

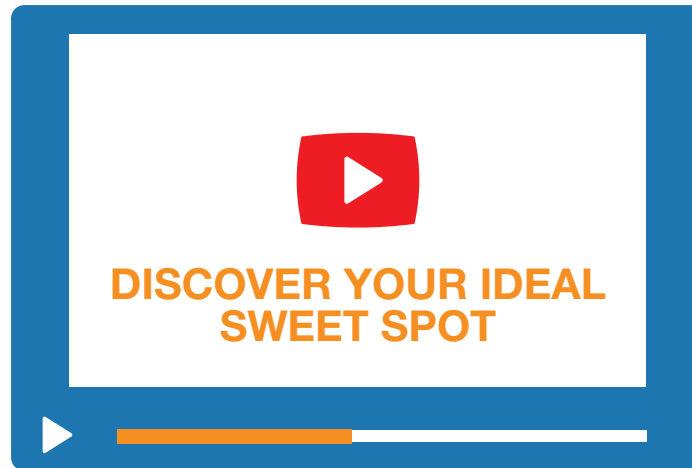
TRENDS REDEFINING THE WORLD



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TRENDS REDEFINING THE WORLD



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There are abundant opportunities for those who are willing to look to the future and act. Your success will depend largely on your ability to gather reliable information, objectively review the information, anticipate outcomes, take action, and in influencing others.

Consider Jeff Bezos. In 1994 he quit his high paying SVP job with D.E. Shaw & Co – a hedge fund company. He had learned about the rapid growth of the internet. He knew where the internet was headed, and decided the risk was worth it. So, he and his wife drove from New York to Seattle and started Amazon in his garage.

As of 2014, Amazon is the largest online retailer and the ninth overall largest retailer. Jeff's net worth is \$30.7 billion dollars. Jeff Bezos continues to say that "this is day 1 for the internet. We still have so much more to learn."

In this chapter, I provide rich megatrends and game-changing trends that you will want to carefully review. Under each megatrend or game-changing trend, look for the paragraph titled "Needs and Opportunities to Consider." Ask yourself the question, is this something I should focus on? As you review these trends, I encourage you to write down the ideas, thoughts and feelings you have. Writing is a powerful way to reflect, to capture feelings, and to develop ideas and to refine your thinking.



PREPARING FOR THE FUTURE IS VITAL

Understanding, preparing for, and creating a positive future is vital. Most people don't think about, let alone prepare for, the imminent future even when dangers or opportunities are right in front of them.

WHAT 9/11 TAUGHT US

Consider the September 11, 2001 attacks on New York City and Virginia by 19 terrorists associated with al-Qaeda. Two planes were flown into the twin towers of the World Trade Center in New York City. A third plane hit the Pentagon just outside of Washington D.C. A fourth plane crashed in a field in Pennsylvania. The attacks resulted in the deaths of 2,996 people including more than 400 police and firefighters. The attacks also had a horrific effect on the global markets, possibly resulting in the trillions of dollars of damage. What surprised the U.S. was that it was not engaged in any foreign wars at the time. Conflicts always happened outside of the U.S. and not within it. How could this happen within the U.S. people wondered? Hysteria and worry gripped the nation and safety and vigilance became a top priority. Massive changes were made in government organizations. New policies such as the USA Patriot Act put national security and defense as top priorities even above civil liberties. Since 9/11, the U.S. has been involved in major wars in Afghanistan and Iraq.

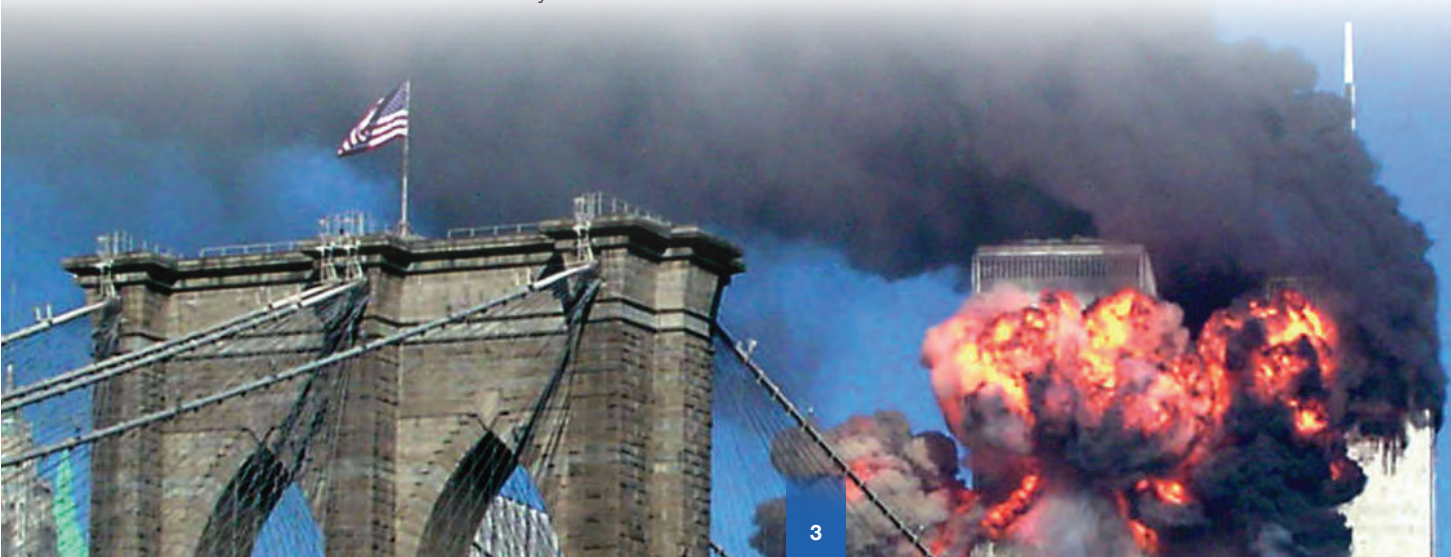
The Inspector General for the CIA, Senate and House committees, and a special 9/11 Commission reviewed the circumstances surrounding the 9/11 attacks and the level of preparedness of the U.S. The reports were not positive!

The 9/11 Commission wrote:

The 9/11 attacks were a shock, but they should not have come as a surprise. Islamist extremists had given plenty of warning that they meant to kill Americans indiscriminately and in large numbers. Although Osama Bin Laden himself would not emerge as a signal threat until the late 1990's, the threat of Islamist terrorism grew over the decade.

To sum up, the 9/11 Commission also wrote, "We believe the 9/11 attacks revealed four kinds of failures: in imagination, policy, capabilities and management."¹⁴

Developing the ability to look to the future, gather reliable information, analyze the information, and determine what actions to take is vital to your success.



KEY MEGATRENDS AND OTHER CRITICAL TRENDS YOU NEED TO KNOW ABOUT

A megatrend is at the root of other smaller trends, and is what drives the others. A megatrend is generally unstoppable. It leads to profound and wide reaching changes. It is so massive that it figuratively moves mountains, cities and continents.

Some of the megatrends that we will review offer the hope of a better world. Others are dangerous and could destroy mankind.

We will focus on the “Spread of Democracy” as well as the megatrends and

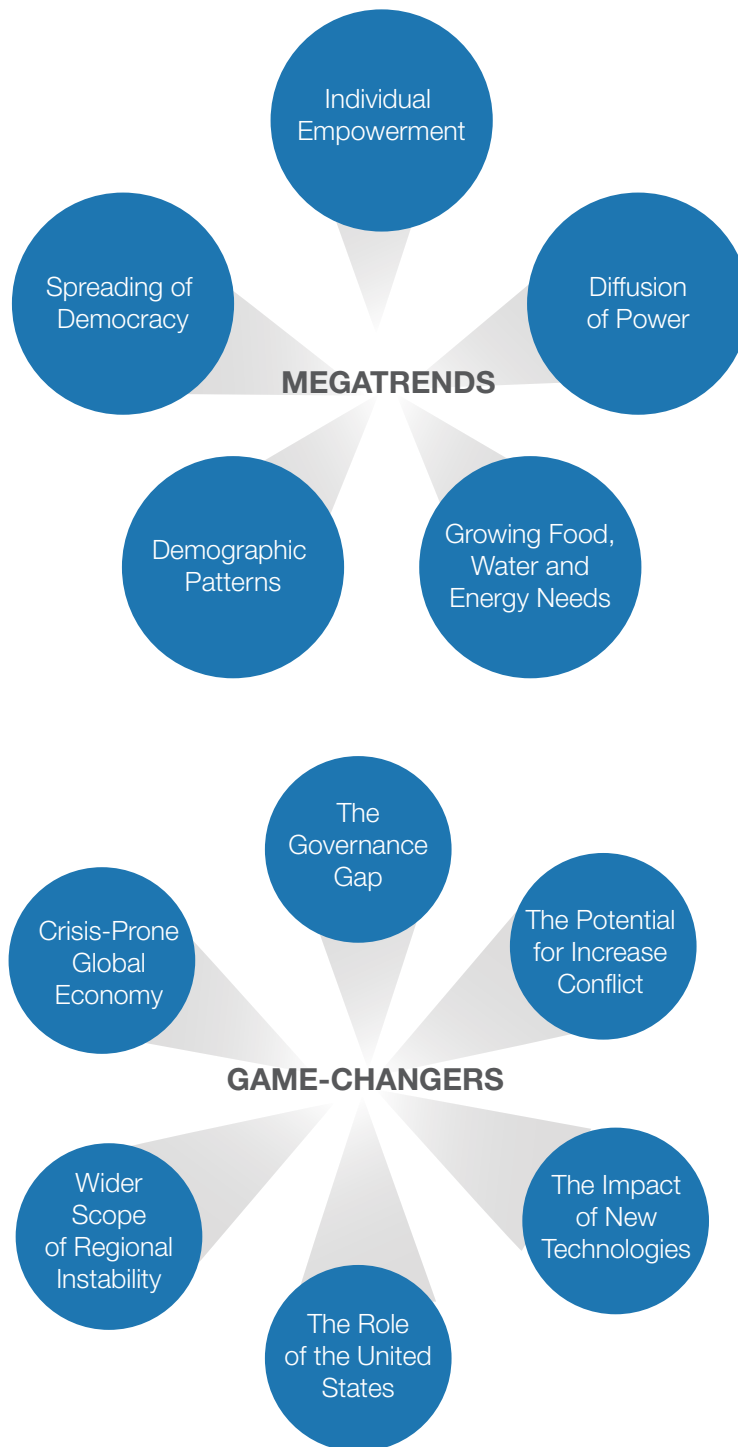
game-changers identified by the National Intelligence Council (NIC). Every four years, the NIC facilitates the development of a "Global Trends" report. In generating these reports, the NIC conducts conferences, workshops and individual meetings with scholars, experts, universities, think tanks, science labs, businesses and government institutions from around the world. Their objective is to detect and anticipate future trends. These reports are used by the White House, US Intelligence Community, other government entities, educational institutions, businesses and non-profit organizations for planning purposes.

In NIC’s most recent Global Trends 2030 report, they identified four megatrends. They include: 1. Individual Empowerment; 2. Diffusion of Power; 3. Demographic Patterns; 4. Food, Water, and the Energy Nexus.

NIC also identified six game-changers. Game-changers are not as certain as megatrends although the probability of their occurrence is high. More importantly, the impact of the game-changers are high. The six game-changers include: 1. Crisis-Prone Global Economy; 2. The Governance Gap; 3. The Potential for Increased Conflict; 4. Wider Scope of Regional Instability; 5. The Impact of New Technologies; 6. The Role of the United States.¹⁵



LIST OF MEGATRENDS AND GAME-CHANGERS WE WILL REVIEW



I will expand beyond what the technologies NIC identifies, and focus on additional high impact technologies.

THE SPREAD OF DEMOCRACY

We are just beginning to see the impact of the spread of democracy. Freedom touches and addresses one of the deepest and most profound hungers that we have as humans. The small experiment of freedom in the United States drastically changed the world. Now, democracy is spreading throughout the world.

The spread of democracy is an exciting change from the past. It is changing economies, political structures, cultures, and the basic fabric of societies.

Today, there are 196 countries in the world. The democracy index measures the state of democracy in 167 of those countries. According to the index, 24 countries in North America and Western Europe are considered to be full democracies. Twenty-one countries in Latin America and the Caribbean are considered to be “flawed democracies.” One hundred countries in Asia, Australasia, Central and Eastern Europe, and the Sub-Saharan Africa are considered to be hybrid regimes. Twenty countries are authoritarian regimes.¹⁶

CHANGES THROUGHOUT THE WORLD

In June of 1988, while I was eagerly waiting to receive my diploma for my master’s degree at Johns Hopkins University, J. William Fulbright gave an impassioned commencement address that I will never forget.

Mr. Fulbright was the longest serving chairman in the history of the Senate Foreign Relations Committee. One of his accomplishments was the establishment of an international exchange program eventually referred to as the Fulbright Program. The program continues to provide the opportunities for qualifying U.S. citizens to study abroad, and citizens of other countries to study within the U.S. As of 2013, more than 325,400 people have participated in the program since its inception. The purpose of the Fulbright Program was to “bring a little more knowledge, a little more reason, and a little more compassion into world affairs and thereby increase the chance that nations will learn at last to live in peace and friendship.”¹⁷

Mr. Fulbright centered his speech on the motto of the Johns Hopkins University. In Latin the motto is “Veritas vos liberabit.” In English it translates to “The Truth Will Set You Free.” This motto was a slight variant to John 8: 32 in the New Testament.



MIKHAIL GORBACHEV

William Fulbright explained why he believed this verse and motto was so true. In 1985, when Mikhail Gorbachev was elected as General Secretary of the Communist Party, his hands were full. The Soviet economy had been stagnant for many years. Mikhail knew it was paramount to revive the Soviet economy. Without a strong economy, the Soviet Union could not survive. He also knew that if the economy was to be successfully turned around, a large number of fundamental changes had to be made.

In 1986 Mikhail introduced glasnost (openness), perestroika (restructuring), demokratizatsiya (democratization), and uskoreniye (acceleration of economic development).¹⁸ During this time, Mikhail turned to and depended on the insights of former Russian Fulbright scholars who had gone to school within the United States. As he was looking for solutions, he wanted to understand what some of the keys were to the U.S.'s economic success. It was the pursuit of truth and real solutions, which began to change Mikhail's mindset and eventually many within the Soviet Union.



Mr. Fulbright emphasized that truth doesn't need to be packaged with a nice bow or contained within a slick sales presentation. In fact, at times slick presentations reek of persuasion and manipulation. He also stressed that too many naïvely believed it was the strength and fear of the United States that eventually led to perestroika. It wasn't fear that motivated the Soviet Union. It was their desire to find true solutions to their struggles.

Since William Fulbright's speech, we have witnessed what seemed to be impossible. Once people began to taste truth and freedom, they were never the same. Openness wetted the appetite of people in countries throughout Eastern Europe who desperately wanted freedom. For instance, on November 9, 1989, thousands of Germans brought down the Berlin Wall. It led to the end of the cold war.

FUNDAMENTAL PRINCIPLES OF DEMOCRACY

There are important principles we can learn from successful democracies that can help in every aspect of society.

Democratic governments offer the hope that people with different perspectives can enjoy liberties and that they can work together and avoid war. A “Democracy is a form of government in which all eligible citizens are meant to participate equally – either directly or, through elected representatives, indirectly – in the proposal, development and establishment of the laws by which their society is run.”¹⁹

Sound democracies are based on principles of legal equality and liberty. Legal equality means that all are equal under the law. Liberties are protected freedoms or rights, such as the right to act, speak, and think as one desires without oppression or coercion.

Democracy is not freedom without constraints. There are some who fight against any control. What these people fail to understand is the difference between freedom and liberty. Freedom is the ability to make decisions without external control. Liberty is freedom that has been granted and is protected by a government. John Locke, regarded as one of the most influential of the Enlightenment thinkers wrote, “The end of law is not to abolish or restrain, but to preserve and enlarge freedom. For in all the states of created beings, capable of laws, where there is no law there is no freedom. For liberty is to be free from restraint and violence of others, which cannot be where there is no law.”²⁰



LIBERTIES BASED ON LAWS OF NATURE

The U.S. Declaration of Independence states:

When in the Course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the **Laws of Nature and of Nature's God entitle them**, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident, that **all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness** - That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed...²¹

The future and success of democracy rests upon virtue and morality. Samuel Adams wrote:

Neither the wisest constitution nor the wisest laws will secure the liberty and happiness of a people whose manners are universally corrupt. He therefore is the truest friend to the liberty of his country **who tries most to promote its virtue**, and who ... will not suffer a man to be chosen into any office of power and trust **who is not a wise and virtuous man.**²²

George Washington wrote:

Of all the dispositions and habits which lead to political prosperity, religion and morality are indispensable supports.... And let us with caution indulge the supposition that morality can be maintained without religion.²³

NEEDS AND OPPORTUNITIES TO CONSIDER

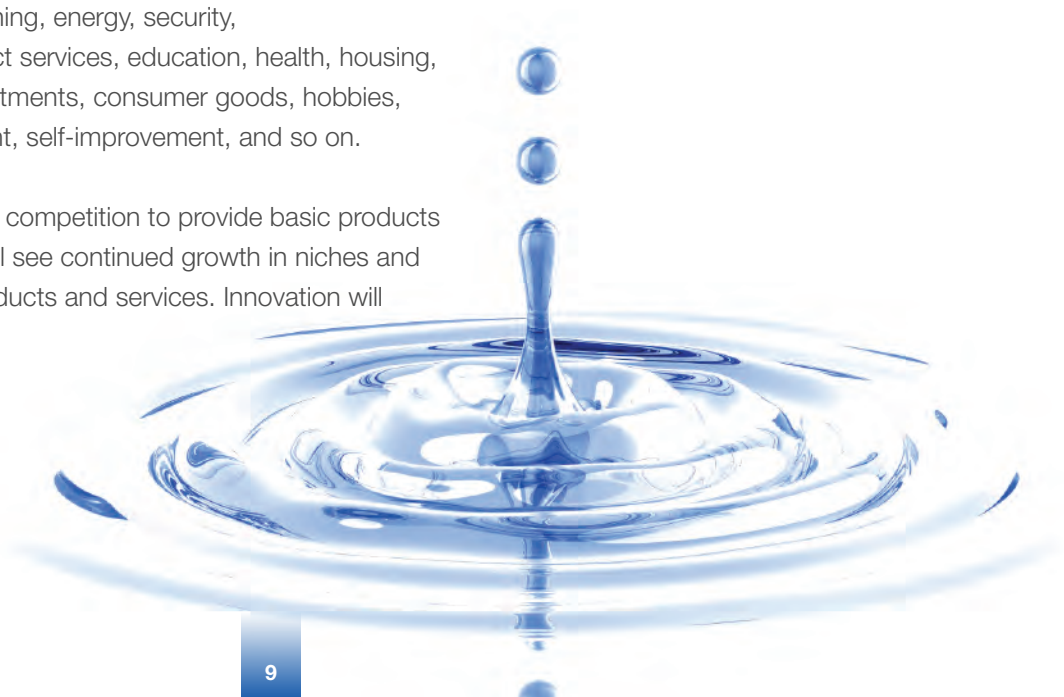
- ▶ There will be a growing need for true experts with good diplomatic skills who are truly skilled at offering advice to countries transitioning from authorial regimes to successful democracies.

With the growth of democracy, we will see a significant increase world-wide in consumer needs for food, clothing, energy, security,

- ▶ employment/contract services, education, health, housing, transportation, investments, consumer goods, hobbies, sports, entertainment, self-improvement, and so on.

There will be greater competition to provide basic products

- ▶ and services. We will see continued growth in niches and diversification in products and services. Innovation will increase.



INDIVIDUAL EMPOWERMENT

With the spread of democracy, we are seeing the growth of individual empowerment. This is an exciting megatrend. It offers wonderful opportunities for people throughout the world to enjoy basic freedoms and to grow, learn, improve their circumstances, and to have a better life.

Individual empowerment should accelerate substantially during the next 20 years owing to:

Widespread adoption of communication and technology,

Greater educational attainment,

Poverty reduction and the huge growth of the middle class,

Better health care,

Improvements in manufacturing and technology.

With growing freedoms and broader access to and improved communications technology, people will be better informed throughout the world. Cost infrastructures once needed to support communications are no longer required. Smartphones and other communication technologies are enabling people to connect and collaborate.

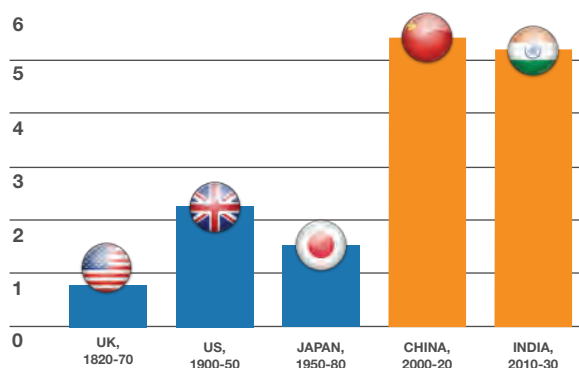
Education is expanding worldwide. Today, the number of students attending higher education programs is exploding. University enrollment has grown from around 100 million in 2000 to 158 million in 2011. It is expected to reach 263 million by 2025.²⁴ Education is a key to economic success and will lead to a growth in the middle class throughout the world.

Poverty is being reduced. World Bank President Jim Yong Kim said that “for the first time, the number of people in the middle class surpasses those living in poverty. The NIC believes that by 2030, most people on the globe will be within the middle-class. McKinsey reported in 2010 that the middle class is nearly two billion strong and spends \$6.9 trillion annually.²⁵ Conservative models forecast that 2 billion people will be living in middle class. Other models estimate that the global middle class will reach 3 billion people by 2030. We will see the most rapid growth in the middle class in Asia, India and Africa.



It is amazing to see how quickly countries are able to grow their GDP per capita. As the graph shows below, it took Britain 155 years to double its GDP per capita. It took the US around 50 years to double its GDP per capita. China and India increased their GDP per capita by over 500 fold in 20 years and China and India have 100 times more people than Britain.

The rapid growth of the middle class has important implications. Demand for consumer goods, including cars, will rise sharply with the growth of the middle class. At the same time, with a shrinking world we will see accelerated economic competitiveness. This will fuel innovation and specialization.



NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ Collaboration and collaborative technologies will grow in importance. There will be increased desire and need to speak in a common language. The need for better language translation software tools will grow.
- ▶ Education will become even more important. Current education structures are expensive and inefficient. Clayton Christensen, who has been given the “number one management thinker in the world award” sees that education is ripe for disruptive innovation. He says we must reevaluate our education systems, and rethink our approach to learning. Higher educational costs have risen to unprecedented levels. Private universities and even prestigious universities are developing online programs. There will be a growing need for outstanding specialization in education.
- ▶ Built-in and just-in-time training will become more vital. There will be a greater need for specialized training from thought leaders and experts.
- ▶ The demand for healthcare services and equipment will grow throughout the world.
- ▶ We will see great improvements in manufacturing and technology.

DIFFUSION OF POWER

NIC believes that by 2030, no single country will have a unified, prevailing voice. By 2030, the two largest powers in the world will be China and the United States. Today the combined economies of the two nations constitute almost 35 percent of the global GDP. Before 2030, China's economy will surpass the United States' economy. While the United States and China will be major international players, they won't possess the same influence that superpowers have held in the past.

By 2030, India could be the new emerging economic giant. NIC believes that Brazil, Colombia, Indonesia, Nigeria, South Africa and Turkey will also become more prominent players. Brazil will probably be a major player in Latin America, and Germany will likely continue to be a leader in Europe.

With the spread of democracy and the growth of individual empowerment, people throughout the world will have improved abilities to influence their governments. People with similar interests and beliefs will naturally come together. Communication technologies will facilitate and enable networks of people with similar interests and beliefs to join together. More networks will have increased influence. Future big internet "moguls" will have an increased ability to predict and influence behavior on a large scale.

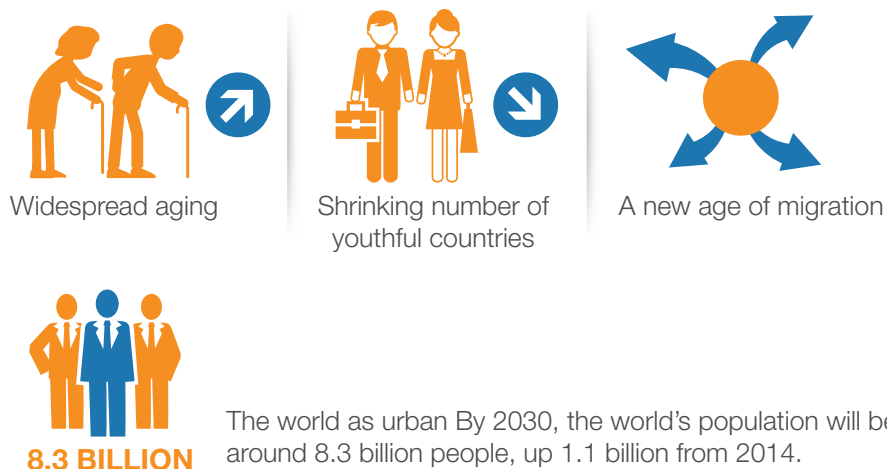
NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ There will be a tremendous need for people who have new leadership, collaboration, networking and motivation skills. Using a strong handed, top down, power approach to getting things done will be ineffective. Pushy motivational approaches will become less effective.
- ▶ Collaboration technologies will be in growing demand.



DEMOGRAPHIC PATTERNS

NIC sees four demographic trends that will shape future economic and political conditions:



WIDESPREAD AGING

People will also live longer. Countries with aging populations (e.g., Japan, Germany, Italy, Greece, Bulgaria, Austria, Sweden, Slovenia, and Latvia) will have slower GDP growths. To fund increased retirement and healthcare experiences, governments will either have to reduce benefits, increase taxes, reduce government spending or continue to move towards bankruptcy, leading to economic collapse.

SHRINKING NUMBER OF YOUTHFUL COUNTRIES

NIC reports that approximately 80 percent of all armed civil and ethnic conflicts occur in countries with youthful populations. More than 80 countries today have a median age of 25. By 2030, this number will have dropped to 50 countries.

A big reason that countries with youthful populations struggle more with conflict is because it is a challenge for youth in these areas to envision and prepare for a bright future when they can't see economic opportunities in the horizon.

A NEW AGE OF MIGRATION

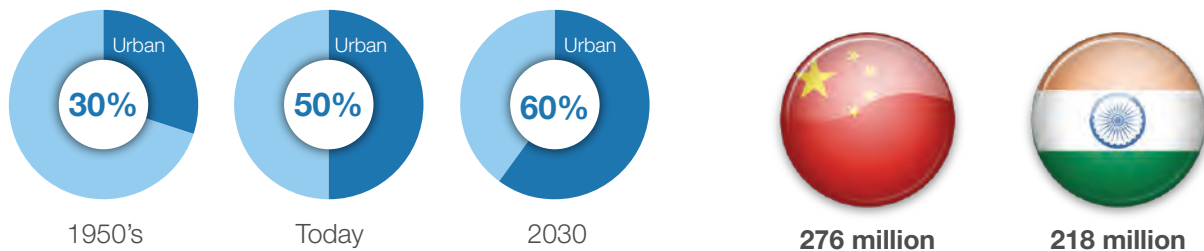
In developing countries, there will be a rapid migration of people into urban areas. Rapid urbanization will lead to a huge growth in construction and transportation.

International migration will increase. Tens of millions of people will likely migrate from poor countries to middle and high-income countries. Developed or emerging countries with aging populations will be eager to recruit young talent. This talent will be more inclined to live in other countries. In an effort to recruit international talent, the need for standard benefit, pension and social programs will become more apparent.

THE WORLD AS URBAN

In the 1950s approximately 30% of the world's population lived in urban areas. Today that number is up to 50 percent. NIC believes that by 2030 60% of the world's population will live in urban areas.

The UN estimates that from 2011 to 2030, 276 million people in China will move to urban areas. In India, 218 million will migrate to urban areas. Bangladesh, Brazil, Democratic Republic of Congo, Indonesia, Mexico, Nigeria, Pakistan, Philippines and the U.S. will continue to see greater urbanization as well. Urban areas will grow faster than the large city centers themselves. Big cities are already struggling with traffic, infrastructure, health and sanitation issues. Areas just outside of city centers offer cheaper land. These metropolitan regions will continue to expand and become mega-regions. By 2030, it is estimated there will be "over 40 large bi-national and tri-national metro regions."²⁶



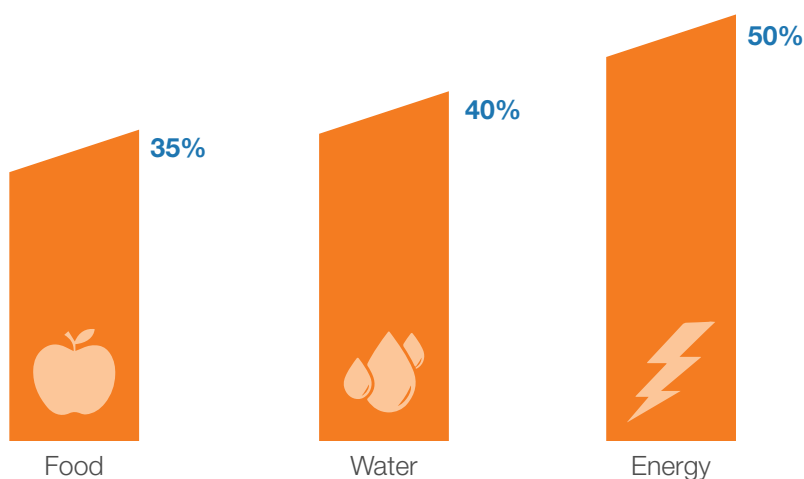
NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ With aging populations there will be an increased need for businesses that support aging populations (e.g., home-based health care, care centers, dieticians, nutritionists, drivers, fitness, housing, personal assistants, travel guides).
- ▶ Governments will also be under pressure to fund larger retirement expenses. There will be increasing pressure to reduce health-care expenses. Innovations to address retirement and health-care will be desperately needed.
- ▶ Innovations will be needed to create real economic and educational opportunities for youth – especially in countries with larger youthful populations.
- ▶ A real challenge that businesses, communities and countries have is in successfully creating economic opportunities. Those who are most skilled in successfully helping others to create businesses and develop an economy will be in highest demand. Urbanization creates enormous burdens and is driven typically by economic need vs. a desire to live in a big urban area.
- ▶ Innovation, diplomacy, and motivational skills are desperately needed to facilitate improvements in construction, infrastructures, health and sanitization.

GROWING FOOD, WATER AND ENERGY NEEDS

With a growing population, expanding middle-class and urban populations, NIC believes that demands for water, food and energy will significantly rise. The need for food is expected to increase 35% by 2030. Water demands will increase 40 percent, and energy needs will grow 50 percent by 2030. Many countries won't have the capacity to provide these resources and will depend on help from others.²⁷

Environmentalists believe that climate change will make these basic resources scarcer. They believe we will see a decline in precipitation in the Middle East, Northern Africa, Western Central Asia, Southern Europe, Southern Africa and the US Southwest.



NEEDS AND OPPORTUNITIES TO CONSIDER

- Significant innovations are needed in water management, agriculture, ranching, food processing, and in energy creation and management.

IMPORTANT GAME CHANGERS YOU NEED TO UNDERSTAND

Game-changers are less certain than megatrends but they are significant variables that could lead to significant changes

CRISIS-PRONE GLOBAL ECONOMY

The international economy is a crisis-prone economy with many vulnerabilities. An economic problem in one country can impact the rest of the world.

Even after the 2008 major recession, most developed countries have only begun to reduce their debts. Debt was at the core of the crisis and will take several years and possibly decades before there is economic stability. Debt continues to be a major risk.

Europe and Japan have rapidly aging populations which will likely impact their economies. Aging countries will likely see slow or stagnating growth.

The economies of different countries and regions will move at greatly differing speeds. This will lead to wider economic disparities which introduces risks. The NIC report states:

The contrasting speeds across different regional economies are exacerbating global imbalances—which were one of the contributing causes of the 2008 crisis—and straining governments and the international system. The key question is whether the divergences and increased volatility will result in a global breakdown and collapse or whether the development of multiple growth centers will lead to increased resiliency.²⁸

With more countries and regions having a growing voice in world matters, it could become more difficult for national players to cooperate and develop an international economic system that effectively addresses and mitigates economic risks.

U.S. consumer spending played a significant role in the world economy. This will change. Today, over 50% of global economic growth stems from developing countries – especially in Asia and in the South. The world economy will progressively depend on growth in these emerging countries. There will be a strong demand in these emerging countries for infrastructure, housing, consumer goods, and new plants and equipment.



NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ With growing economic disparity, people with expertise and resources will be needed in areas struggling the most economically, to help create successful businesses and foster successful economic development.
- ▶ There will be significant economic opportunities in emerging countries especially in the areas of infrastructure, housing, consumer goods, new plants and equipment.
- ▶ There will be a growing need for leaders and influencers who can help players with differing perspectives to work together to create and implement a healthy international economic system.
- ▶ The inability of governments to manage their budgets is concerning. Overspending creates almost insurmountable problems for this and future generations. The economy is the wherewithal. It is the engine. Political leaders are needed who are willing to do their part to ensure that their governments spend less than what they bring in, and uses the difference to pay-off debt.
- ▶ Consumers spending is also a problem. Consumers need the self-restraint and motivation to live within their means.

THE GOVERNANCE GAP

Communications technology is eliminating the barriers of distance and languages. Communications technology has given people unprecedented ways to collaborate and work together. This has fueled an appetite for democracy around the world.

As democracy spreads, more people will want to have a voice in influencing their local and national governments. Worldwide improvements over the last 20 years in communication technology, health, educational levels, manufacturing technologies, and income could continue. There will be a growing demand for governance changes, fair laws and transparency.

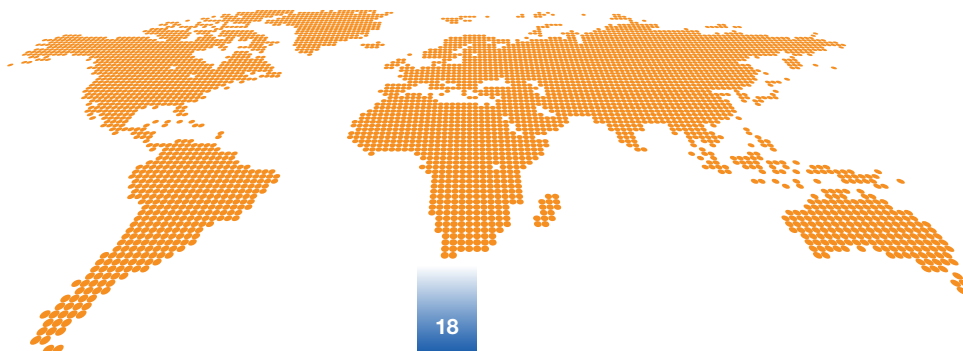
Today, 50 countries are moving from autocratic governments to democracies. These changes are challenging ones and typically take 15 – 20 years to work out. The transition time can be difficult and dangerous. Changes are usually required in governing structures and practices at all levels.

Countries that are typically most unstable are autocratic and have populations with higher education levels and income (e.g., Gulf, Middle East and Central Asia countries). The long-term survival of an autocracy depends on its ability to control information and ideas. In the future, that will become more difficult. Also, countries that are democratic but poor struggle and (e.g., Sub-Saharan Africa, Latin America, and the Caribbean and South Asia) are also often unstable.

Today, Western countries have a strong voice in international organizations like the UN Security Council, World Bank, and IMF. This will change. NIC worries that with more players having growing voices in world matters, it will become more challenging for the international community to make decisions and work together to solve major international issues.

NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ Tension and conflict could increase between those who want to enjoy the benefits of autocratic regimes and those who want a greater voice. Transitioning from an autocratic to a democratic government is a difficult one. Experts and thought leaders can assist new leaders in emerging democracies to avoid the risks and implement needed changes.
- ▶ Effectively interacting with others, facilitating, influencing and motivating people with differing viewpoints in a democratic and collaborative manner will be critical skillsets.
- ▶ Government organizations through-out the world will need help in successfully becoming more open, transparent, effective and responsive.
- ▶ Countries struggling with poverty will need help in successfully creating new business and job opportunities.
- ▶ Communications and collaborative technologies will grow in importance.



POTENTIAL FOR INCREASED CONFLICT

POTENTIAL FOR INCREASED CONFLICT The NIC believes that the risks of interstate conflicts are increasing. The U.S. is less willing to interfere in international affairs. With a growing number of influential players in the world arena, working together to solve international issues could easily be a problem. Getting broad international support is a challenge today. Other world players will be less inclined to support the U.S. as a global protector of democracy. This could lead to greater instability.

There is also a growing risk of small groups or even individuals using destructive tools and weapons (e.g., WMD) that would inflict significant damage. This could spark greater intra and inter country conflict.

The NIC report notes that in the last 20 years there have been fewer armed conflicts and fewer casualties in those conflicts. The likelihood of major powers warring against each other remains low because of the high stakes involved. As countries have grown economically, they have not invested heavily in military capabilities.

NIC believes the risk for regional conflict will be “high during the next two decades in western, central, and eastern portions of Sub-Saharan Africa; in parts of the Middle East and South Asia; and in several Asian-Pacific island hotspots: Timor Leste, Papua New Guinea, Philippines, and Solomon Islands.”²⁹

NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ It will be important that political leaders know how to listen, counsel and collaborate both within and outside of their own countries.
- ▶ Listening, counseling and collaborating with people with differing viewpoints will be an important skillset for everyone to develop.
- ▶ Major breakthroughs are needed to stop the proliferation of WMD and other dangerous tools. Additional innovations are needed to detect and protect people from nations, small groups or individuals who wish to use destructive tools and weapons to inflict damage.



WIDER SCOPE OF REGIONAL INSTABILITY

South Asia and the Middle East are regions where there is the greatest potential for conflict. These are also areas where battles could easily trigger wider conflicts that would have global impact.

South Asia consists of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

Afghanistan and Pakistan have younger populations, and slow-growing economies. “Inequality, lack of infrastructure, and educational deficiencies are key weaknesses in India.”³⁰ The tension between India and Pakistan remains with China backing Pakistan. NIC sees that Asia and the international community is not prepared to effectively mediate and mitigate rising tensions in South Asia.



The Middle East is also a region of major concern. While democracies have emerged in the region, if corruption and unemployment problems persist, people could easily look to hardline Islamic leaders for solutions. The oil producing countries in the Middle East will need to diversify. New technologies will reduce or eliminate the need for oil and gas from the region.

NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ It is vital to world peace that political leaders learn how to listen, counsel and collaborate both within and outside of their own countries.
- ▶ Listening, counseling and collaborating with people with differing viewpoints will be an important skillset for people generally.
- ▶ Oil and gas producing countries in the Middle East need to continue efforts to diversify the products and services they provide.
- ▶ Expanding the use of communications technologies will help to broaden opportunities for people to collaborate together.

THE ROLE OF THE UNITED STATES

From 1865 and 1918 over 27 million Europeans immigrated to the United States. By the late 1800s, the U.S. became the world's leading industrial power.

After the American Revolution the U.S. won a long series of wars from 1785 to 1919. After entering World War I in 1917, the Allied Forces were successful in a decisive victory in 1918 ending the German, Russian, Ottoman, and Austro-Hungarian empires. In 1939, the US entered World War II from 1939 to 1945. The Third Reich collapsed, Vichy France was dissolved, and the Japanese and Italian empires were defeated. Following World War II, the United Kingdom started to lose its influence, and the United States and the Soviet Union began to be regarded as the two superpowers who dominated world affairs.

The U.S. has been the healthiest economic power globally. Since 1960, the economic weight of the U.S. has been slowly declining. Its economic strength dropped most rapidly since China started to experience drastic economic growth.

The U.S. is confronted with a number of internal challenges. Health care costs are considerably higher (50% higher than other developed countries) within the U.S than in other developed countries. The U.S.'s secondary education is poor. The median household income has been declining in the U.S. since 1999. Less money as a percent of income is being spent on military spending, and more money is being spent for entitlement programs. This trend will likely continue with rapidly growing Social Security, Medicare and Medicaid costs.

As of 2013, the U.S. is still the most inventive country. It holds 27.9 percent of all international patent applications. The U.S. has 44% of the top Universities in the world. The U.S. also has rich natural resources. The NIC report suggests that:



Continued prosperity in emerging market countries, where approximately one billion people will be added to the world middle class by 2030, could play to U.S. economic strengths. These newly empowered consumers will demand education, entertainment, and products and services driven by information technology— all goods the U.S. excels at producing. Moreover, as a global technological leader, the U.S. economy could be motored by innovations in medicine, biotechnology, communications, transportation, or energy.³¹

NIC believes that by 2030 the U.S. will still remain “first among equals” among world players. It will still be the leading military power in 2030, but its relative military strength will be weaker. Its economy will still be the largest at market exchange rates. China’s economy will be the largest in terms of purchasing power.

There are considerable risks for the world, if the U.S. cannot solve its challenges. The U.S. has played an important role in focusing the attention of the world on terrorism, proliferation of destructive weapons, and in addressing regional conflicts that could impact international order. Without the U.S. continuing to play a key role, there will likely be increased security risks worldwide.

The big question is what role will the U.S. have in the future, and what will be the impact of a world where there are more players at the decision-making tables (e.g., UN, IMF and World Bank) with their own interests and agendas in mind?

NEEDS AND OPPORTUNITIES TO CONSIDER

- ▶ U.S. political leaders are needed who can move past the finger pointing blame game and roll up their sleeves and simply work to address vital issues that impact both the U.S. and the world. They must eliminate the government debt and deficit spending. Multi-year plans to curb deficit spending ultimately leading to a balanced budget haven’t worked and lead to delays. These leaders still need to address health care costs. They are 50% higher than in other developed countries. Additionally, they need to improve the secondary educational system so their students have increased capabilities to contribute.
- ▶ Effective international leaders and innovators are needed to work together to develop effective solutions for fighting terrorism, stopping and controlling proliferation of destructive weapons.
- ▶ It will be vital to the world peace, that future political leaders know how to listen, counsel and collaborate both within and outside of their own countries to effectively address problems.
- ▶ There will be increased needs in education, entertainment, and products and services driven by information technology.

NEW TECHNOLOGIES

Technology is often a key enabler behind a megatrend or a major change in society. For instance, consider the impact culturally and economically of the printing press, compass, steel, internal combustion engine, telephone, light bulb, electricity, radio, television, penicillin, computers, atomic bomb, nuclear power and the internet.

There are a number of technologies being developed that could radically change the future. Consider, for instance, how technology is significantly contributing to individual empowerment (e.g., greater education and knowledge, better health care, improved manufacturing).



The NIC believes that the following four technology areas will have the greatest impact on the world:

Information technologies

Automation and manufacturing technologies

Resource technologies

Health technologies

INFORMATION TECHNOLOGIES

BIG DATA

We are moving into the big data period of information technology. Consumers and businesses are moving towards cloud based solutions. New technologies are emerging that help organizations to collect, manage and analyze large volumes of data.

The race is on among businesses to leverage big data to give them a new competitive advantage. Big data can potentially help businesses to develop client profiles, see where customers are searching, identify what they are saying online, observe their purchasing behaviors, determine what they like or don't like about products. It can help businesses to develop or refine their products, improve their operations, and increase the effectiveness of their marketing.

Big data and analytics are used for scientific efforts (e.g., weather prediction, physics research, space exploration) and government initiatives. For instance, it is used by law enforcement and intelligence to find criminals and terrorist and ultimately to protect citizens.



Internet companies use data technologies for “web search, targeted advertising, image recognition, language translation, natural language processing, and similar features and functions.”³²

Big data is used for criminal and information warfare purposes. Enemies seek to intercept and disrupt critical communications and information systems that support police, military, air traffic, power grids, banking systems, etc.

NEEDS AND OPPORTUNITIES TO CONSIDER

Social networking enables the building of social relations among people who share interests, backgrounds, activities, and so on. Social networks can be used for productive and destructive purposes (e.g., criminal or terrorist agendas).

Social networking technologies are having a far broader impact than imagined possible. They have become important tools for businesses, nonprofit organizations, governments and informal groups to share information and participate in discussions.

The history of social media is interesting. CompuServe provided dial-up internet service starting in 1969. In 1971 the first email was delivered. In 1978, bulletin board systems were used. Prodigy and America Online began to compete with CompuServe. In 1995, Newsweek published an article: The Internet? Bay! Hype alert: Why cyberspace isn't, and will never be nirvana. In 1998 Google enters the scene. In 2001, Wikipedia is started. In 2003, MySpace is launched and by 2006 it was the most popular social networking site in the U.S. Also, in 2006, Twitter was launched.

By 2009, Facebook was the most-used social network worldwide. By 2010 it had over 400 million users and by 2014 it has 1.28 billion active monthly users.

In 2011, social media was used as a vehicle for social change. Social media was used in support of democratic uprisings across the Arab world starting with Tunisia in 2010, and then took hold in Egypt, Libya, Syria, Yemen, Bahrain, Saudi Arabia, and Jordan. Social media was used in a protest movement against social and economic equality that began on September 17, 2001 in New York City's Wall Street area. In 2014, 85% of the world's 7.1 billion people have access to the internet. Around 25% of the world uses social media. ³³

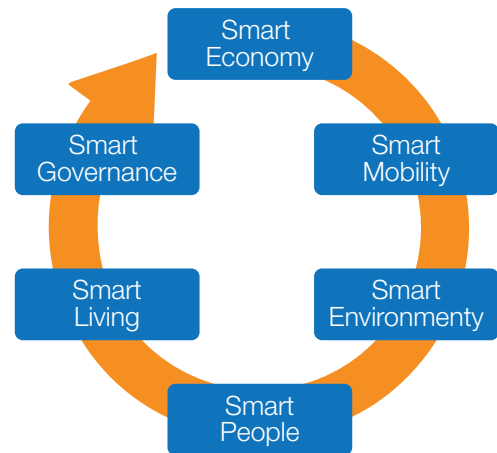


Smart Cities

A smart city is defined as “a developed urban area that creates sustainable economic development and high quality of life by excelling in key areas: economy, mobility, environment, people, living and government.”³⁴

Integrated solutions provide city officials with a wide array of data that helps them to assess, model, simulate and plan the city smoother and effectively in many areas (e.g., law enforcement, public safety, transportation, construction, resource management, waste management, environmental controls, communications, security, emergency services, and disaster response).

NIC estimates that “governments around the world could spend as much as \$35 trillion in public-works projects in the next two decades.”³⁵ Having solutions to optimize city related decision making and management will become a high priority.



AUTOMATION AND MANUFACTURING TECHNOLOGIES

Automation and advanced manufacturing technologies are fundamentally changing how products and services are designed and manufactured.

Robotics

Robotics in the past has been expensive, clunky and even dangerous. Improvements in robotics are eliminating the need for human labor in certain operations. Advanced robots have improved intelligence, dexterity and sensing capabilities. These robots are used in a variety of areas (e.g., manufacturing, nuclear, construction, health care, and space and water exploration).

Autonomous Vehicles

Autonomous vehicles can be used on land, sea or in the air.

Google’s self-driving car has made impressive progress. Google has 25 permits to put their self-driving cars on public roads.

Additive Manufacturing

Additive manufacturing, also referred to as 3D printing, is a process of using 3D design data to build up a product in layers by depositing materials.

NIC shares:

A combination of low-cost machines and online stores of 3D object files could democratize manufacturing and empower individuals, resembling the early days of personal computers and the Internet, when small companies were able to make a large impact. Additive manufacturing could lead to large numbers of micro-factories akin to preindustrial revolution craft guilds, but with modern manufacturing capabilities. Such local micro-factories could manufacture significant amounts of products, especially those for which transportation costs are traditionally high or delivery times are long, and in the process shorten and simplify supply chains.³⁶

RESOURCE TECHNOLOGIES

Technological breakthroughs pertaining to vital resources will be necessary to meet the food, water, and energy needs of the world's population. Key technologies will likely be at the forefront in this arena and will include genetically modified crops, precision agriculture, water- irrigation techniques, solar energy, advanced bio-based fuels, and enhanced oil and natural gas extraction via fracturing.

Genetically Modified Crops

It is believed that genetically modified crops are key to providing enough food for an expanding population. As of 2010, 10% of the world's crop lands were planted using GM crops. Genetically modified crops improve crop yield and reduce the prices of food.

There is wide scientific agreement that GM crops pose no greater danger than conventional food. However, some express concerns about the environmental impact and the safety of GM crops.

Consequently, there is intense regulatory and public pressures which makes the extensive use of GM plants uncertain. Many consumers and politicians believe there are dangers and inadequate safeguards. So GM crops face an uphill battle.



Precision Agriculture

Farmers often use the same seeds, water, fertilizers, pesticides and herbicides and other resources on their fields to grow crops. The problem is, the needs of the soil differ widely – even within the same field. To treat a field or fields all the same, results in huge wastes. Precision agriculture focuses on optimizing the use of resources to get the quality crop results, and minimizing a negative environmental impact.

Water Management

Farming today consumes approximately 70 percent of the freshwater that is available today. Current irrigation methods waste 60 percent of the freshwater. The cost of water run through desalination technologies is too expensive to use for farming. Improved micro-irrigation systems can help but they are expensive. Precision agriculture, genetically modified crops and hydroponic greenhouse technologies can help as well.

Bio-based Energy

Bioenergy is renewable energy from biological sources. In other words, it is energy that comes from naturally replenished biological resources. These resources include agriculture (e.g., straw), forestry (e.g., wood), and biological-derived waster (e.g., manure). The Global 2030 Report states that:

As bio-based energy becomes cost competitive, it could enable advanced biofuels and other products that derive from nonfood sources to at least partially replace current food-crop-derived biofuels and petroleum feed stocks in the next 15-20 year.

...A transition to bio-based energy produced from nonfood biomass would radically alter world energy markets and be essential to improving food security.³⁷

Solar Energy

Solar energy comes from using the sun to generate heat or electricity. Solar energy is in abundance and it generates vast amounts of energy.

Photovoltaic technology is now widely used for electrical power generation. Solar thermal technology can also generate electrical power by using mirrors to concentrate sunlight, which is converted to heat in a solar collector. However, whether solar-photovoltaic or solar-thermal electricity-generating plants will be cost competitive with other electricity-generating fuel sources— coal, natural gas, nuclear, or wind— is unclear. Some forecasts indicate that the projected costs of electricity production from natural gas and coal will remain lower than electricity production from solar power in the next 15-20 years.



HEALTH TECHNOLOGIES

New health technologies will continue to extend the average age of populations around the world, improve debilitating physical and mental conditions, and improve overall well-being.

Disease Management

Without using diagnostic and detection tests, it can be difficult and even impossible for physicians to determine what illness a patient has. Getting test results can take time and in some cases the delays are life threatening. Quick, effective and inexpensive diagnostic and detection devices are key to disease management.

New disease management technologies (e.g., molecular diagnostic devices, theranostics, and synthetic biology) will expand the length of life and improve the quality of life. Improvements in disease management technologies could be expensive and could be out of reach for people who do not have health coverage.

Human Augmentation

Human augmentation generally refers to technologies that improve human productivity or capability, or helps to overcome physical or mental limitations of the body. Human augmentation technologies include implants, prosthetics and exoskeletons.

Implants are man-made devices (vs. transplants) often made of biomedical material (e.g., titanium, silicone, apatite). Examples of implants include pins, rods, screws, plates, artificial pacemakers, cochlear implants and drug-eluting stents. Prosthetic limbs today can provide equivalent or slightly improved functionality to human limbs. Brain-machine interfaces in the form of brain-implants are demonstrating that directly bridging the gap between brain and machine is possible. The military is using exoskeletons that allow personnel to carry increased loads.



ADDITIONAL HIGH IMPACT EVOLVING TECHNOLOGIES

Knowledge Automation

Over the last decade there has been a debate as to what percentage of the workforce was knowledge workers. In a Business Week article Evan Rosen argued that every worker today is a knowledge worker.³⁸ Today, artificial intelligence systems are making it possible to automate knowledge work. Computers can answer complex spoken questions. IBM Watson is a great example. When Watson is asked a question, it identifies the hypothesis, evaluates the evidence from different data sources, and then provides responses based on probabilities. Watson can be applied to almost any body of knowledge. For instance, IBM Watson is focused on the medical profession. It helps doctors make diagnoses and select treatments. “Watson can ingest more data in a day than any human could in a lifetime. It can read all of the world's medical journals in less time than it takes a physician to drink a cup of coffee. All at once, it can peruse patient histories; keep an eye on the latest drug trials; stay apprised of the potency of new therapies; and hew closely to state-of-the-art guidelines that help doctors choose the best treatments. Watson never goes on vacation. And it never forgets a fact. On the contrary, it keeps learning.”³⁹ Knowledge automation systems open the world to major workforce changes over time. Some knowledge work can be completely automated. Knowledge tools can be used to assist highly complex jobs.

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Digital Biology

As the analog world of biology is put into the digital world and this information is analyzed overtime with artificial intelligence and machine language systems, we will begin to see more clearly how genes, diseases, DNA, the brain and protein folding works. With the insights gained, researchers will be able to predict and improve an individual's future health.

Next-Generation Genomics

McKinsey identified next-generation genomics as a top disruptive technology. Genomics is a brand of molecular biology focused on the function, structure and mapping of genomes. A genome contains an organism's complete set of DNA. It took 13 years and \$2.7 billion dollars to sequence a human genome. Today, a human genome can be sequenced in a few hours and for a few thousand dollars. Instead of using a trial and error method of testing, scientists can thoroughly test how genetic variations can lead to specific traits and diseases. The next focus is to customize organisms by "writing" DNA. Breakthroughs here would have a significant impact in medicine, agriculture and in other areas. 40



Advanced Materials

Researchers are discovering how to create smart or designed materials that have properties that can be changed in a controlled fashion by external stimuli (e.g., electric or magnetic fields, light moisture, pH, pressure, stress, temperature).

Researchers have discovered how to create smart materials, memory metals, and nanomaterials. Nanomaterials could significantly impact the economy. “At nanoscale (less than 100 nanometers), ordinary substances take on new properties—greater reactivity, unusual electrical properties, enormous strength per unit of weight—that can enable new types of medicine, super-slick coatings, stronger composites, and other improvements. Pharmaceutical companies are already progressing in research to use nanoparticles for targeted drug treatments for diseases such as cancer.”⁴¹

NEEDS AND OPPORTUNITIES TO CONSIDER

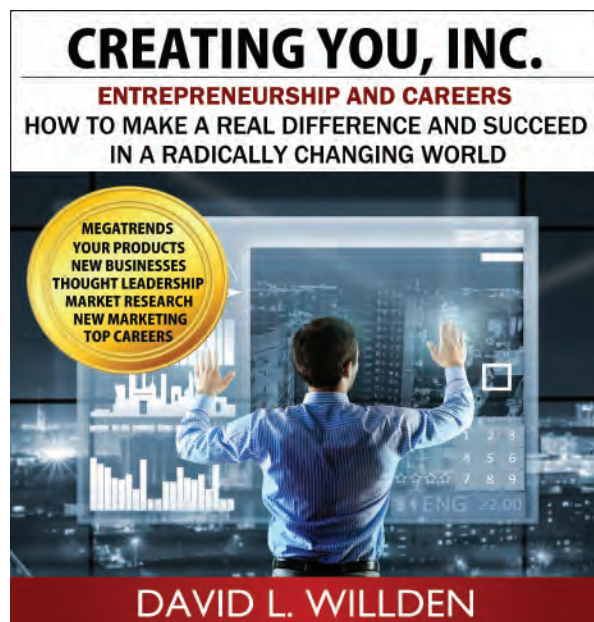
- ▶ Technology is becoming a key enabler in almost every field and discipline. Developing a sound understanding of technology will most certainly prove to be valuable.
- ▶ The need for technology and engineering experts will grow rapidly. Technology offers great promise if it is developed to help mankind in noble pursuits.
- ▶ Advancements in social networking technologies can help people to connect and collaborate to develop new innovations.
- ▶ Smart city technology offers the hope that cities of the future will be designed well and optimized.
- ▶ Robotics will help to increase quality and productivity.
- ▶ Autonomous vehicles can help to save lives and provide us additional time.
- ▶ Additive manufacturing technologies (e.g., 3D printing) could lead to exciting new breakthroughs in manufacturing and supply chain.
- ▶ Genetically modified crops, precision agriculture and water management can help to provide the food and water resources that the world needs.
- ▶ Bio-based, solar, battery and other energy breakthroughs can help to mitigate pollution problems, conserve natural resources, improve energy output, and decrease costs.
- ▶ Health technologies can save lives, improve the quality of life and human capacity.

ADDITIONAL RESOURCES

- ♦ HOW TO CREATE A SUCCESSFUL CAREER OF PURPOSE
 - ♦ HOW TO DISCOVER YOUR IDEAL SWEET SPOT
 - ♦ KEYS TO BUSINESS SUCCESS MOVING FORWARD
 - ♦ WHAT CAREERS WILL BE IN HIGH DEMAND
- ♦ HOW TO BECOME A THOUGHT LEADER IN YOUR NICHE
 - ♦ MARKET RESEARCH TO FIND OPPORTUNITIES
- ♦ HOW TO DEVELOP YOUR COMPELLING PRODUCTS AND SERVICES
- ♦ HOW TO MARKET YOUR PRODUCTS AND SERVICES IN TODAY'S WORLD

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ABOUT THE AUTHOR



David's greatest passion is in helping people to discover and create their own career or businesses. He also enjoys helping organizations to reinvent themselves, and to develop and implement compelling strategies. He has helped organizations to generate over \$300 million in results.

David is currently the CEO of Breakthrough Practices, LLC., a firm that provides strategy development, product development and strategy execution consulting services. David has worked as a senior management adviser to top government officials and consulted extensively with federal organizations, Fortune 100 companies, small-medium sized businesses, and non-profit organizations. He has also worked as an executive for Larry H. Miller (owner of 100+ businesses including Utah Jazz NBA team), Cap Gemini Consulting and Franklin Covey where he led business turnarounds, managed 100+ consultants, and managed 100+ concurrent product development & other project teams.

Most recently, David led teams to plan, publish and launch books, website and a television program. The first book was an overnight bestseller - shattering sales records in the industry. Subsequent books continue to be top sellers in their niche and have won top awards. The television series became a local favorite that continues to be rebroadcast.

David recently chaired and inaugurated World Strategy Week 2014 - that brought together top strategy thought leaders, executives and professionals from around the world. He is also on the Board of Directors for the Association of Strategic Planning.

David has a M.S. from Johns Hopkins University and a B.A. from Brigham Young University.



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