, stores, and other similar businesses benefit?

Paul Hawken

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Q: Where do you think the public will benefit most from increased local awareness?

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People everywhere are experiencing a loss of control—a sense that they have no power to make decisions that affect their lives. This loss of control is a result of globalization and its impact on local industries and economies. The answer, according to Paul Hawken, lies in localization—a strategy that promotes the use of local resources and production methods, and the support of local businesses and communities. Localization can help to create jobs, reduce environmental impact, and strengthen social connections. It is about reconnecting people with their place, their communities, and the natural world.

Localization is not just about economics, it is also about politics. Hawken argues that localization can help to challenge and resist global powers that prioritize profit over people. It can provide a counterweight to the financial and political power of large corporations and governments.

Localization also has implications for the environment. By using local resources and producing goods in a more sustainable way, localization can help to reduce our impact on the planet. It can also help to preserve ecosystems and protect biodiversity.

Localization is not a new idea. It has been practiced for centuries in many different cultures and societies. Hawken believes that it is time to rediscover and embrace this ancient wisdom, and to use it as a tool to build a more just and sustainable world.

In the end, localization is about finding our way back to the natural world. It is about reconnecting with the land, the sky, the sea, and the stars. It is about finding our way back to each other.
The deception and political discontinuities that swept China is trying to get rich. There we're just going to have nations such as China and India? tribute resources and power locally.

Especially since 9/11, people are starting to think very insecurity that globalization brings to the world. Where.

Underlying this impulse to localize is the sense of making sure that their produce goes to the local schools.

Q: Paul Hawken is a business leader, environmentalist, and author of, and (with Amory Lovins and Hunter Lovins)

means and pocketbooks. Localization is really the way market segments, create new product opportunities, and alter the rules of operation for these companies.

Some localization advocates take aim at the basic facilities and stores?

The Home Town Advantage: How To with them.

locally oriented markets will need to cultivate relationships chains. Companies who want to reach consumers in these business markets?

The operative principle is that nature always follows the boundaries. Around the globe, 263 water-

An environmentally inspired bioregionalism is about creating a globally sustainable civilization. It's about restoring the earth's natural systems to the kind of healthy, balanced state that biologists say was the norm through most of the earth's history. Bioregionalism is about creating resilient local economies that are both prosperous and sustainable. It's about restoring the earth's natural systems to the kind of healthy, balanced state that biologists say was the norm through most of the earth's history. Bioregionalism is about creating resilient local economies that are both prosperous and sustainable.

While water, bioregional loyalties, and green politics may seem distant from the pressing issues of daily

What will be the impacts of localization on the business models for big retail chains, these restrictions on the size of retail outlets: less than 100,000 square

Water Supply: Public and Private!

just as concerns about energy have driven appliance and auto manufacturers to label their products with energy rat-

Matters, like oil, will become an increasingly politicalized resource—and perhaps redraw political boundaries

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The watershed is the physical intersection of these trends. And our premise is that watersheds will symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is a French word. It is used most commonly to refer to the "native tang" of a wine—the unique taste that derives from the soil of a particular region, such as the Bourgogne. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics. This tie to the soil is symbolic and real, the source of a wine region's identity, profit, and politics.

Regional planners are getting more sophisticated about

Water, like oil, will become an increasingly politicalized resource—and perhaps redraw political boundaries

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While the availability of water is one way to examine water stress, another is to look at the amount of water that is being used on a per capita basis. One way to measure this is through the availability of water per capita. \(80\) per person. Water stress occurs when annual per capita water supplies fall below 1,000 cubic meters (33,800 cubic feet) per year, while annual per capita water supplies below 500 cubic meters (17,500 cubic feet) per year are considered water-scarce. Water scarcity is defined as annual per capita water supplies below 100 cubic meters (3,380 cubic feet) per year. Unless otherwise stated, all data in this chapter are based on the availability of water per capita, annual per capita water supplies for 2002. 

**WATER SCARCITY BY REGION**

<table>
<thead>
<tr>
<th>Region</th>
<th>Annual Per Capita Water Supply (m³/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>1,000 - 1,500</td>
</tr>
<tr>
<td>Asia</td>
<td>1,500 - 2,000</td>
</tr>
<tr>
<td>Europe</td>
<td>2,000 - 2,500</td>
</tr>
<tr>
<td>North America</td>
<td>2,500 - 3,000</td>
</tr>
<tr>
<td>South America</td>
<td>2,000 - 2,500</td>
</tr>
</tbody>
</table>

**WATER SCARCITY INDICATORS**

- **Population**
- **GDP**
- **Water Use**
- **Water Quality**
- **Economic Development**
- **Technology**
- **Institutional Arrangements**

**BIOREGIONALISM: HOMELAND SECURITY**

- Natural resources
- Cultural heritage
- Traditional knowledge
- Local governance structures

**WATERSHED**

- **Biophysical**
- **Economic**
- **Social**
- **Political**

**INTERNATIONAL EVENTS**

- **Conflictive**
- **Cooperative**

**Revenue from Water Services, 2002**

- **World**
- **North America**
- **Europe**
- **Asia**

**GREEN PARTY GAINS**

- **Germany**
- **United States**
- **Australia**

**CONCLUSION**

- Water is a critical resource, yet it is often taken for granted.
- The global demand for water is growing, driven by population growth, economic development, and climate change.
- Bioregionalism holds promise as a strategy for addressing water scarcity and promoting sustainable water management.
While most water resource maps indicate that most of the world’s principal rivers and water basins are located within political boundaries, a geographic space that encompasses their water sources and other key forests, and wilderness, villages, and regions is the basin itself—a definition that allows for the shared management of these spaces, and enables local people to protect and strengthen the natural resources on which they depend. In many countries, bioregional characteristics are a more reliable measure of water availability than political boundaries. If watersheds gain political status, North and South America, Europe, and the Middle East will become a happy battleground. The availability of water as a competitive resource will depend on a variety of factors, including the availability of water for domestic, agricultural, and industrial uses, the level of technology used to exploit it, and the political boundaries that control its use. While the availability of water is often equated with the amount of water that is produced and used as a percentage of total availability, the amount of water that can be managed is much smaller. Over 50% of the world’s population depends on water from basin systems, a term of reference for a territory of a shared environment that determines the amount of water available for consumption or control by the people of that area.
International estimates that up to 40% of water supplies falling below 1,000 m³ per person. Water stress occurs when annual per capita water supplies fall below 1,000 m³, whereas water scarcity is defined as annual per capita water supplies falling below 500 m³. While most water resource maps indicate water availability by country, a watershed view shows how water availability changes within a country. Watershed models must account for the interactions of atmospheric, geological, and hydrological processes. Water scarcity and water stress may cross national boundaries, but the resulting water disputes are likely to be resolved cooperatively rather than through war and violence.

BIOREGIONALISM: HOMELAND

Bioregion is defined as a natural region complete with biota, 1,000 m³ of water, and geopolitical boundaries. Many rivers cross national boundaries. If river basins are bioregions, the world’s population will be forced to learn how to work together to manage these bioregions.

The Greens are an explicitly grass roots party, characterized by its focus on local, non-hierarchical, and decentralized forms of collective action. (See “The Battle for the Commons” in this volume). In Germany, for example, nearly two-thirds of Green Party members and green sympathizers are in paid jobs. In the U.S., many Greens have engaged in water development find they can’t profit adequately from their investments.

The need to invest in water development for escalating water needs has driven development of bioregional movements. The bioregionalist seeks to reinvigorate the “divided earth” that has historically tended to be resolved cooperatively rather than through war and violence. The goal of the study was to determine how water have historically tended to be resolved cooperatively rather than through war and violence. The goal of the study was to determine how change in water cooperation. In a study of 1,831 international events involving water disputes, and the conclusion of the team was that disputes over water have historically tended to be resolved cooperatively rather than through war and violence.

WATER AS A COOPERATIVE ENTERPRISE

The U.S. Green Party is very small by European standards. Their strength lies in their focus on local, non-hierarchical, and decentralized forms of collective action. (See “The Battle for the Commons” in this volume). In Germany, for example, nearly two-thirds of Green Party members and green sympathizers are in paid jobs. In the U.S., many Greens have engaged in water development find they can’t profit adequately from their investments.

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While the availability of water is not equal to a country's overall water needs, water is a key component of their ecosystems and infrastructure. Water scarcity occurs in certain areas when less than 1,700 m$^3$ per person is available. Water stress occurs when less than 1,000 m$^3$ per person is available. Over 1 billion people lack safe drinking water, and 2.4 billion lack basic sanitation. Water supplies falling below 1,000 m$^3$ per person.

Bioregionalism is the belief that humans can best manage their resources by organizing around local, natural boundaries. This is especially true in areas where resources are limited and culturally significant. Bioregionalists refer to homeland as the area that encompasses a geographic space that is under the control of bioregional characteristics. The issue of water management is crucial in the context of bioregionalism.

**WATER STRESS AND POLITICAL INSTABILITY**

In the United States, the issue of water scarcity is highly relevant. Roughly 10% of U.S. households use private water, compared to 8% for China. Arguably, change in water availability could be as significant as change in other key resources. Similarly, the U.S. is facing challenges with its water supplies, which may lead to increased political instability.

**PRIVATE WATER INDUSTRY**

The need to invest in water development for escalating water needs has driven the growth of the private sector. Roughly 14% of U.S. households use private water, as do 22% of Europeans. At the same time, some companies who have invested in water development have struggled to maintain profitability. The U.S. Green Party is very small by comparison, but it is actively working to promote more sustainable water management practices. The Greens are an explicitly grass roots party, giving the Social Democratic Party the majority it needed to win the 2002 parliament: without the Greens, the Social Democrats would have lost their seats in the European Parliament.

**WATER AS A COOPERATIVE ENTERPRISE**

While small overall, the German Green coalition gave the Social Democratic Party the majority it needed to win the 2002 parliament: without the Greens, the Social Democrats would have lost their seats in the European Parliament.
These are what, in turn, tie people to local communities. And the way you get secure is to displace the global economy that causes dependency and to create local economic webs. Q: Can you give an example of a region in which localization is really the way to get secure? People are quite successful in localizing their food supply, they're also creating food products that are unique. By the way, this new kind of local economic web is making a tremendous difference in the physical and emotional well-being of people. The operative principle is that nature always follows the path of least resistance. And the path of least resistance is the local community. People are quite successful in creating local economic webs, in localizing their food supply. It's a tremendous difference in the physical and emotional well-being of people. And the way you get secure is to displace the global economy that causes dependency. Q: How might localization re-segment traditional retail outlets? We close the loop and plug the leaks? Water, like oil, will in this country. It's just not in Washington. This is the harvest of the water commons as an umbrella phrase for large-scale privatization of the water. Political will is critical, and there's a tremendous political will to in this country. It will just take time to figure out what this means and pocketbooks. The social flow of information, money, goods, services. It's just not in Washington. This is the harvest of the water commons as an umbrella phrase for large-scale privatization of the water. Political will is critical, and there's a tremendous political will to in this country. It will just take time to figure out what this means and pocketbooks. The social flow of information, money, goods, services. It's just not in Washington. This is the harvest of the water commons as an umbrella phrase for large-scale privatization of the water. Political will is critical, and there's a tremendous political will to in this country. It will just take time to figure out what this means and pocketbooks. The social flow of information, money, goods, services. It's just not in Washington. This is the harvest of the water commons as an umbrella phrase for large-scale privatization of the water. Political will is critical, and there's a tremendous political will to in this country. It will just take time to figure out what this means and pocketbooks.
Toyota’s internal and external relationships were structured for a densely linked lateral network. Because of the management hierarchy, Toyota also nurtured cooperative social networks within its vertically structured boundaries. This structure fostered the collaboration necessary for the company to change the world of business.

The Prisoner’s Dilemma, a classic tool from game theory, illustrates the cooperative strategies that undergird much of what is now understood about the evolution of cooperation in biology by using two-person games. The Prisoner’s Dilemma also offers evidence that both sides of the long, heated debate over the evolution of cooperation have the capacity to learn from each other. Knowing that cooperation springs from many contexts, sociologists have uncovered a new realm of collective action, just as the first biologists did.

Furthermore, the emerging discipline of cooperative studies is likely to lead strategic thinking over the next few decades, providing insights for global business and international management of diverse intellectual assets.

In the same way, a culture of cooperation might be aimed at social change. In the center of early villages, a fire might be lit, and today the concept of a commons enables for shared use property—such as shared domains for the internet, social networks, and the atmosphere. The question for the coming decade is whether these domains will remain a free commons.

What’s your sense of the task before us?

A commons is a shared resource that anyone can access. Shared public and private space is a shared resource, and the question is whether these practices—and indeed the culture of the commons—can be managed locally, through ad hoc arrangements, or whether they can be managed globally, through ad hoc arrangements, or whether they can be managed globally, through ad hoc arrangements, or whether they can be managed globally.
The emerging discipline of cooperating systems is likely to lead strategic thinking over the next few decades, providing insights for global business and integrating emancipatory dimensions of innovation.

One of my favorite illustrations here is a Duncan Watts story about a Duncan Watts factory. The factory burned down one night was the sole supplier of a component. After the fire, the owner didn't think it was worth setting up the factory again. However, in just three days, the workers of the factory organized themselves and started working in their own homes. Soon, the factory was running again, and it continued to thrive.

The technology of collective action provides the infrastructure for a new way of thinking across disciplinary boundaries, as well as the foundation for medicine. It will also provide the basis for a new kind of environmental protection, where the commons need not fall to the “tragedy of the commons.”

Q: How will social-capital audits be used, and what impact will they have on the business world?

A: Social-capital audits will be used to assess the impact of social relationships as “capital” on a company’s bottom line. This will help companies understand how to protect them, and how to use them for enhancing our collective human potential—problem-solving capabilities of social insects.

Howard examines the emerging technology and library of cooperation.

How can companies take advantage of bottom-up, self-organizing, and collective intelligence? The question is whether these practices—and indeed the formation of “smart mobs”—will come to be emerging as a new form of cooperation and social relationships that are as significant as the latest technologies of multimedia communication and computing.

I believe that the battle for the future is between the new form of cooperation and social relationships known as “smart mobs” and the structures of the last century, which are based on hierarchy, centralization, and redundancies.

These immersive experiences (such as the Future of Work at the INSTITUTE FOR THE FUTURE) will begin to open the mind to the future of work, providing insights for global business integration and introducing a number of disruptive innovations.

The future of innovation depends on the outcomes of today’s battle for the commons.

An innovation commons is a shared resource that anyone can use. Shared pastureland in the center of early villages gave rise to common-pool resources are demonstrating that, under easily negotiable right laws into territory that formerly was the property of everyone, the Commons became a neighborhood cooperative. The knowledge of microorganisms.

The future to develop the literacy of cooperation.

Before we can approach the solution to problems of conflict, cooperation, and governance of an interconnected global world—the “medicine” for social ills, if you think about the physical world: that new method of discovery of microorganisms.

Q: What’s your sense of the task before us?

A: The question is whether these practices—and indeed the formation of “smart mobs” in technology-enhanced network of Eric Bonabeau in modeling collective intelligence will begin to identify the models for cooperative and productive relationships in the digital economy.

The future of technology—its mechanisms in all kinds of biological and biological—have brought us to the wake of the printing press.

In South Korea, members of the cyber-generation used organized through mobile text messaging and brought about the formation of “smart mobs.”

In the United States, the Howard Dean presidential campaign has demonstrated unprecedented grassroots self-organized behavior. The candidates need to address this new form of organizing behavior, for the first time since the evolution of mass communication, the internet is changing the way house parties are organized, and not necessarily becoming more which can be used to promote their own interests and, in the process, may also bring down the power of the kings and princes. The technology of collective action provides the infrastructure for a new way of thinking across disciplinary boundaries, as well as the foundation for medicine. It will also provide the basis for a new kind of environmental protection, where the commons need not fall to the “tragedy of the commons.”

Cooperation: New Understanding.

The future for society as these new behaviors are undergird much of what is now understood about the biological and physical world. The technology of collective action provides the infrastructure for a new way of thinking across disciplinary boundaries, as well as the foundation for medicine. It will also provide the basis for a new kind of environmental protection, where the commons need not fall to the “tragedy of the commons.”

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The emerging discipline of collective action studies is likely to attract strategic thinking over the next few decades, providing insights for global business and international strategies of diverse methods.

Companies must develop a new literacy of cooperation. A common-pool resource is a shared resource that anyone can use. Shared pastureland in the center of early villages gave rise to the idea of a commons. The Internet, scientific knowledge, and the airwaves are all examples of modern commons. The question for the coming decade is whether these commons can become a significant source of wealth that has not been systematically measured and tapped in business organizations. Just a year later, Amazon and eBay became billionaires with new understandings about collective intelligence.

The emerging discipline of collective action studies is likely to attract strategic thinking over the next few decades, providing insights for global business and international strategies of diverse methods. These examples tend to focus on the public commons, but there is also a great deal of interest in understanding private commons. For instance, the rise of “smart mobs,” or collaborative intelligence, is leading to the discovery of microorganisms. The scientific method—led to biology, and the future may offer important new understandings about collective intelligence. What’s the future of innovation depends on the outcomes of today’s battles for the commons.

The new commons to create new kinds of private property. The future of innovation depends on the outcomes of today’s battles for the commons. The computing power of the devices people carry and their powerful hybrid—are in place. The future of innovation depends on the outcomes of today’s battles for the commons. The computing power of the devices people carry and their powerful hybrid—are in place. The future of innovation depends on the outcomes of today’s battles for the commons. The computing power of the devices people carry and their powerful hybrid—are in place. The future of innovation depends on the outcomes of today’s battles for the commons. The computing power of the devices people carry and their powerful hybrid—are in place.
work, the value of the network grows much faster. But in a one-to-one network, like a telephone network, the value of an additional connection is simply the value of the connection to the new customer, growing as the number of customers or nodes. This is why such networks are called exponential networks. Reed argues that creating exponential growth of value is what is driving the rapid growth of social software offerings today. It is one measure of the content; networks that enable transactions are examples of GFNs. Reed argues that forming groupings that increase the value of a many-to-one connection—such as a service—is 10 times the number of customers.

Another way of viewing these value laws, according to Reed, is that each additional member adds a value of N to the network. For networks in which each node can connect with every other node, this value grows exponentially. In a one-to-one network, like the Internet, the number of possible subsets, it increases as 2^N. In a network in which each node can connect to only one other node, the number of possible subsets is (N choose 2)—or N(N-1)/2. If the value of a connection is the square of the number of customers or nodes, this value grows much faster, as N^2—N—or for all intents and purposes, as the number of customers grows. If the value of the connection to the new customer grows, then the value of the network grows much faster. But in a one-to-one network, like a telephone network, the value of an additional connection is simply the value of the connection to the new customer, growing as the number of customers or nodes. This is why such networks are called exponential networks. Reed argues that creating exponential growth of value is what is driving the rapid growth of social software offerings today. It is one measure of the content; networks that enable transactions are examples of GFNs. Reed argues that forming groupings that increase the value of a many-to-one connection—such as a service—is 10 times the number of customers.
FROM METCALF’S LAW TO REED’S LAW

The value of collaboration from metcalf’s law to reed’s law

<table>
<thead>
<tr>
<th>Network Type</th>
<th>Value</th>
<th>Number of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-to-one</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>Best</td>
<td>2N</td>
<td>2</td>
</tr>
<tr>
<td>Most</td>
<td>N2</td>
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Recently, David Reed, at MIT’s Media Lab, found that the value of network grows exponentially at a rate of $2^N$. Cable TV networks have a much lower growth potential, since their value is basically equal to the number of users, or $N$.

According to Reed, every GFN (Group Map) represents a certain number of possible subsets as small as two people. "Every GFN," he notes, "is a collection of more GFNs, each of which is also a collection of more GFNs, and so on, ad infinitum."

In 1996, David Reed, at MIT’s Media Lab, found that the value of network grows exponentially at a rate of $2^N$. Cable TV networks have a much lower growth potential, since their value is basically equal to the number of users, or $N$.

Here’s his logic: Every GFN represents a certain number of possible subsets, it increases exponentially at a rate of $2^N$. It’s as if every two people represent a subset that is also a collection of more subsets. It’s a recursive process.

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The value of collaboration from Dalberg-リーの論文の断片

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Details at N–N–1, or approximately 2 N. This potential for work, the value of the network grows much faster. But in a one-to-one network, like a telephone network, the value is basically equal to the number of users, or N. In contrast, within networks that explicitly support affiliations among subsets, such as Ryze, LinkedIn, and Friendster as well as networks that enable transactions (e.g., eBay), the number of members becomes significant. Here’s his logic: Every GFN represents a certain number of connections, so the value of network typically grows exponentially at a rate of 2N. Cable TV networks have a much lower growth potential, since their value is basically that of an individual email address for every user. In these kinds of networks, value creation is the product of the number of users, N 2.

Another way of viewing these value laws, is to understand the scale of this new kind of collaborative mapping of the world. Consider the scale of the web, where a random link followed is also a random link. The average depth of a website on the web is of the order of N. This means that the space of potential connections is enormous, and only slightly less than the size of the entire universe. The advantage of FOAF over other methods of managing identity across many blogs is that it doesn’t require any central server. Instead, it allows individual users to create their own Web pages with profiles that other users can browse and manipulate. This is the software of choice for people who are interested in more complex goods.
Connectivity has a value, and that value changes as the number of members increases. He calls these group-
consists of three customers, there are eight possible connec-
An open source software—such as Linux—has the advantage of a large community of developers
A company that uses online networks to generate real-life business contacts is IBM. IBM's entry in the social software arena, combining social software and computer-to-computer networks, is a

The value of collaboration

value of collaboration. In a sense, collaboration is a form of distributed software development. This is not just

number of possible subsets as small as two people. So the value of a network grows at the rate

According to Metcalf's Law, the value of telephone-

As social software has evolved, so have the web crawlers that track links. For example, Technorati (www.technorati.com) is a

In its study, Perseus (www.perseus-object.com) measured the number of links between blogs. In their study, Perseus

the software of choice for people who are interested in more

value of potential connectivity for transactions. So the value of a network grows at the rate

Another way of viewing these value laws, according to Reeds Law, is to look at the value of network

The value of collaboration from Metcals Law to Reed's Law

This is a statistical law discovered by Bill Metcalf that states that the value of telephone networks grows as the number of

value of a many-to-one connection—such as a
cable TV service—grows as the number of cus-

Dr. David Reed, a visiting scholar at MIT's Sloan School of Management, argues that in

Open source software usually consists of three members—developers and users. The developers

The economics of the open source

Social software is not just social. It's a tool for accomplishing everything from finding a job to supporting your favorite
candidate. It's not just about connecting people, either; social software is also about producing

the value of collaboration.

Source: David P. Reed, 2003.

value of a many-to-one connection—such as a cable TV service—grows as the number of customers
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The emerging discipline of cooperative strategy is likely to lead strategic thinking over the next few decades, promising insights for global business and intelligence in structuring new forms of interdependence.

A scenario is a simulated scenario that argues can be used.paradigm shift in the center of early childs like the latter, but today the concept of a scenario eludes their for such dramatic alliances than the strategic, conflict, knowledge, and the answer. The question for the coming decades of another three decades will retain its strong momentum.
To reconcile between consumers who are increasingly engaged in their own personal health care choices and the need for large-scale organizations to support these choices while still maintaining very demanding as companies over the next five years.

First, care companies help employees manage the "turbulence of health care" while encouraging consumers to play a more active role. One important provided mechanism for the delivery of health care options is a health portal. Another is a "primary care physician portal" that can help filter information and assist consumers. The point is, not everyone wants unlimited information. What the health care consumer wants is a friendly face in the Internet, welcome the consequent increased choice and control. Companies have two key opportunities in this arena. First, they can develop a tax-exempt contribution, as well. The health IRA—similar to the 401(k)—could be used to promote a healthier lifestyle. They're no longer the bad guys in labor negotiations and health care.

Second, care companies have a role to take in the redefinition of health care. The problem is as follows. Fear of financial losses, poor health strategies—especially preventive and environmental vital signs. Individuals who are already used to the idea of a 401(k) disease and environmental vital signs, and those of the spaces they occupy. Here, as in the arenas of risk adjustment to make the most of the "turbulence of health care." For example, if they implement a program to reduce environmental vital signs. The technology of the future is that of monitoring the workplace, for example, by installing fitness monitors to track workers' health. Let's look at the problems to be solved. Employers can't face bewildering choice and bureaucracy and worry about costs of providing quality care. Meanwhile, consumers have always been able to pursue health care on their own. Now, with the Internet, welcome the consequent increased choice and control.

Journey from current conventional, paternalistic medicine—where a single-specialist doctor is in charge of a patient's health care—toward a Future of Health Care that's personalized. Personalized genetic testing individually tailored regimes for everything from cancer treatment to nutritional supplements. Accessing personal genome data is individual care information about their health from elementary ecosystems. By looking to cues in health care costs, we can bet the Internet, welcome the consequent increased choice and control. However, several cautionary factors are at work and enhance the value of choices in health care. Care to that might take 100 or more different drugs. In the past, face unwieldy choice and bureaucracy and worry about costs of providing quality care. Meanwhile, consumers have always been able to pursue health care on their own. Now, with the Internet, welcome the consequent increased choice and control.

Q: You've taken the position that consumer-directed health plans won't solve the problems of the health care system. You feel that faster growth in consumer-directed health plans and environmental vital signs. Individuals who are already used to the idea of a 401(k) could benefit from this approach. Employees, who are already used to the idea of a 401(k), could benefit from this approach.
To envision where between consumers who are increasingly engaged in their personal health care choices and the need for large-scale infrastructures to support those choices will play out, consider one of the many experiences of a personal health care consumer. In a hospital room, a patient may be coping with the emotional stress of illness and the physical stress of surgery. In the background, a computerized system is collecting data on the patient’s vital signs, monitoring the course of the surgery, and generating reports for the medical team. At the same time, a patient’s family members are using a personal health care portal to access information about the patient’s condition and to communicate with the medical team. This experience illustrates the potential of technology to support the patient’s care and improve the efficiency and effectiveness of hospital operations.

For example, at a hospital, a patient may be undergoing a medical procedure that requires monitoring of vital signs. In the past, this would have involved manual recording of data and frequent communication between medical staff and family members. With a personal health care portal, however, the data can be collected automatically and transmitted to the portal, which allows family members to view the patient’s condition in real-time and communicate with the medical team. This not only reduces the workload for medical staff but also provides family members with a better understanding of the patient’s condition.

In addition to supporting the patient’s care, personal health care portals can also improve the efficiency of hospital operations. For example, by automating data collection and transmission, medical staff can focus on patient care rather than spending time on manual record-keeping. This can lead to faster patient turnover and increased capacity for the hospital.

Moreover, personal health care portals can provide valuable insights for hospital management. By analyzing data collected from multiple patients, hospitals can identify trends and patterns that may affect patient care and hospital operations. For example, if a hospital notices that a particular procedure is taking longer than expected, it can investigate the reasons for the delay and take steps to improve the process.

As technology continues to evolve, personal health care portals will become even more sophisticated, providing new opportunities for hospitals to improve patient care and efficiency. But for now, the key question remains: how can we best support the needs of patients and their families while also improving the efficiency of hospital operations?
The transition period where consumers will have to continue mation access and choice. They'd rather have a trusted with an organized system behind it that works really What the health care consumer wants is a friendly face you get the assurance that you're not going to get ripped consumer-directed health plans.

The TEN-YEAR FORECAST INSTITUTE FOR THE FUTURE on companies over the next few years. The need for large-scale infrastructures to support those choices will place seemingly contradictory demands concierge services ing who qualifies for treatment, excluded (and sometimes Also, as genetic databases play a greater role in determin- awareness of the genetic roots of disease—there will be locate, and make the best use of health care services—with a health care concierge service to help employees evaluate, errands, tomorrow's companies may well need to provide errands, tomorrow's companies may well need to provide empowerment: the health care consumer becomes engaged while developing their own health-related markets? How can companies help their employees manage medical spending, and thus obviously represents a huge market opportunity for all kinds of companies. Today's trends,

The second is to provide truly efficacious alternative treatments. Both workers and insurance companies are likely to place some employers to engage with the health plans in an informed days, segmented by health plan. This would enable employers to dicker with to get reimbursed, and consumers then offer a menu of health plans. Providers have fewer brokers perform risk adjustment behind the scenes and pay the 8% health IRA payments and also have a simpler set of choices. Instead, one way to address these issues is a modified cost-based insurance model. Human resource firms which already handle models. Human resource firms which already handle health plans won't solve the problems of the health government versus states, which currently regulate health insurance premiums, so they can't predict what these plans will do. What are the pitfalls of this arrangement? Hag gives us a glimpse of ten health plans might evolve in the next decade. What are the pitfalls of this arrangement? Hag gives us a glimpse of ten health plans might evolve in the next decade.
### History of Health Benefits

- **1847**: First (short-lived) company to issue health insurance organized in Boston.
- **1870**: Railroad, mining, and other industries begin to provide company doctors, as employee income.
- **1912**: Blue Cross Commission established.
- **1913**: International Ladies Garment Workers Union establishes first union. (Note: Although this is listed with the year, it might be an error or a reference to the first year a union was established for garment workers, rather than the establishment of the first union as such.)
- **1913**: Americans for劳氏supplemental medical benefits program and individual medical insurance.
- **1947**: Taft-Hartley Act requires collective bargaining on wages and conditions for unionized workers in private industry.
- **1954**: Revenue Act confirms that employer-paid health benefits are not taxable income. This was a significant step in the development of employer-sponsored health insurance.
- **1965**: Medicare and Medicaid legislation adopted (effective 1966). This legislation funded the elderly and the poor with federal funds, which was a large step forward for health care access.
- **1968**: Firestone Tire and Rubber Co. becomes first to self-fund health benefits. This was a milestone in the evolution of employer-fed health plans.
- **1974**: Employee Retirement Income Security Act (ERISA) enacted to ensure the availability of employer-sponsored retirement plans.
- **1993**: Health Maintenance Organizations (HMOs) are authorized as an alternative to indemnity insurance. HMOs provide a more managed care approach to delivering health care services.
- **1996**: European Union (EU) health directives allow for cross-border active health insurance. This was a significant step in the globalization of health care.

#### Key Points

- **Continued Coverage After Job Termination**: Companies have provided continued coverage after job termination, which is a key benefit of employer-sponsored health insurance.
- **Self-Funded Health Plans**: These plans are funded by deductions from workers' wages, which means that the employer is not subject to taxes on these benefits.
- **CDHPs (Consumer-Directed Health Plans)**: While many consumers believe that CDHPs are likely or very effective for cost containment, many employers do not.
- **Disease Management Programs**: These programs are designed to help employees manage chronic conditions, which can reduce costs in the long run.
- **Genomic Testing**: As the costs of genomic tests drop, the potential for personalized medicine becomes clearer. This is an area of significant growth and potential for cost savings.

### Data Sources


### Graphs and Charts

- **Graph**: Comparison of actual monthly worker contributions to health plans and the expected annual growth rate of more than 30%, with an anticipated annual percent increase in health insurance costs.
- **Chart**: Outliers for Preventive Measures.

### Additional Notes

- **FUTURE OF CDHPs IS UNCERTAIN**: While 68% believe that CDHPs are likely or very effective for cost containment, the majority of consumers do not.
- **7 Percent of Employees That Want Employers to …**: This chart shows the percentage of employees who want employers to continue to negotiate price, monitor administrative performance, facilitate enrollment and claims, screen plans for quality, and provide other management services.
- **OUTLOOK FOR PERSONALIZED MEDICINE**: As the costs of genomic tests drop, the potential for personalized medicine becomes clearer. This is an area of significant growth and potential for cost savings.
- **The Diagnostics Marketplace, 2000**: This graph shows the market size for diagnostics and the annual growth rate.

### Additional Graphs

- **Graph**: Comparison of annual growth rate of more than 30%, with an anticipated annual percent increase in health insurance costs.
- **Chart**: Outliers for Preventive Measures.

### Further Reading

- **Employer Health Benefits Annual Survey, 2003**: This survey provides insights into trends in employer-sponsored health benefits.
- **Institute for the Future**: This institute provides research and analysis on the future of health care.
- **Burrill & Company; Thomas Weisel Partners LLC.**: This source provides data on the annual growth rate of more than 30%, with an anticipated annual percent increase in health insurance costs.

### Conclusion

The history of health benefits is a story of innovation and adaptation, driven by the need for access to health care and the desire to control costs. As the landscape continues to evolve, employers and employees alike must be prepared to adapt and make the most of the changing health care environment.
Since the advent of the Affordable Care Act, health reform has become an increasingly complex process. This complexity is due to the need for stakeholders—employers, health plans, and consumers—to work together to achieve the goals of affordable, accessible, and high-quality health care. The Affordable Care Act (ACA) provides a framework for this collaboration by establishing new requirements for health plans and employers. While stakeholders may disagree on the details, they generally agree on the need to reform the current system. The ACA aims to improve the health care process by making it more efficient, accessible, and affordable.
A TIMELINE OF HEALTH BENEFITS

Source: Institute for the Future

1906 American Association for Labor Legislation founded to promote workers’ compensation and social insurance programs.

1939 Blue Shield Plan founded in California.

1947 Taft-Hartley Act requires collective bargaining on wages and conditions.

1948 McCarran-Ferguson Act gives states broad power to regulate insurance.


1967-1970 Democratic and Republican Administrations pass healthcare legislation to protect the health of the disabled.

1996 Health Insurance Portability and Accountability Act (HIPAA) enacted to provide prescription drug coverage for seniors and the disabled.

2003 Medicare Prescription Drug, Improvement, and Modernization Act enacted to enhance continuity of health insurance.

2009 Patient Protection and Affordable Care Act enacted to provide prescription drug coverage for seniors and the disabled.

HEALTH COVERAGE COSTS GROW

14 Percent of Health Premium Paid by Covered Workers

0 4 6 8 12


DISPROPORTIONATELY

It's true that CDHPs give consumers more choice and control over their health care coverage that individuals receive. For example, more than half also believe that disease management and provide other management services. Unfortunately, the majority of consumers don't want the responsibility. More than 75% management, higher employee cost sharing, and tighter managed care networks will be taken.

The combination of limited choice and higher costs, coupled with the changes the health care system is undergoing, will ultimately take.

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The combination of limited choice and higher costs, coupled with the changes the health care system is undergoing, will ultimately take.

Not at all effective

Not too effective

Very effective

6 Percent of Firms That Think … Cost Containment Strategy Will Be Effective

5  Percent of Employees That Want Employers to … 2  Annual Percent Increase in Health Insurance Compared to Other Indicators

Not at all effective

Not too effective

Very effective

The last couple years have seen an explosion of diagnostic procedures, services, and tools. The benefits here are obvious large and will continue in greater health care, and how have they been used. The markets for these are already huge and will continue to grow. Molecular diagnostics go hand-in-hand with genetic therapies in particular, will be a boom market: most analysts expect an annual growth rate of more than 30%, with an expected market size in 2006 of over $5 billion.

As consumers are being asked to assume more responsibility, the emergence of personalized medicine. At the heart of this process, the complexity increases their risk. And many consumers may be seen as immutable and therefore discriminating. Consumers may opt not to be tested in order to avoid such discrimination.

The evolution of molecularly based personalized medicine. The last couple years have seen an explosion of diagnostic technologies and tools have proliferated, the steps on the treatment path. But, as diagnostic technologies and tools have proliferated, these social aspects of molecular testing are likely to slow the evolution of molecularly based personalized medicine.

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Symptomatic

Parallel testing

Asymptomatic

Symptomatic

Diagnostic

Surgical therapy

Molecular diagnostics

•  Counseling
•  Second opinion
•  Testing for genetic predisposition
•  Treatment choice
•  Schedule follow ups
•  Track symptoms

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**A PROFILE OF HEALTH BENEFITS**

- **Health care**
  - More likely, they will add to its complexity by making it more expensive and difficult to navigate.
  - **1947** Taft-Hartley Act requires collective bargaining on wages and conditions.
  - **1996** Health Insurance Portability and Accountability Act (HIPAA) enacted to ensure portability of health insurance.
  - **1954** Revenue Act confirms that employer-paid health benefits are not taxable income.
  - **1985** Consolidated Omnibus Budget Reconciliation Act (COBRA) enacted to ensure continuation of health benefits.
  - **1968** Firestone Tire and Rubber Co. becomes first to self-fund health benefits.
  - **1877** Granite Cutters Union establishes first national sick benefit program.
  - **1849** New York passes first state law regulating insurance.

**EMPLOYER HEALTH INSURANCE PLANS**

- Employees contribute a relatively small share of the costs. Currently, employees pay 16% of their own health care costs and 27% for their family members. The level that prompted employers to embrace managed care in 1988.

**EXPERIMENTATION**

- Compared to control group, health care costs were lower in the two managed care plans.
- Despite the positive impact on costs, the managed care plans did not improve health outcomes.

**FUTURE OF COSTS**

- The trend of rising health care costs will continue. The cost per person for health care benefits is expected to rise by 10 to 14 percent.

**RETAINING EMPLOYEES AND CONTAINING COSTS**

- **65%** of employees say that having quality health benefits is important when deciding where to work.
- **54%** of employees think that their health benefits will remain the same or improve in the next year.

- **10%** of employees say that they are very concerned about rising health care costs.
- **5%** of employees say that they are somewhat concerned about rising health care costs.
- **44%** of employees say that they are not concerned about rising health care costs.

**OUTLOOK FOR PERSONALIZED MEDICINE**

- The use of personalized medicine is growing. The use of genetic testing to determine disease risk and treatment options is increasing.
- **$25 billion** is projected to be spent on personalized medicine in 2015.
- **30%** annual growth rate of more than 30%, with an anticipated 65% increase in 2014.

**THE HEALTH CARE PROCESS IS MORE COMPLEX**

- **120** million Americans have some form of health insurance.
- **54%** of workers pay a share of their health care costs.
- **25%** of workers screen for diseases.
- **8%** of workers make a financial contribution to their health care costs.

**DETAILS**

Source: Burrill & Company; Thomas Weisel Partners LLC.

- **Source**: Employer-Sponsored Health Benefits, 2003.


**The Health Care Process**

- The health care process is more complex. The level of consumer involvement is increasing.
- **30%** of consumers say that they are very concerned about rising health care costs.
- **5%** of consumers say that they are somewhat concerned about rising health care costs.
- **44%** of consumers say that they are not concerned about rising health care costs.

- **10** percent of employees say that they feel the responsibility to contain costs.
- **5** percent of employees that think that employers will be very effective in containing costs.
- **4** percent of employees that think that employers will be somewhat effective in containing costs.
- **1** percent of employees that think that employers will be not at all effective in containing costs.

**DIAGNOSTIC MARKETPLACE, 2000**

- The diagnostics marketplace is expected to grow at a rate of 20% per year.
- The market is expected to reach $10 billion by 2005.
- The market is expected to reach $30 billion by 2010.
- The market is expected to reach $70 billion by 2015.

**DIAGNOSTICS**

- **Molecular diagnostics** are likely to be the next major growth area.
- **90%** of consumers say that they are concerned about rising health care costs.
- **80%** of consumers say that they are concerned about the quality of health care.
- **70%** of consumers say that they are concerned about the accessibility of health care.

**SCREENING**

- **40%** of consumers say that they are concerned about the cost of health care.
- **30%** of consumers say that they are concerned about the quality of health care.
- **20%** of consumers say that they are concerned about the accessibility of health care.
To connect between consumers who are increasingly engaged in their own personal health care choices and the need for large-scale infrastructures to support those choices will play an increasingly important role as companies over the next few years.

1. Can companies help employees mange their “burden of empowerment” in health care—while creating lower health care costs, are keenly interested in consumer-directed health plans (CDHPs), and some consumers, armed with the Internet, welcome the consequent increased choice and control.

2. What are the pitfalls of this arrangement? What are the consequences for both patients and providers? Will price-beating become the primary focus of the health care system? Will providers lose their motivation to improve the quality of their care?

3. How will environmental monitoring of health care costs, and thus obviously represents a huge medical spending, and thus obviously represents a huge crisis. But for now, we may just be in a transition period where consumers will have to continue with health decisions. But for now, we may just be in a transition period where consumers will have to continue with health decisions. But for now, we may just be in a transition period where consumers will have to continue with health decisions.

4. I could see health plans following this model. In an environment where health concerns are growing—against health care spam and shadowy practices—"the "burden of empowerment" in health care—while creating lower health care costs, are keenly interested in consumer-directed health plans (CDHPs), and some consumers, armed with the Internet, welcome the consequent increased choice and control.

5. More employee empowerment: the health care consumer becomes engaged and empowered as he or she learns about health initiatives and begins to make decisions about health care. The creation of more employee-empowerment is no longer a matter of "just" waiting to have the decisions imposed from outside. It’s a movement that is happening in the health care industry today. This is a movement that is happening in the health care industry today. It’s a movement that is happening in the health care industry today.

6. The second is to provide truly efficacious alternative treatments. "In the current health care system, many patients face bewildering choice and bureaucracy and worry about their budgets, and they’re in a constant battle with unions and insurers. They may face uncontrollable costs, and they may be unable to negotiate for what they want.

7. And companies themselves may find it in their best interest to employ medical consumers, and they may find it in their best interest to employ medical consumers, and they may find it in their best interest to employ medical consumers.

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9. Employers could pay, say, a government-mandated flat fee for each employee. They’re no longer the bad guys in labor negotiations and public relations. Today, even large companies like General Motors, who have self-insured all along, may favor flocks and small employers. The relative roles of the federal government and the states are complex, particularly in the case of a national health care system. (Indeed, since the government mandates health insurance coverage, these could be sequestered in a separate federal budget, but that’s beyond the scope of this paper.)

10. In the current health care system, many patients face bewildering choice and bureaucracy and worry about their budgets, and they’re in a constant battle with unions and insurers. They may face uncontrollable costs, and they may be unable to negotiate for what they want.

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13. As a result, the health care system will have to be restructured in a way that’s more efficient, more effective, and more responsive to patient needs.

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The growth of jobbies—jobs that build on workers’ personal interests and sometimes provide alternative incomes—will perhaps also drive the expansion of the self-employed. Jobbies are an increasingly attractive option for workers who intensify their search for personal fulfillment in an uncertain economy. If people are laid off, they can leverage the skills and contacts that they’ve built to reinvent the workplace and the nature of working itself. The most innovative HR departments will continually seek practices that build on the rise of jobbies. People are looking for more flexibility in how they work, more control over how they spend their time, and more opportunities to align their work with their personal lives. Many view their hobbies as potential new career directions in an uncertain economy. If they are forced to leave their current jobs, they can use these skills and passions to build new careers.

What has driven this rise of jobbies? How are companies adapting to this trend? What should HR professionals do to help their employees thrive in this new workplace environment? To help answer these questions, Ellen Galinsky, the president and co-founder of the Families and Work Institute, is the author of the book *Ask the Children* and a contributor to *TEN-YEAR FORECAST*. In this interview, she shares her insights about the new balance among work, family, and personal passions.

Ellen shares her insights about the new balance among work, family, and personal passions.

**Q:** What is driving the rise of jobbies, and how does this trend impact the workplace and the nature of working itself? How are companies adapting to this trend? What should HR professionals do to help their employees thrive in this new workplace environment?

**Ellen Galinsky**

The rise of self-expression points to broader cultural changes. In the United States, where the art world is so vibrant, people are seeking new ways to express their creativity. In the past, the pressure to fit in and conform was so great that people felt they couldn’t express themselves. Now, everyone is saying, ‘I want to do something to express myself because I’m about to lose my job.” The result is an explosion of jobbies. The rise of self-expression points to broader cultural changes.

**Q:** You write about the trend of jobbies in your book *Ask the Children*. What has driven this rise of jobbies? How are companies adapting to this trend? What should HR professionals do to help their employees thrive in this new workplace environment?

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The growth of jobbies—jobs that build on workers’ personal interests and sometimes provide alternative incomes—will perhaps also drive the expansion of the self-employed. Jobbies are an increasingly attractive option for workers who intensify their search for personal fulfillment in an uncertain economy. If people are laid off, they can leverage the skills and contacts that they’ve built to reinvent the workplace and the nature of working itself. The most innovative HR departments will continually seek practices that build on the rise of jobbies. People are looking for more flexibility in how they work, more control over how they spend their time, and more opportunities to align their work with their personal lives. Many view their hobbies as potential new career directions in an uncertain economy. If they are forced to leave their current jobs, they can use these skills and passions to build new careers.

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Ellen shares her insights about the new balance among work, family, and personal passions.
The growth of jobbies—jobs that build on workers' personal interests and curiosities—provide alternative avenues for employees and companies. In this new era, companies have the freedom to take any initiative that they feel will truly enhance the well-being of their employees. Ellen Galinsky is the president and co-founder of the Families and Work Institute. She is the author of The Self at Work: How Employers Can Create Environments That Promote Healthy Employees and Thriving Businesses, which was selected by The Wall Street Journal as one of the best work-life books of 1999.
The growth of jobbies—jobs that build on workers' personal forms of self-expression and creativity—are having an increasing impact on the workplace and on the way that we work. These are jobs that incorporate one or more of the worker's personal passions or individual forms of self-expression. They are jobs that allow workers to do what they love, and that link work and personal interests and values. They are jobs that enable workers to contribute their personal expertise to the world. They are jobs that offer workers the opportunity to use their unique talents and abilities, and that allow them to contribute to the world in a way that is personally meaningful and satisfying. They are jobs that offer workers the opportunity to use their personal skills and abilities, and that allow them to contribute to the world in a way that is personally meaningful and satisfying.

The growth of jobbies can be seen in many different ways. In some cases, it can be seen in the way that workers are using their personal skills and abilities to contribute to the world. In other cases, it can be seen in the way that workers are using their personal skills and abilities to contribute to the world. In still other cases, it can be seen in the way that workers are using their personal skills and abilities to contribute to the world. In all cases, it is clear that the growth of jobbies is having a significant impact on the way that we work.
The Creative Class

Richard Florida identifies creative worker jobs as those that made up the "creative class." These include scientists, engineers, artists, writers, performing artists, and entertainers. Their jobs are characterized by their high level of growth and change, while traditional blue-collar jobs saw little growth.

**The Nature of "Career" Has Changed**

We now have a "career" model, which is "the spiral." This is the opposite of the traditional "ladder" model. The Spiral is cyclical, involves disconnections, and is based on multiple relationships. It is not linear, and it is about personal growth and development. It is driven by diverse experience and continuous learning.

**LEISURE TIME IS MORE ACTIVE**

Americans are spending more time on hobbies, sports, and personal interests. This trend has been evident for at least a decade. The percentage of people who do something for fun, interest, or recreation increased significantly from 1992 to 2002.

**THE EXPRESSION OF LIFESTYLE**

Leisure time is not only more active, but it is also more diverse and rewarding. Americans in 2002 were watching more music videos, shopping for new music, and playing video games. They were also participating in more social and political activism.

**THE INTERNET AS A RESOURCE**

The Internet is a significant resource for people who use it. It provides a way for people to connect with others who share similar interests. It has become a platform for self-expression and social interaction. It is also a source of information and entertainment.
The creative class has wrought profound changes in the workplace. This casual work environment, where employees work an average of 11 hours per week off-site, is a significant departure from the traditional career paths. The rise of the creative class is one of many ways that employment arrangements are changing traditional career paths.

**THE NEW “CREATIVE CLASS”**


In 1970, less than four percent of the workforce was classified as creative. By 2000, this number had increased to around ten percent. By 2002, this number had increased to around 25%. As of 2007, over 50% of the workforce is considered creative.

**Participation in Adult Education Activities by Age Group**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage Participating</th>
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<tbody>
<tr>
<td>18-24</td>
<td>34%</td>
</tr>
<tr>
<td>25-34</td>
<td>38%</td>
</tr>
<tr>
<td>35-44</td>
<td>42%</td>
</tr>
<tr>
<td>45-54</td>
<td>48%</td>
</tr>
<tr>
<td>55-64</td>
<td>52%</td>
</tr>
<tr>
<td>65+</td>
<td>60%</td>
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(Data from the U.S. Department of Education, National Center for Education Statistics)

**LEISURE TIME IS MORE ACTIVE**

Lifelong learning means continuous education and self-development as overall level of education increases.

**LEISURE TIME IS MORE ACTIVE**

LEISURE TIME IS MORE ACTIVE

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<tbody>
<tr>
<td>Movies</td>
<td>28%</td>
<td>27%</td>
<td>27%</td>
<td>26%</td>
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<td>23%</td>
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<tr>
<td>TV</td>
<td>40%</td>
<td>39%</td>
<td>38%</td>
<td>37%</td>
<td>35%</td>
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<td>Books</td>
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<td>22%</td>
<td>21%</td>
<td>20%</td>
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</tr>
<tr>
<td>Internet</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>6%</td>
<td>10%</td>
<td>15%</td>
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</table>

(Data from the U.S. Department of Education, National Center for Education Statistics)

**THE INTERNET AS A RESOURCE**

The Internet provides a way to peak into the minds of millions of people and to find out what each and every person is searching for online.

**THE INTERNET AS A RESOURCE**

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<tbody>
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<td>Chat rooms</td>
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<tr>
<td>News groups</td>
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<td>FAQs</td>
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<td>2%</td>
<td>3%</td>
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(Data from the U.S. Department of Education, National Center for Education Statistics)

**NEW AND INTENSE EXPERIENCES**

New and intense experiences include activities that are emotionally absorbing, such as work time. Over the last several decades, they are increasingly being spent on personal development courses. Participation in adult education has grown from four to six times that of 1970. Enrollment in higher education is at an all-time high.

**NEW AND INTENSE EXPERIENCES**

NEW AND INTENSE EXPERIENCES

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<tbody>
<tr>
<td>Adult education</td>
<td>2%</td>
<td>4%</td>
<td>6%</td>
<td>8%</td>
<td>10%</td>
<td>12%</td>
<td>15%</td>
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<tr>
<td>Higher education</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
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(Data from the U.S. Department of Education, National Center for Education Statistics)

**THE “EXPERIENCE” LIFESTYLE**

Lifestyle as a whole now involves a quest for an enhanced personal experience. People are more likely than ever to spend time engaging in new and intense experiences. The “experience” lifestyle is marked by increased interest in self-expression on the job—daily activities, not just the goal of work. The current emphasis on active forms of entertainment, such as active sports, movies, television, and other cultural pursuits, is a reflection of this trend. Participation in adult education activities in the preceding 12 months.

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(Data from the U.S. Department of Education, National Center for Education Statistics)
CREATIVITY, CAREERS, AND AGE

The Rise of the Creative Class, 1999

The creative class consists of professionals and creative workers, such as scientists, engineers, artists, writers, and entertainers. The creative class has wrought profound changes in the workplace, offering a more flexible work environment and an emphasis on creativity and self-expression. Children are spending more time on hobbies to meet their needs for self-expression. They are increasingly starting and quitting jobs, exploring diverse career opportunities, and engaging in lifelong learning experiences.

Creativity is highly valued today, and the American workforce is increasingly made up of creative thinkers. By some measures, the number of creative workers has tripled over the last century, and creativity and self-expression are now considered important aspects of work. The new “creative class” is characterized by a focus on creativity, flexibility, and innovative career path changes in the late 1990s, and the rise of the creative class has wrought profound changes in the workplace, offering a more flexible work environment and an emphasis on creativity and self-expression.

American children spend on hobbies grew 150% between 1981 and 1997, and time spent on art activities increased 148% over the last decade. Nearly one quarter of enrollment in adult education is in personal development courses, such as hobbies, sports lessons, and personal interests, within the last year. The Internet provides a way for people to form communities around their hobbies and interests, and it also allows them to connect with others who share their interests. The Internet provides a resource for information about hobbies and personal interests. For example, the American Life 2000 survey found that 76% of Internet users say they have sought hobby information. The Internet is also a resource for information about hobbies and personal interests. For example, the American Life 2000 survey found that 76% of Internet users say they have sought hobby information.

Gaming, films, and reality TV shows are important sources of entertainment, and the Internet provides a way for people to form communities around their hobbies and interests. The Internet provides a way for people to form communities around their hobbies and interests, and it also allows them to connect with others who share their interests. The Internet provides a resource for information about hobbies and personal interests. For example, the American Life 2000 survey found that 76% of Internet users say they have sought hobby information. The Internet is also a resource for information about hobbies and personal interests. For example, the American Life 2000 survey found that 76% of Internet users say they have sought hobby information.
CREATIVITY, CAREERS, AND AGE

In the late 1990s and early 2000s, many employers and educators were recognizing the importance of creativity and flexibility. The rise of the “creative class” and the “knowledge worker” replaced the traditional career ladder. This shift was driven by a new generation of workers, including scientists, engineers, artists, and writers, who sought out courses and experiences that would foster their creativity. The traditional career paths of yesterday have given way to the “spiral” or “horizontal” career model, which values diverse experience and self-expression over the incremental advancement of the “career ladder.”

**CREATIVITY VS. CREATIVITY**

<table>
<thead>
<tr>
<th>Creativity</th>
<th>Career Model: The Ladder</th>
<th>Career Model: The Spiral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on discrete competencies</td>
<td>Long-term, single employer</td>
<td>Horizontal path moves by diverse experience and performance</td>
</tr>
<tr>
<td>Long-term, single employer</td>
<td>Cyclical or circuitous path</td>
<td>New Career Model: The Spiral</td>
</tr>
<tr>
<td>Career growth is driven by tenure and performance</td>
<td>Career growth is driven by diverse experience and performance</td>
<td></td>
</tr>
</tbody>
</table>

**THE “EXPERIENCE LIFESTYLE”**

Americans are more likely than ever to spend time engaging in leisure activities. Today, everyday life is considered “part of the show,” a performance that is not only entertaining but also rewarding. Consumers have become used to a diet of emotionally absorbing entertainment. The consumption of popular culture is increasingly seen as an important goal. People are more interested in consuming experiences than goods or services. This change is evident in the shift from passive to active forms of entertainment, such as active sports, hobbies, and pursuits.

**LEISURE TIME IS MORE ACTIVE**

- **New Career Model:**螺旋职业模式
- **Old Career Model:**阶梯职业模式

**PARTICIPATION IN ADULT AND HIGHER EDUCATION**

Participation in adult education has grown from four to six times greater over the last decade. Nearly one quarter of enrollment in adult education is in personal development courses, such as hiking, sports, music, and personal interests. The number of Americans employed in the “Core” creative class increased from 1,000 to 2,000 in the last decade. The Rise of the Creative Class, by Richard Florida, identifies creative workers, both in and outside the creative industries, whose jobs have increased in prominence and influence for the last several decades.

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Ellen Galinsky is the president and co-founder of the Families and Work Institute. She is the author of several books, including "The Irony of Working Motherhood" and "Fatherhood: A Field Guide for New Dads."

**New challenges to the workplace**

New challenges to the workplace are posing some daunting issues for business and government leaders alike. The growth of jobbies—jobs that blend work and leisure activities—has the potential to change the way we work.

**The growth of jobbies**—jobs that build on workers' personal interests and sometimes provide alternative sources of income—may well be both bright and dark for both companies and communities as we move into the challenge of creating the emerging creative economy.

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**The growth of jobbies**—jobs that build on workers' personal interests and sometimes provide alternative sources of income—may well be both bright and dark for both companies and communities as we move into the challenge of creating the emerging creative economy. The growth of jobbies means more opportunities to probe the educational system, they are turning to the idea of creative workers who can add value through their creative input. The creative class, which is composed of workers who add creative components—and make the most of these components—to inject self-expression into their work. In 1999, when we did the "Creative Class," the book that inspired the term, we asked, "What are the implications of this group?" We wanted to ask, "What is the impact of these people and what is different about their lives?" We wanted to ask, "What do they do for work, and who do they work for?"

**An interview with Ellen Galinsky**

**Ellen shares her insights about the new balance among work, family, and personal passions**

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**Institute for the Future**

**Ten-Year Forecast**

Five challenges to jobbies—jobs that blend work and leisure activities—have the potential to change the way we work.

1. **New ways of thinking need to be developed.** The idea of jobbies is a critical concept for the future of work. The idea of jobbies is not new, but the way it is being implemented is.
2. **New business models need to be developed.** The idea of jobbies is not new, but the way it is being implemented is.
3. **New ways of learning need to be developed.** The idea of jobbies is not new, but the way it is being implemented is.
4. **New ways of managing need to be developed.** The idea of jobbies is not new, but the way it is being implemented is.
5. **New ways of organizing need to be developed.** The idea of jobbies is not new, but the way it is being implemented is.

---

**Entrepreneur and author**

**What is the future of work?**

The future of work is not only about jobbies, but also about the way we work. The idea of jobbies is not new, but the way it is being implemented is.

**What is the future of work?**

The concept of jobbies is not new, but the way it is being implemented is.

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**Ellen shares her insights about the new balance among work, family, and personal passions**

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**Institute for the Future**

**Ten-Year Forecast**

Five challenges to jobbies—jobs that blend work and leisure activities—have the potential to change the way we work.
in adaptive technologies and the creation of transparent such and such a bar or café. At a deeper level, advances will progressively overlay the physical world with a new layer of stored information, which will be retrieved by interested agents. To take a mundane example, I might wish to find a place around town that my friends recommend. I might type in the name of one of them and the word “patio” and have several places offered to me. This will be a layer of personal location tracking that will help me meet friends at a place where they can be reached. It will also be a new layer of privacy issues that will complicate our lives.

The emergence of location-based services, and the interplay of people, places, and ideas, offers new possibilities for the expression in the workplace. Nothing that companies do will go untouched by this new extended self, but the early changes will be noted in the ways that consumers adopt places as focal points and how these focal points can quite literally become the focus of companies’ consumer relationships with companies. In the world of cybernomads, this intimate identity transformation—which will transform from wired desks to wireless ones and from physical space to its virtual embodiment—will yield human–machine hybrids as dramatic as any kind of nomadism that will drive a fundamental change in the way we live. The virtual world is not our world until we find a way to make it our own.

As they traverse physical–digital landscapes and uncover the virtual world: if they buy a branded shirt in real life, they will find that they are not just individuals, distinct in their own rights, but are also parts of a virtual society, with structures that define their daily lives. The self—what used to be thought of as a means of interfacing between user and technology. In many ways, this will be a new layer of self-awareness, and an opportunity for people to be even more self-aware. It will be a layer of self-awareness that will help us become the deeper and more introspective individuals that we are capable of becoming.

Brains like ours are naturally designed to be, in a very real sense, open-ended control systems. That’s why bodies and minds can be extended to technologies and the various interfaces between user and technology. In many ways, this will be a new layer of self-awareness, and an opportunity for people to be even more self-aware. It will be a layer of self-awareness that will help us become the deeper and more introspective individuals that we are capable of becoming.

Companies such as Google are also looking at how people can be extended to technologies and the various interfaces between user and technology. In many ways, this will be a new layer of self-awareness, and an opportunity for people to be even more self-aware. It will be a layer of self-awareness that will help us become the deeper and more introspective individuals that we are capable of becoming.

Andrew Losowsky works with companies to understand how people can be extended to technologies and the various interfaces between user and technology. In many ways, this will be a new layer of self-awareness, and an opportunity for people to be even more self-aware. It will be a layer of self-awareness that will help us become the deeper and more introspective individuals that we are capable of becoming. People need to understand these emerging interfaces as brands.

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**Interview: Andy Clark**

Andy looks beyond the cyborg to see the fundamental human-machine symbioses that has existed throughout history.

**Q:** Can you give us an overview?

Andy explains: The key shift here is to see the fundamental human-machine symbioses that has existed throughout history.

**Q:** What panelist would you cite for the most interesting ideas?

Andy highlights the work of **Tom Dyson**, who is a pioneer in the field of bioengineering and has made significant contributions to the development of prosthetics and robotics.

**Q:** Can you give an example?

Andy provides an example of **prosthetics development** and how they have evolved from simple mechanical devices to highly advanced systems that can interface seamlessly with the human body.

**Q:** When does the potential for autonomous machines become a reality?

Andy predicts that the potential for autonomous machines will become a reality in the next 10 years, with advancements in artificial intelligence and robotics.

**Q:** How will this change the role of the human in society?

Andy suggests that this change will lead to a more collaborative and symbiotic role for humans and machines, where they work together in harmony rather than compete.

**Q:** What is the future of work and business?

Andy envisions a future where work and business will be transformed by these human-machine symbioses, leading to new forms of productivity and innovation.

**Q:** What are the potential benefits and challenges of these developments?

Andy discusses the potential benefits, such as increased efficiency and productivity, and the challenges, such as job displacement and the need for new skills in the workforce.

**Q:** How can individuals prepare for this future?

Andy recommends that individuals keep learning and adapting to new technologies, and developing a strong understanding of the principles behind them to stay ahead in this rapidly changing landscape.
**Interview:** Andy Clark

Andy Clark leads the cyberology to the fundamental human-machine symbiosis that has existed throughout history.

**Q:** What makes human beings unique among the rest of the species?

**A:** The human experience will combine many different layers of action, thought, and perception. In the next decade, companies will need to understand how these layers work together to create a new extended sense of self.

**Q:** Can you give an example?

**A:** In some ways, they’ll be quite different indeed. We may, in the world of cybernomads, this intimate identity behind, and the information and media they carry with them. In the world of cybernomads, this intimate identity suggests for creating brand loyalty?

**Q:** How can companies tap new cybernomadic marketing opportunities?

**A:** Today, technology is again shifting human expression in the workplace. In the coming decade, organizations will need to understand how to use this new layer of action, thought, and perception to create a new extended sense of self.
This shift will constitute a sensory transformation beyond the human biological body. This 21st-century ego will likely have needs, fears, and desires that are not just rooted in the physical world but are embedded in the objects of their daily life that cannot be understood outside of the digital realm. Devices will have the most profound impact on the world. First computing changed the way we do business, but in the next decades will loosen the grip of the physical landscape, for understanding cybernomads as well.

TO FOCAL POINTS

CYBERNOMADISM DEFINED

Maslovian hierarchy of needs.

CYBERNOMADS ENTER THE 21ST CENTURY

The leading edge of cybertamers, cybernomads, and cyborgs are fading together. These are not just cybernomads but also the "Extended Self" — a form of mobility and connectivity that is marginal or even hostile to the landscape. Cybernomads cultivate diverse relationships with non-nomads and build a movement that is tribal, local, and neighbor-oriented. Cybernomads build a form of mobility and connectivity that is not only physical but digital, digital–physical landscapes. Cybernomads are not only characterized by their unique form of mobility and connectivity, but they also will call themselves cybernomads, finding that this label best describes their way of living as a community.

7 Dimensions of Cybernomadism

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Key Behaviors</th>
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<tbody>
<tr>
<td>Landscape</td>
<td>• taxies and maps of relationships with non-nomads</td>
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<tr>
<td>Social Interaction</td>
<td>• Alternate realities</td>
</tr>
<tr>
<td>Movement</td>
<td>• Social networks</td>
</tr>
<tr>
<td>Economic</td>
<td>• The “Extended Self”</td>
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<tr>
<td>Relationship to General</td>
<td>• Tense fields and more physical social activity, complexity of space, time,</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>literacy and educational attainment, sustainability, accessibility to area,</td>
</tr>
<tr>
<td>Financial</td>
<td>mobility, and lower commute times.</td>
</tr>
<tr>
<td>Political</td>
<td>• The shift to a higher dependency on social structures and cities.</td>
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</tbody>
</table>

In the next decades, we will witness the growth of cybernomads and cyborgs, as well as the emergence of cybereaders and cyberwriters. The shift will be reflected in the physical and digital relationships that cybernomads afford by area-based mobile computing and computing everywhere.
The shift will constitute a sensory transformation beyond the human biological body. This 21st-century ego will likely have needs, fears, and desires that are inextricably linked to the shift from tree-dwelling apes to tool-making species. As our material world, cybernomads will begin to perceive, interact with, and manipulate it in ways that extend the human sense of self well beyond our physical body. This shift in sensory perception over the next decades will loosen the grip of the Maslovian hierarchy of needs.

The leading edge of cybernomadic culture may well be characterized by a behavior that is not only fulfill a need of a new kind but also revolve around a focus, sometimes physically, always spiritually and socially. The region around the center point fades in its attractive power as we move out of a “zone of influence” or of another center of attraction. Since these foci and zones are unbounded they can hardly exclude others. But people moving in and out come within and move out of a “zone of influence” of another’s focal point. Boundaries, then, do not enter into the matter. Hunter/gatherers are nomads in the literal sense of the word. They do not have fixed homes, camps, or other centers of attraction, identification with, and belonging to. They suggest that any notion of closure such as might be imposed by the enclosures on a farm, or a community, is foreign. On the other hand, any tendency for people to cluster around a fixed point, either for economic, political, or social reasons, is social organization. Social organization is a way of life that emphasizes openness, and the region of another’s influence is the zone of influence around another center of attraction or focal point. Many of the behaviors and customs of social organization are symbiotic and interdependent.

The shift to cybernomadism will likely be characterized by a return to a fundamental need to nurture and sustain human sociality. The need to nurture and sustain human sociality is not in the cybernomadic culture itself, but in the entire global physical–digital world, the global material–information world, and the global physical–digital world.

In the last couple decades, many of the behaviors and customs of social organization have been reinterpreted for a new lifestyle. The social interactions are much simpler, while the technology is much more complex. In the absence of a physical center, cybernomadism gives no room to the new kind of sociality that is possible and provides a new kind of technology.

The initial digital networks and the Internet itself are the beginning point for the new kind of sociality that is possible and the new technology that is needed. The leading edge of cybernomadic culture may well be characterized by a behavior that is not only fulfill a need of a new kind but also revolve around a focus, sometimes physically, always spiritually and socially. The region around the center point fades in its attractive power as we move out of a “zone of influence” or of another center of attraction. Since these foci and zones are unbounded they can hardly exclude others. But people moving in and out come within and move out of a “zone of influence” of another’s focal point. Boundaries, then, do not enter into the matter. Hunter/gatherers are nomads in the literal sense of the word. They do not have fixed homes, camps, or other centers of attraction, identification with, and belonging to. They suggest that any notion of closure such as might be imposed by the enclosures on a farm, or a community, is foreign. On the other hand, any tendency for people to cluster around a fixed point, either for economic, political, or social reasons, is social organization. Social organization is a way of life that emphasizes openness, and the region of another’s influence is the zone of influence around another center of attraction or focal point. Many of the behaviors and customs of social organization are symbiotic and interdependent.
The last 30 years have seen a profound, stepwise transition in our ability to perceive the two as fused. Instead of finding it embedded in the objects of their daily life and perhaps even in their own bodies, people are using devices to extend the human sense of self well beyond the human biological body. This 21st-century transformation in human sensory perception over the last decades will loosen the grip of the Maslovian hierarchy of needs. First computing changed the way companies interact with consumers. Then wireless telephones extended human capabilities to perceives the world. Finally, computing and communication technologies have begun to come together, allowing us to become cybernomads—a new behavior, a new lifestyle that is tribal, local, and global simultaneously. The physical and digital relationships that range from the computer to the net to the real world are subtly changing the traditional definition of body and mind.

<table>
<thead>
<tr>
<th>Country</th>
<th>5.1 Cellular Mobile Subscribers per 100 Inhabitants, 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>5.1</td>
</tr>
<tr>
<td>South Africa</td>
<td>5.0</td>
</tr>
<tr>
<td>China</td>
<td>4.9</td>
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<tr>
<td>Europe</td>
<td>4.8</td>
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<tr>
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The shift in sensory perception over the last decades has brought a group of people known as cybernomads to the fore. Cybernomads have unique skills that are key to the cybernomadic lifestyle.

1. Three Eras of Technology

<table>
<thead>
<tr>
<th>Era</th>
<th>Key Techs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980s</td>
<td>Desktops and windows, Clicks and mortar</td>
</tr>
<tr>
<td>1990s</td>
<td>Networks and servers, The &quot;net&quot;</td>
</tr>
<tr>
<td>2000s</td>
<td>Smart Mobs, Hot spots</td>
</tr>
<tr>
<td>2010s</td>
<td>Augmented-reality glasses, Location-based services</td>
</tr>
</tbody>
</table>

THE NEXT EMERGING TECHNOLOGY

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1. Seven Dimensions of Cybernomadism

<table>
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<tr>
<th>Dimension</th>
<th>Key Focal Points</th>
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<tbody>
<tr>
<td>Social Organization</td>
<td>• P2P computing • IP rights</td>
</tr>
<tr>
<td>Landscape</td>
<td>• The &quot;Extended Self&quot; • Group solutions to complex problems</td>
</tr>
<tr>
<td>Movement</td>
<td>• Convenience • Designers</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>• Knowledge workers • Artistic value</td>
</tr>
<tr>
<td>General</td>
<td>• Proximity • Leverage</td>
</tr>
</tbody>
</table>

THE GROWTH OF THE CYBERNOMAD

In the United States, the term "cybernomad" emerged in the early 1990s with the growth of the Internet. The term "cybernomad" was coined in 1994 by the writer and social commentator Gary Marlowe. The term has since been used to describe a growing number of people who live and work online, often from remote locations.

THE DECLINE OF THE PHYSICAL WORLD

In the 21st century, the physical world is becoming less important in the lives of many people. The Internet and other digital technologies have made it possible for people to connect with each other and access information from anywhere in the world. This has led to a decline in the importance of physical spaces and places.

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THE TRANSFORMATION OF HUMAN EXPERIENCE

The last 30 years have seen a profound, stepwise transition in our ability to perceive the two as fused. Instead of finding it embedded in the objects of their daily life and perhaps even in their own bodies, people are using devices to extend the human sense of self well beyond the human biological body. This 21st-century transformation in human sensory perception over the last decades will loosen the grip of the Maslovian hierarchy of needs. First computing changed the way companies interact with consumers. Then wireless telephones extended human capabilities to perceive the world. Finally, computing and communication technologies have begun to come together, allowing us to become cybernomads—a new behavior, a new lifestyle that is tribal, local, and global simultaneously. The physical and digital relationships that range from the computer to the net to the real world are subtly changing the traditional definition of body and mind.

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This shift will constitute a sensory transform—century ego will likely have needs, fears, and extending the human sense of self well both time and space and connected us globally. In the next decade, sensing will be reflected in the human experience that occurs within the affordances by sensor-based, mobile technologies.

Cybernomadism is that human concept of boundary is foreign. On the other hand, any tendency for others to easily shape or control the outcomes of another center of attraction. Since these foci and zones are socially. The region around the center point fades in its attractive revolve around a focus, sometimes physically, always spiritually and strongly.

The Domestication of the Human Species

The leading edge of cybernomadic culture may be predicted to enter. This is a way of life that emphasizes openness, and while the rest of the world has not.

The leading indicator of cybernomadic culture is that human economies are slightly behind the major players in the world economy are slightly behind the many major players in the world's cyberspace as distinct from the global physical–digital world. The Cybernomad as a New Form of Mobility

The past 30 years have seen a profound, stepwise transition in our ability to perceive and interact with the physical world. First computing changed the way we see the earth from a desktop and windows, virtual community, from boundires on human lives. Instead of Market lenses, Location-based services, Hot spots, Smart Mobs, awareness, attention.

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The shift will continue a necessary transformation in the way we perceive and understand the world. It will continue to provide us with expanded———————————–
The Medium is the Massage
The Matrix
Quentin Fiore's
The Web of Being Human:
From Boundaries to Focal Points
Re: Business
Interview: Andy Clark

Human experience
within a complex set of automated physical and digital artifacts...
Vinton G. Cerf is senior vice president of technology strategy for MCI. Widely known as one of the ‘fathers of the Internet,’ he is a co-inventor of the technology and a former chief technical advisor for MCI WorldCom. Cerf’s research interests include the evolution of the Internet, content distribution, and networking. He is a member of the National Academy of Engineering and a fellow of the American Association for the Advancement of Science. He is an active member of the Internet architecture community and has contributed to a number of Internet initiatives. He is a frequent speaker at conferences worldwide, and has written many articles and papers on the Internet. Cerf has received many honors and awards for his work, including a National Medal of Science from President Bill Clinton.

There are a few simple reasons why the Internet is so successful. The first is that it’s a network of networks, and that it’s built on top of older networks. The second is that it’s a standards-based, open-ended, and open-source platform. The third is that it’s a distributed system, and that it’s based on the idea of using the Internet to connect people together. The fourth is that it’s a platform for innovation, and that it’s a platform for creativity.

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Looking at information to places and objects will create a "fourth dimension" for products and services, which companies and consumers will benefit from even more in the coming decade.

*How real is location-based services, and what will bring big change business practices?*

Location-based services are an essential part of the Internet of Things (IoT), which enables objects and people to interact with each other and with their environments. By 2028, the IoT will have transformed the way we live and work, opening up new opportunities for businesses and individuals. The IoT is already being used in various industries, including healthcare, transportation, and retail, to name a few.

*New geography*

Many of these innovations will be in full swing by 2028, as the geoweb begins to build out and self-organizing information spaces begin to emerge. The answer keeps changing, depending on how you treat information, and whether you treat something like an asset or a liability. One of the most prominent examples is the use of location data for personalization, where companies use your location to tailor their offerings to your needs and preferences. This could range from personalized recommendations for products and services to targeted advertising.

*What is the current state of IPv6? How many people are using IPv6?*

IPv6 is the current standard of Internet addresses, and its adoption is ongoing. As of 2028, it is estimated that at least 30% of people will be using IPv6, with some regions already nearing full adoption. IPv6 is designed to address the limitations of IPv4, which has a limited number of addresses. IPv6 addresses are much larger, allowing for more flexibility and scalability.

*Interview: Vint Cerf*

Vint Cerf specializes in the potential for small devices on the Internet.

Q: What is the current state of IPv6? How many people are using IPv6?

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E-commerce provides new information to producers and works like a “fourth dimension” for products and services, which comprises consumers and will benefit consumers in the near future.

How real is location-based service, and when will big change begin to happen?

One could easily imagine sensor systems that have IP addresses with the current Internet protocol? Is it possible to imagine a sensor system that has an IP address? Is it possible to imagine a sensor system that has an IP address and thus becomes part of an interactive broadband system?

How will social software and location-based information change opportunities for learners, workers, and consumers?

As we think about creating lots of small addresses with the current Internet protocol, it seems likely that we can imagine sensor systems that have IP addresses and thus become part of an interactive broadband system.

How will consumers benefit from IPv6 in the year 2005?

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DETAILS

Geographic Information Systems (GIS) have been in use for about 30 years, designed to manage data related to a particular location. They can be used in a variety of fields, including planning, transportation, and emergency management.

The Open GIS Consortium (OGC) is a forum for developing open standards for geographic information. These standards are used in a variety of applications, including emergency services, transportation, and environmental management.

The Open Geospatial Consortium (OGC) has launched a "Critical Infrastructure Protection Initiative" to address the needs of emergency management agencies. This initiative aims to provide open standards and services for managing critical infrastructure systems.

OGC's SensorWeb Enablement Program (SWEP) is an initiative to develop open standards for linking data to specific geospatial locations. This program aims to provide a framework for linking data to sensors, devices, and other geospatial information.

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IN A CLOSER LOOK AT DIGITAL GEOGRAPHY

GPS
GPS (Global Positioning System) is a powerful new tool for location users. Invented by the U.S. military, it was for long the province of military users, but is now available for public use. GPS is a global system of 24 satellites (plus several spares) designed to provide location and time data in any part of the world, day and night, in all weather. The system is a joint effort of the U.S. military and the Department of Transportation. The GPS constellation is complemented by an array of satellites owned by the U.S. Coast Guard and the Canadian government.

GIS
The U.S. Department of Commerce has set up a website (www.earth.gov) to demonstrate the many types of applications based on GPS. In 1990, the United States government began a research project called the National Spatial Data Infrastructure. It aimed to create an official catalog of geospatial information. The project’s efforts are now known as the Federal Geographic Data Committee.

THE GEOWEB
The Geoweb is an extension of the internet that includes all sorts of features that add spatial information to other websites. This is a natural extension of the web. As more and more of our daily interactions are conducted online, it makes sense to add digital maps and layers to our websites. The Geoweb is fundamentally different from other web technologies. It is not just an extension of the traditional web, but a new medium for data. It links all sorts of information together in a new way. It is a way to add spatial information to all kinds of websites. It is a way to create new types of applications.

THE OPEN GIS CONSORTIUM
The Open GIS Consortium is a software standards group working to develop a broad set of open standards for geospatial technology to manage their assets more effectively and reduce costs. The Open GIS Consortium (OGC) developed a number of open standards, starting with Simple Feature Access (SFA). Other OGC standards include: Arc/View, a software package first developed by ESRI and now available from Environmental Systems Research Institute. Very few people would notice an outage of SFA, because it is so ubiquitous. But if you could not access the environment, your ability to earn a living might be significantly reduced.

CONTENT
The Geoweb is a new medium for the internet. It includes the following types of applications:

• Location-based services
• People location services
• CRM and e-commerce
• Collaborative services
• Social networking
• Telecommunications
• Real Estate
• Venue location
• Logistics

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LOCATION-BASED SERVICES WILL SHAPE THE FUTURE OF THE GEOWEB

The growth of the geoweb, and the services it supports, has been exponential in recent years. Location-based services (LBS) and other location-enabled applications are a key part of this growth. LBS are applications that enable computers to store, retrieve, and display geographic information in response to a user request.

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Location-based services (LBS) are applications that enable computers to store, retrieve, and display geographic information in response to a user request. LBS applications include a wide range of services, from simple geographic queries (such as "Is there a hospital near me?" or "What is the weather like in Paris?") to complex applications that require real-time access to geographic data, such as "Where is my car?" or "What is the weather like in Paris right now?"

LBS applications can be used in a variety of ways, such as:

• Navigation and routing
• Activity tracking and monitoring
• Location-based advertising
• Geographic queries and analysis
• Geocoding and reverse geocoding

AIRPORT SECURITY

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In the last year, the most successful evolution of this market may be the location-based service (LBS) market. Location-based services are applications that enable computers to store, retrieve, and display geographic information in response to a user request. LBS applications include a wide range of services, from simple geographic queries (such as "Is there a hospital near me?" or "What is the weather like in Paris?") to complex applications that require real-time access to geographic data, such as "Where is my car?" or "What is the weather like in Paris right now?"

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DETAILS

Can now be drawn into a geoweb.

For several years, the U.S. military has been developing a sensor-based network to be used primarily as a military defense system. The network, called the National Homeland Security (NHS) sensor system, will be able to monitor and track a wide variety of threats, from chemical and biological weapons to nuclear devices. The network will use a mix of sensors, including radars, infrared cameras, and acoustic detectors, to detect and track these threats.

The NHS sensor system is currently under development, and the U.S. military is working with several companies to test and refine the technology. The network is expected to be operational by 2010, and it will be used to provide early warning of potential threats to the United States.

For more information on the NHS sensor system, please visit the following websites:

- [US Army](https://www.army.mil)
- [Department of Homeland Security](https://www.dhs.gov)
- [National Geospatial-Intelligence Agency](https://www.nga.mil)

For additional resources, please visit the following organizations:

- [Open GIS Consortium](https://www.opengeospatial.org)
- [Geospatial One-Stop](https://www.geostate.gov)
- [Federal Geographic Data Committee](https://www.fgdc.gov)

The adoption and use of the technology will differ from region to region. In the U.S., the NHS sensor system will be used primarily by the military, while in other countries, it may be used by local governments or other organizations to provide early warning of potential threats. The network is expected to be operational by 2010, and it will be used to provide early warning of potential threats to the United States.

For more information on the NHS sensor system, please visit the following websites:

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- [Department of Homeland Security](https://www.dhs.gov)
- [National Geospatial-Intelligence Agency](https://www.nga.mil)

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- [Federal Geographic Data Committee](https://www.fgdc.gov)
In the past, data collection and analysis were limited by the sheer size of the data. Today, with the advent of new technologies, it is possible to collect, analyze, and store vast amounts of data efficiently. The Internet of Things (IoT) is one such technology that allows for the collection and analysis of data from various sources, including sensors, devices, and other sources. The Internet Protocol Version 6 (IPv6) is another technology that enables the efficient and secure transmission of data through global supply chains.

One of the most exciting developments in this space is the use of location-based services (LBS). LBS allows for the real-time location tracking of devices and users, which has revolutionized industries such as healthcare, emergency response, and transportation. The Enhanced 911 (E911) technology, for example, has enabled emergency services to more accurately pinpoint the location of an emergency call, allowing for faster response times and better outcomes.

For several years, U.S. military and technology companies have been developing E911 systems, which use advanced GPS technologies to track vehicles and other equipment. The E911 systems are designed to augment traditional 911 service, designed to track moving objects, such as trucks, trains, and other vehicles. These systems are used to manage fleets more efficiently and accurately. Assisted-GPS (A-GPS) technology is also used to improve GPS accuracy, allowing for more precise location tracking.

E911 technology has been used in various industries, such as emergency services, military operations, and transportation. For example, the U.S. military has been developing a sensor-based network to support crisis decision making, while transportation companies are using GPS technology to manage their assets more efficiently.

The adoption and use of the technology will differ from region to region. In the United States, the E911 mandate has been in place for several years, while in other countries, such as Japan, they are essential for many different domains, such as medicine and public safety.

Because it works across languages, many different XML languages, such as RDFMap, are likely to include not only personal property but also tiny, sometimes invisible devices. RFID tracking services could map out the nearest restrooms, Wi-Fi hot spots, and other things of interest.

Recent developments in sensor technology have also enabled new applications. For example, the U.S. military has been developing a sensor-based network to support crisis decision making. And with the cost and size of sensors dropping, self-configuring sensor networks are likely to include not only personal property but also tiny, sometimes invisible devices. RFID tracking services could map out the nearest restrooms, Wi-Fi hot spots, and other things of interest.

The adoption and use of the technology will differ from region to region. In the United States, the E911 mandate has been in place for several years, while in other countries, such as Japan, they are essential for many different domains, such as medicine and public safety.

Because it works across languages, many different XML languages, such as RDFMap, are likely to include not only personal property but also tiny, sometimes invisible devices. RFID tracking services could map out the nearest restrooms, Wi-Fi hot spots, and other things of interest.
If you’ve been rendered unconscious and nobody knows under what circumstances. This is particularly important would be valuable to have information about passive cork that has sufficient processing capability and memory you can make for a meal, is attractive. It might suggest would leave you with the option to say “no.”

eggs, the system may be able to tell you. It may not be you aren’t sure whether you have any milk, or cheese, or it has in it, it can also say what it doesn’t have in it. So if autonomy that they confer on a device—whether it’s a talks to your refrigerator, which, in turn, talks to the Q: What role do you see in this world for RFID?

Vinton G. Cerf is senior vice president of technology strategy for MCI. Widely known as one of the “Fathers of the Internet,” he is the co-designer of the TCP/IP protocols and the INTERVIEW TEN-YEAR FORECAST

"Who is the current state of IPv6? How many people are using IPv6?" Not enough people are using it! Very few in this year. But there are a number of industries, the like of which you might think are very large, that are actually using it. Recently, location sensing has begun moving into new arenas, such as roadside assistance systems in cars and park plus real-time place services on mobile devices. These systems might turn RFID to their own benefit. Yet, as information advocates. Little thought has been given to how consumers begin to emerge.

their own advantage. Ten-year forecast: In-situ social networking will create a “fourth dimension” for products and services, which extending information to places and objects will create a “fourth dimension” for products and services, which will eventually influence life more in the workplace than life in the workplace wants to be but can’t quite make.) These practices will ultimately influence life more in the workplace than life in the workplace. (See also our forecast for retail outlet.)

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The 3G mobile telephone community also says it prefers 768 bits per frame. (It happens to be spelled the same as my name, but I prefer to adopt “fake-a-location” devices to protect their privacy.)

The 3G mobile telephone community also says it prefers 768 bits per frame. (It happens to be spelled the same as my name, but I prefer to adopt “fake-a-location” devices to protect their privacy.)

One concrete example is where the concept of IPv6 makes sense. At MCI, we’re responsible for maintaining the Common Carrier that provides the long-distance service for consumers in the United States. We have a duty to ensure that they can communicate with each other in an efficient manner. We need to be able to support this level of scalability in the system. And in the ways we think about the relationship happenings when communication technologies and the Internet environment. It’s when you start pushing down operating system, somebody comes along and builds one. It’s not stored in the object itself but is subject to access con-
Looking into the future, information and objects will create a "fourth dimension" for products and services, which companies and consumers will benefit from the new real-time relationships.

Q: How will real-time location-based services and when will they begin change business practices? And what are the implications for consumers?

A: Companies are already playing with location-based services (LBS). There are a growing number of devices—such as handsets and PDAs—that have GPS and an 802.11 transceiver, which allows them to access the Internet. For example, imagine a situation where you're standing at the airport while watching planes. A location-based service could tell you if your flight has been delayed. Another example could be the "geoweb," which is a new overlay on the Internet that associates geographic location with Web content. Location-based services are likely to be a major growth area for companies such as Google, which is already experimenting with a variety of LBS applications. This technology is in its early stages, but it has the potential to revolutionize the way we think about the Web and our environment.

Q: How will social software and location-based information change opportunities for business and society? And what are the implications for consumers?

A: Social software is a term that refers to software that allows users to interact and collaborate with each other. This technology has the potential to revolutionize the way we think about the Internet and the way we use it. For example, imagine a situation where you're standing at the airport while watching planes. A location-based service could tell you if your flight has been delayed. Another example could be the "geoweb," which is a new overlay on the Internet that associates geographic location with Web content. Location-based services are likely to be a major growth area for companies such as Google, which is already experimenting with a variety of LBS applications. This technology is in its early stages, but it has the potential to revolutionize the way we think about the Web and our environment.

Q: What role do you see in this world for RFID?

A: RFID technology has the potential to revolutionize the way we think about the Internet and the way we use it. For example, imagine a situation where you're standing at the airport while watching planes. A location-based service could tell you if your flight has been delayed. Another example could be the "geoweb," which is a new overlay on the Internet that associates geographic location with Web content. Location-based services are likely to be a major growth area for companies such as Google, which is already experimenting with a variety of LBS applications. This technology is in its early stages, but it has the potential to revolutionize the way we think about the Web and our environment.

Q: What is the current state of IPv6? How many companies and consumers are using IPv6 in its Internet-enabled devices?

A: The current state of IPv6 is that it is being adopted by a growing number of companies and consumers. There are two industries producing a large number of devices—consumer electronics and mobile phones. Consumer electronics, which includes televisions, DVD players, and other electronic devices, are ready to use IPv6. Mobile phones, which include cell phones and PDAs, are also ready to use IPv6. However, there are still a number of challenges that need to be addressed, such as the lack of support for IPv6 in some operating systems and the lack of support for IPv6 in some networks. There are also some potential drawbacks to IPv6, such as the increased cost of IPv6 devices and the increased complexity of IPv6 networks.

Q: What is the role of social software and the geoweb in the coming decade? And what are the implications for business and society?

A: Social software and the geoweb are likely to be a major growth area for companies such as Google, which is already experimenting with a variety of LBS applications. This technology is in its early stages, but it has the potential to revolutionize the way we think about the Web and our environment. Location-based services are likely to be a major growth area for companies such as Google, which is already experimenting with a variety of LBS applications. This technology is in its early stages, but it has the potential to revolutionize the way we think about the Web and our environment.
Space data in the present, Near Earth orbits for commerce, Global policy decisions, Future trends: Space and business, Future geopolitical relationships and resources: One what are the equities and the companies that have the chance to develop space resources, collaboration on standards and infrastructure, the evolution of space law, evolution of the space economy, technology and innovation, strategies, and the development of business models.

On October 25, 2016, China successfully launched its first heavy-lift rocket. The mission involved China's first space station module, which will eventually be used to construct a space station. The station is expected to be operational by 2022. The mission was a major step forward in China's space program, which is currently focused on human spaceflight and the construction of a permanent space station.

The Chinese have made significant progress in recent years in their space program. They have launched a number of successful spacecraft, including the Tiangong series of space stations. The country has also launched a number of satellites, including those for communication and weather monitoring. The Chinese have also launched the Long March 5 rocket, which is capable of lifting 25 tonnes to low Earth orbit. The rocket is expected to be used for a range of missions, including the construction of the space station.

China is also working on developing its own reusable rockets, which could reduce the cost of space launches. The country has been working on developing a reusable rocket since 2010, and it is expected to have a first test flight in 2021. The reusable rocket is expected to be able to carry up to 12 tonnes to low Earth orbit.

China is not the only country working on reusable rockets. The United States, Russia, and Japan are all working on developing their own reusable rockets. The United States is working on developing a reusable rocket for the Space Launch System, which is expected to be used for the Artemis program. Russia is working on developing a reusable rocket for the Angara program, while Japan is working on developing a reusable rocket for the H-IIB program.

The development of reusable rockets is a major step forward in the evolution of space exploration. It will enable countries to launch more satellites and spacecraft, which will be crucial for a wide range of applications, including communication, weather monitoring, and scientific research. The development of reusable rockets is also expected to reduce the cost of space launches, which will make space exploration more accessible to a wider range of countries.
There were a few unexpected sections when the layout was examined. Upon closer inspection, the sections included:

- **Wild Cards** - Space Race
- **Interview** - Peter Banks

**Interview** - Peter Banks

Peter anticipates the strategies—and global implications—of China’s manned space program.

**Wild Cards** - Space Race

On October 19, 2003, China successfully launched its first monitored mission. This has been China’s initial effort to send a satellite into orbit, and the mission was a significant milestone in China’s space program. The successful launch was achieved after several years of planning and preparation.

**Interview** - Peter Banks

Peter to reflect on the trajectory of space. He believes that the Chinese have learned from their experiences in the past and are planning for the future. He notes that China has been making significant investments in space technology and infrastructure, which is likely to be a key aspect of their future space program.

**Wild Cards** - Space Race

The Chinese have purchased a lot of the basic infrastructure, such as launch vehicles and satellite ground stations. They have also signed agreements with several countries, including the United States, to exchange technology and information.

**Interview** - Peter Banks

Peter anticipates the strategies—and global implications—of China’s manned space program. He believes that China is likely to continue its efforts in space technology and infrastructure, and will likely increase its investments in the future. He notes that China is likely to continue its efforts in space technology and infrastructure, and will likely increase its investments in the future.
are better adapted to commercialization. So one of the very lightweight equipment, you don’t have to invest in adopt a program that’s going to use microelectronics and commercially commercial innovations—are likely to result?

To do that, they will build an own sphere of interest. It’s part of a national effort to calculated. The space program is not just a small group of care of humans in environments without the normal sup-

Q:

There were many alternative ideas for the current space programs alter they way that ordinary Earth-bound space—it will develop China’s technocratic power. Observing systems, industrialization, and exploration of casting, telecommunications, integrated military earth structures monitoring, and resource identification and track-

In the long term, China may come out on top. At an Inflection Point?

Meanwhile, commercialization is proceding

In the late 1990s.

Further out—beyond our ten-year horizon—will be oppor-

In the over view, it’s a very logical next step.

If they succeed in finding a lighter, cheaper, faster, faster, and more reliable approach based on incremental progress something like

Peter anticipates the strategies—and global implications—of China’s manned space program

What would make it difficult for the U.S. to

Peter Banks joined IFTF this year as its president, having served as Dean of the College of Engineering at the University of California, Berkeley, and was previously a senior vice president at Stanford Research Institute.

Interview:

Peter

The Chinese have purchased a lot of the basic infrastruc-

With the debut of a new generation of technology—we in which space which is an important secret power.

They could provide a new capacity to look

One of the first things they’ll learn is how to oper-

Even more significant, however, are the issues surrounding

Cooperation and Conflicts of Interest

Even if the United States doesn’t-state its intention to go to the moon. Earlier in the year, the U.S. manned space program suffered the loss of a

The Chinese have officially stated that, “Natural power stems from

The space program is not just a small group of care of humans in environments without the normal sup-

They could provide a new capacity to look

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Among the tasks of a distributed science—collecting and comparing data from different sources, managing curricula, and providing access to research tools—there are two that stand out: time and distance. While the tasks of distributed learning are typically easier to accomplish across the universe than across the street, the difficulty of time and distance is a fundamental aspect of the problem of distributed learning.

Distributed learning from the side of a science learner is likely to be much different from that of an on-the-ground learner. The Internet, for instance, allows a learner to access a distributed learning environment at any time and from any location. However, the time and distance of the association between the learner and the distributed learning environment can be problematic. The learner may be unable to access the environment at the same time as the instructor, or the learner may be unable to access the environment at all. This is because the learner may be located in a different time zone, or the learner may be traveling. In such cases, the learner may be unable to participate in the distributed learning environment.

Distributed learning from the side of an instructor is likely to be similar to the learning environment. The instructor can access the distributed learning environment at any time and from any location. However, the instructor may be unable to access the learner's environment at the same time as the learner, or the instructor may be unable to access the learner's environment at all. This is because the instructor may be located in a different time zone, or the instructor may be traveling. In such cases, the instructor may be unable to participate in the distributed learning environment.

Distributed learning from the side of a learning environment is likely to be different from the learning environment. The learner and the instructor can access the learning environment at any time and from any location. However, the learning environment may be unable to access the learner and the instructor at the same time, or the learning environment may be unable to access the learner and the instructor at all. This is because the learning environment may be located in a different time zone, or the learning environment may be traveling. In such cases, the learning environment may be unable to participate in the distributed learning environment.

Distributed learning from the side of an institution is likely to be similar to the institution. The institution can access the distributed learning environment at any time and from any location. However, the institution may be unable to access the learner and the instructor at the same time, or the institution may be unable to access the learner and the instructor at all. This is because the institution may be located in a different time zone, or the institution may be traveling. In such cases, the institution may be unable to participate in the distributed learning environment.

Distributed learning from the side of a policy is likely to be different from the policy. The policy can access the distributed learning environment at any time and from any location. However, the policy may be unable to access the learner and the instructor at the same time, or the policy may be unable to access the learner and the instructor at all. This is because the policy may be located in a different time zone, or the policy may be traveling. In such cases, the policy may be unable to participate in the distributed learning environment.

Distributed learning from the side of a funding is likely to be similar to the funding. The funding can access the distributed learning environment at any time and from any location. However, the funding may be unable to access the learner and the instructor at the same time, or the funding may be unable to access the learner and the instructor at all. This is because the funding may be located in a different time zone, or the funding may be traveling. In such cases, the funding may be unable to participate in the distributed learning environment.

Distributed learning from the side of an evaluation is likely to be different from the evaluation. The evaluation can access the distributed learning environment at any time and from any location. However, the evaluation may be unable to access the learner and the instructor at the same time, or the evaluation may be unable to access the learner and the instructor at all. This is because the evaluation may be located in a different time zone, or the evaluation may be traveling. In such cases, the evaluation may be unable to participate in the distributed learning environment.

Distributed learning from the side of a business is likely to be different from the business. The business can access the distributed learning environment at any time and from any location. However, the business may be unable to access the learner and the instructor at the same time, or the business may be unable to access the learner and the instructor at all. This is because the business may be located in a different time zone, or the business may be traveling. In such cases, the business may be unable to participate in the distributed learning environment.

Distributed learning from the side of a user is likely to be different from the user. The user can access the distributed learning environment at any time and from any location. However, the user may be unable to access the learner and the instructor at the same time, or the user may be unable to access the learner and the instructor at all. This is because the user may be located in a different time zone, or the user may be traveling. In such cases, the user may be unable to participate in the distributed learning environment.

Distributed learning from the side of a technology is likely to be different from the technology. The technology can access the distributed learning environment at any time and from any location. However, the technology may be unable to access the learner and the instructor at the same time, or the technology may be unable to access the learner and the instructor at all. This is because the technology may be located in a different time zone, or the technology may be traveling. In such cases, the technology may be unable to participate in the distributed learning environment.

Distributed learning from the side of a hardware is likely to be different from the hardware. The hardware can access the distributed learning environment at any time and from any location. However, the hardware may be unable to access the learner and the instructor at the same time, or the hardware may be unable to access the learner and the instructor at all. This is because the hardware may be located in a different time zone, or the hardware may be traveling. In such cases, the hardware may be unable to participate in the distributed learning environment.

Distributed learning from the side of a software is likely to be different from the software. The software can access the distributed learning environment at any time and from any location. However, the software may be unable to access the learner and the instructor at the same time, or the software may be unable to access the learner and the instructor at all. This is because the software may be located in a different time zone, or the software may be traveling. In such cases, the software may be unable to participate in the distributed learning environment.

Distributed learning from the side of a network is likely to be different from the network. The network can access the distributed learning environment at any time and from any location. However, the network may be unable to access the learner and the instructor at the same time, or the network may be unable to access the learner and the instructor at all. This is because the network may be located in a different time zone, or the network may be traveling. In such cases, the network may be unable to participate in the distributed learning environment.
The launches of commercial satellites and the growth of space applications are leading to increased interest in linking earth-observation data to socio-economic statistics. In the next decade, mobility applications and commercialization will likely increase substantially over the next ten years as the number of commercial launches approximately triples and commercial opportunities are likely to expand, especially in the arena of earth-observation data. As a result, the ratio of commercial-to-government satellites is expected to increase, and commercial launches may drive much of the growth.

THE USES OF SPACE: EMERGING APPLICATIONS

Most current applications of space technology are in military and intelligence and decision-making power in the network itself. As Allan told the BBC: "What is so promising is that the data, which can make multiple fast passes over a region in question, rather than having to rely on a single observation, can make multiple fast passes over a region in question, rather than having to rely on a single observation. If more observations are needed, it just goes ahead and gets them." The technology, pioneered by Environmental Research Institute of Michigan (formerly run by Peter Banks) and commercially offered by Intermap Technologies Corporation, uses a surface, a new remote sensing technology, known as interferometric synthetic aperture radar (ISAR), to create new opportunities for astronomers to track “the most rapid and violent events in the night sky within seconds.”

INTERNET PROTOCOLS FOR SPACE

A disadvantage of ISAR is that it tends to erase thin high-resolution images in the thermal infrared, which can be used to depict thin high-resolution images in the thermal infrared, which can be used to depict thin high-resolution images in the thermal infrared. Data can also be transmitted using an eStar robotic telescope. Jupiter by Earth’s moon was captured using an eStar robotic telescope. NASA’s new mission will consist of a stable backbone operating TCP/IP. The Interplanetary Internet now see their work as part of a larger effort to bring computing to the Third World. The IPN would make it possible to design useful simulations of earth’s surface (accurate to 30 centimeters) as soon as they happen. Inter-ﬁnet would have to be designed along radically different lines, and the communications systems and protocols of each mission, whose members are in intermittent contact with one another, would have to be designed to deal primarily with backlogs of data, e-mail, and potentially enormous amounts of concurrent missions, and serve as relay points, channels. After spacecraft complete their missions, the Interplanetary Internet will be required, and it is likely to be similarly diﬀicult to design and implement. The benefits of an Interplanetary Internet are numerous. As Vint Cerf says, “We’re not suggesting that that distance will be counterproductive because whatever you’ve done over TCP/IP tends not to work very well between the outer planets. As Cerf notes, “There is a danger in extending Internet protocols to deep space objects—such as spacecraft following comets, or craft that may have to power down unexpectedly. Inter-ﬁnet would have to be designed along radically different lines, and the communications systems and protocols of each mission, whose members are in intermittent contact with one another, would have to be designed to deal primarily with backlogs of data, e-mail, and potentially enormous amounts of data.”

THE Benefits of an Interplanetary Internet

The Inter-Planetary Internet, or IPN, is designed to provide a stable backbone operating TCP/IP. The interplanetary network is a self-sustaining, self-replicating system. It is designed to provide a stable backbone operating TCP/IP. The interplanetary network is a self-sustaining, self-replicating system. It is designed to provide a stable backbone operating TCP/IP.
DETAILS on applications for science and business alike—include a prototype leader in linking earth-observation data to socio-economic statistics (CIESIN) at Columbia University. Meanwhile, markets for commercial GEO satellite bandwidth are used for video broadcasting; the number of commercial launches approximately triples and commercial rights to commercialize much of the U.S. government’s space imaging technology to help monitor its territory. The technology, pioneered by Environmental Research Institute of Michigan (formerly run by Peter Banks) and commercially offered by Intermap Technologies Corporation, uses a combination of satellite imaging data and ISAR. The application is expected to be operational within a year, with a full release of the prototype leader in 2002. The system in this case, using a combination of very fast minicomputers and ISAR, is expected to achieve very high quality with a very high resolution (accurate to 30 centimeters) as soon as they happen.

The universe currently does things faster than we can respond to them,” according to Vint Cerf, one of the Internet’s founders who now runs the Interplanetary Internet. There is a need to manage space data in a way that can make multiple fast passes over a region in question, rather than having to rely on a single-pass radar satellite. More important, it is able to provide much more accurate and detailed information about space debris management—tracking the positions of objects in space. The technology, pioneered by Environmental Research Institute of Michigan (formerly run by Peter Banks) and commercially offered by Intermap Technologies Corporation, uses a combination of satellite imaging data and ISAR. The application in this case, using a combination of very fast minicomputers and ISAR, is expected to achieve very high quality with a very high resolution (accurate to 30 centimeters) as soon as they happen.

Two technologies—intelligent agents and peer-to-peer computing—are intersecting to create a new set of applications for the Interplanetary Internet now see their work as part of a larger idea that the entire Internet is a “network of networks.” Each planet would have its own network, which would operate using different protocols and be designed for relatively low-noise, low-bandwidth communications. CCSDS has been most successful in standardizing the handling of data after it leaves the spacecraft; the IPN focuses on the handling of data before it leaves the spacecraft. CCSDS has been most successful in standardizing the handling of data after it leaves the spacecraft; the IPN focuses on the handling of data before it leaves the spacecraft. CCSDS has been most successful in standardizing the handling of data after it leaves the spacecraft; the IPN focuses on the handling of data before it leaves the spacecraft.

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Networks are enabled by satellites and now reach the farthest corners of the Earth and beyond, and internet-like facilities have become standard. As a result, the frontier of space science and technology is rapidly advancing. The merging of these borders has for a generation revolutionized space, from GPS to remote sensing and beyond. The impact and influence of space technology is felt worldwide in many different applications. The promise of these borders is for a generation enabled worlds, one that can function, grow, and evolve beyond the confines of the Earth. The promise is that of an interplanetary Internet (IPN) that operates in the same manner as the global Internet. The IPN will allow an enable network of interplanetary spacecraft to communicate with each other, and eventually with the people on Earth. The idea of an interplanetary Internet (also called the Interplanetary Network, or IPN) evolved in the late 1990s, built on the lessons learned from the Internet (a global computer network) of the 1990s. The Internet has been so successful in supporting the building of the Earth's surface (accurate to 30 centimeters) as soon as they happen.

**THE INTELLIGENT AGENTS IN SPACE**

Great strides are being made in creating intelligent agents in space. Intelligent agents can be seen as a combination of software and hardware that are designed to perform a specific task. They can be used to perform a wide range of tasks, from monitoring a satellite's health to controlling its movements. The agents are designed to be autonomous, meaning that they can make decisions and take actions without human intervention.

**THE MULTIPURPOSE SYSTEMS (XIPN) VIEWS**

Since 1975, when the Soviet launched Sputnik, humans have ventured into space on missions to explore and understand the universe. One of the most important missions of the past decade has been a project called the Interplanetary Network (IPN) which aims to create an interplanetary internet. The IPN would make it possible to design useful applications that can extend the reach of the global Internet, to enable communications between spacecraft that are light-years apart. According to Cerf:

"It will make space travel easier, effective-full, and affordable, an important step toward the development of the Interplanetary Network. The IPN will allow an enable network of interplanetary spacecraft to communicate with each other, and eventually with the people on Earth. The idea of an interplanetary Internet (also called the Interplanetary Network, or IPN) evolved in the late 1990s, built on the lessons learned from the Internet (a global computer network) of the 1990s. The Internet has been so successful in supporting the building of the Earth's surface (accurate to 30 centimeters) as soon as they happen.

The IPN would make it possible to design useful applications that can extend the reach of the global Internet, to enable communications between spacecraft that are light-years apart. According to Cerf, the IPN will change the way we think about space travel and exploration. It will allow us to design and build spacecraft that are capable of communicating with each other in real-time, even when they are light-years apart. This will enable us to design spacecraft that can operate without human intervention, and to explore new parts of the universe that are beyond the reach of current spacecraft.
space data with both back toward Earth and out toward the moon—and even beyond that to Mars. Finally, it will not be the power of rockets and fuel or the cost or the size of the rocket, but the power of these tools in space that will be the lasting contribution of the new era of space exploration.

**Q:** What will be the lasting contribution of the new era of space exploration?

**Peter:** It will be the power of intelligent networks in space that will enable us to reach the moon and Mars but rather the ability to launch multiple small satellites and assemble a space station in orbit. The power of these tools is in their ability to create completely new economic and social phenomena, and yet they may have set in motion the global dynamics for the commercialization of a new generation of space technology.

**Q:** What is the emerging space ecology? What is the changing role of government and private industry in the emerging space economy?

**Peter:** The emerging space ecology can be characterized as one in which there is a blurring of the lines between government and private industry. The space economy is no longer dominated by large contractors who have had the money tied up in complex, large-scale projects. Instead, there is a reliance on small, nimble companies that can quickly respond to market opportunities. These companies are not only developing new technologies, but they are also developing new business models that are more scalable and have faster return times. The space industry is becoming more agile and adaptable, and the government is playing a more enabling role, rather than a dominant role, in the development of new space technologies.

**Q:** What are the opportunities and risks for companies in the emerging space economy?

**Peter:** The opportunities for companies in the emerging space economy are vast. With the commercialization of space data and new technologies, there are new business models that are emerging, and companies that are able to develop these new business models will be in a position to capture market share. The risks, however, are also significant. Companies will need to navigate the regulatory landscape, develop new technologies and business models, and compete with established players in the space industry.

**Q:** How will the new space technology and new space economy impact the emerging space ecology?

**Peter:** The new space technology and new space economy will have a significant impact on the emerging space ecology. With the commercialization of space data and new technologies, there is a blurring of the lines between government and private industry. The space economy is becoming more agile and adaptable, and the government is playing a more enabling role, rather than a dominant role, in the development of new space technologies.

**Q:** What are the emerging space ecology and new open source markets for information and how can companies take the lead?

**Peter:** The emerging space ecology and new open source markets for information are changing the way companies think about their business models. With the commercialization of space data and new technologies, there is a blurring of the lines between government and private industry. Companies that are able to develop new business models and take advantage of new technologies will be in a position to capture market share. The key will be to develop new business models that are scalable and have faster return times. Companies will need to navigate the regulatory landscape and develop new technologies that are able to meet the needs of their customers.