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# 40 FOR THE NEXT 40

A SAMPLING OF THE DRIVERS OF CHANGE

THAT WILL SHAPE OUR WORLD

BETWEEN NOW AND 2050

## FOREWORD

We are in the midst of an accelerating, revolutionary transformation. Change is happening everywhere – in technology, business, government, economics, organizational structures, values and norms – and consequently affects how we live, work and play. As industry and government leaders, we must acknowledge that this change demands new ways of governing and of running our organizations. The ways in which we communicate and interact with each other will be different. The methods through which we gain and process information will be different. The means by which we earn and spend money will be different. Through the culmination of these and other changes, organizations will be radically transformed.

This change is not unexpected. Forty years ago, Alvin and Heidi Toffler recognized that the pace of environmental change was rapidly accelerating and threatened to overwhelm the relatively slow pace of human response. Through *Future Shock*, the Tofflers persuaded us to consider the future by imagining drivers of change and preparing for a wide range of resulting future environments.

Now as we look towards the next 40 years, we continue to use these time tested methodologies, our founders' legacy to Toffler Associates, for understanding the forces of future change. We focus on the convergence and interdependence of seemingly orthogonal aspects to connect the dots and develop strategies for future success. In this way, we recognize, as the Tofflers did, that preparation is the best defense against the future.

Here is a sampling of 40 drivers of change that – we believe – will shape the future.

## POLITICS

- **CHANGES IN LEADERSHIP AROUND THE GLOBE WILL CAUSE CHURN IN RELATIONSHIPS AND OBJECTIVES**
  - Just in the next three years, approximately 80 nations will hold presidential elections.
  - The number of women in national leadership positions will increase at an unprecedented rate.
  - Religious groups will push to get into governments around the world.
  
- **NATION-STATE POWER AROUND THE GLOBE WILL BE INCREASINGLY “MULTI-POLAR” IN TERMS OF WHO WIELDS IT AND WHERE**
  - The economies of Brazil, China and India will become less US and EU centric.
  - Foreign Direct Investments will shift toward developing economies.
  
- **THE GROWING POWER OF NON-STATE ACTORS WILL CREATE PERVASIVE CHALLENGES TO NATION-STATE POWER AND INFLUENCE**
  - Private sector actors, NGOs, religious groups, “hyper-empowered” individuals whose resources can exceed those of states, and a wide range of transnational networks – both licit and illicit – will create a radically different future.
  - The most pressing geopolitical threat will not be al Qaeda, but its franchises, the wider network-of-networks spawned and inspired by its ideology.
  - “Hyper-empowered” individuals and groups will continue to gain access to knowledge, technology and finances previously attainable only by nation-states.
  
- **THE NUMBER AND VARIETY OF NON-STATE ACTORS WILL RISE DRAMATICALLY**
  - NGOs will be the fastest growing non-state actors, and will be key to governmental and industry strategies and solutions.
  - Governments’ engagement with non-state actors will intensify, shaping issues from security to development.

- **THE GROWTH OF SMART POWER INSTRUMENTS REFLECTS THE COMPLEXITY OF SECURITY CHALLENGES**
  - Military might will seldom be used in isolation again.
  - Challenges such as political instability, radicalism, economic have-nots, population migrations and mobility, plus widespread youth unemployment will make hard power insufficient by itself.
  
- **THE MIDDLE EAST WILL CONTINUE TO POSE “WICKED” SECURITY ISSUES WITH GLOBAL IMPLICATIONS**
  - The Middle East will witness accelerating reversion to a tangle of religions, sects and ethnicities.
  - The nature of the balance between Middle Eastern countries will be interrupted by new forms of instability.
  
- **PHILANTHRO-CAPITALISTS WILL INCREASINGLY WIELD INFLUENCE AND POWER ON A GLOBAL SCALE**
  - Organizations such as the Bill & Melinda Gates Foundation will eventually have more influence than national and multi-national organizations when it comes to education and disease eradication in third world nations.
  - The number of philanthro-capitalists will increase, due in no small part to Bill Gates’ efforts to get billionaires to give away half their fortunes in their lifetimes.
  
- **ROGUE NATIONS WILL CONTINUE TO BE GEO-POLITICAL WILDCARDS**
  - The world stage will continue to have a very small number of players who act irrationally, such as North Korea and Iran, but they will have a significant impact on regional and global political issues.
  - A true test for political leaders will be in how they handle relationships with these nations, and to what extent they allow them to control geo-political agendas.

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## TECHNOLOGY

- **THE EMERGENCE OF OPEN NETWORKS FOR INNOVATION WILL ALLOW RAPID ACCESS TO SPECIALISTS ACROSS THE GLOBE**
  - Open, collaborative innovation paradigms will enable companies to grow innovation capabilities beyond the limits of internal R&D teams.
  - Technologies will not be developed in-house. Successful organizations will become adept at integrating large problem-solver networks, linking “answer seekers” with “problem solvers” across the globe to rapidly harness the brainpower of international experts.
  
- **NEW PROCESSING AND STORAGE METHODS WILL FUNDAMENTALLY CHANGE HOW WE HANDLE INFORMATION**
  - The world will enter the “Petabyte Age,” where data saturation is the norm.
  - Widespread quantum computing will be a realistic possibility in the next 10-15 years, which could lead to either the rebirth – or the end – of encryption as we know it.
  
- **ADVANCEMENTS IN DISRUPTIVE TECHNOLOGIES WILL SIGNIFICANTLY ALTER THE DEFENSE, SECURITY AND SAFETY LANDSCAPE**
  - Advances in biotechnology will lead to bio-implants that provide enhanced human performance.
  - Advances in ubiquitous sensors will result in chemical, biological, radiological, nuclear and meteorological sensors in everyday person devices, such as cell phones.
  - Advances in “wild card” technologies will lead to the ability to “hack” people via neural, computer or other means to attack cognitive function neutral energy.
  
- **MASS PRODUCTION WILL INCREASINGLY BE REPLACED WITH ON-DEMAND, CUSTOM MANUFACTURING OF COMPLEX PRODUCTS AND SERVICES**
  - Small, agile companies will continue to bring personal attention to customers, allowing them to compete effectively with large manufacturers.
  - Compact fabricators and raw material supplies will replace stockpiling repair parts for maintenance.

- **RAPID TECHNOLOGICAL ADVANCES WILL HAVE SIGNIFICANT IMPACT ON HOW WE TARGET, MONITOR AND CURE DISEASES**
  - Rapid biotechnology advances will lead to the ability to remotely trigger automatic production of immune response and medicines in the body via implants or other means.
  - Rapid technological advances in ubiquitous sensors will lead to the improved ability for bio-health monitoring.
  
- **MOLECULAR NANOTECHNOLOGY MANUFACTURING WILL HAVE AN IMMENSE IMPACT ON SOCIETY, BUSINESS AND TECHNOLOGY**
  - Molecular manufacturing – the ability to construct powerful, atomically precise products at an exponentially increasing pace – will create disruptions, such as an unprecedented invasion of privacy resulting from cheaper, smaller, more capable and widely available surveillance devices.
  
- **VALUABLE INFORMATION RISKS COLLECTING “CYBERDUST”**
  - In some corners, including the military and intelligence agencies’ collection of full motion video (FMV), data is being collected faster than it can be analyzed.
  - New automated tools need to be developed to replace what is now a human-driven task; if they aren’t, then valuable information will risk collecting “cyberdust,” sitting on a server without being analyzed because of an increasing backlog.
  
- **COMPANIES WILL INCREASINGLY CREATE VALUE BY BEING “CONNECTORS”**
  - Companies will increasingly follow the Apple/iPhone model of creating value, not by creating products (in Apple’s case, apps), but by hosting the marketplace and charging to connect consumers to producers.

## SOCIAL

- **MASSIVE GROWTH IN URBANIZATION AND GLOBAL MIGRATION WILL DRIVE THE EMERGENCE OF MEGACITIES**
  - In the US, Chicago, Washington, D.C./Baltimore, San Francisco and possibly Dallas and/or Philadelphia will join New York and Los Angeles as megacities, based on natural population growth.
  
- **MIGRATION, URBANIZATION AND POPULATION GROWTH WILL CHANGE RELIANCE UPON LOCAL INFRASTRUCTURE**
  - Global population growth will increase demand for scarce natural resources and strain infrastructures (water, food, energy, etc.).
  
- **POPULATION AND DEMOGRAPHIC CHANGES AROUND THE GLOBE WILL CREATE FINANCIAL, SOCIAL AND ECONOMIC STRESSES ON NATIONS**
  - Developed countries will be populated by a mix of older natives and younger immigrants.
  - Urbanization and the youth population bulge will change the make-up and nature of developing nations.
  
- **AGING BABY BOOMERS AND INCREASED LIFE EXPECTANCY WILL DRIVE CHANGE TO FEDERAL SPENDING PRIORITIES**
  - Social Security and Medicare will no longer exist as we know them today.
  - Spending on long-term care services for the elderly will increase 2.5 times, nearly quadrupling in constant dollars to \$379 billion by 2050. Spending to cover these services will not just come from the government, but from NGOs and business.
  
- **SOCIAL NETWORKING WILL DRIVE NEW MEANS OF INFLUENCE**
  - New relationships will break down previously protected borders and provide new intelligence sources.
  - Government and business will reach out to previously unconnected contacts, exposing new risks.

■ **CONSUMERS WILL DRIVE CHOICE**

- Communication technologies and social networks will become increasingly influential, deciding factors in product and service offerings.
- Consumers or customers will be the most important source of innovation within organizations. The main driving force for “prosumption” – the unpaid output that we all produce every day – will be the technology-enhanced interaction between employees, suppliers, partners and customers.

■ **IT WILL BE IMPOSSIBLE FOR ORGANIZATIONS TO HIDE IMPROPER ACTIONS**

- Rapidly growing amounts of information, and the proliferation of professional/consumer grade tools for analysis and interpretation, mean previously empowered individuals will now be able to see what organizations are doing, and promote that information to others.
- Consumer opinion of corporate responsibility practices will influence product/service selection and brand switching.

■ **GLOBAL RELIGIOUS DYNAMICS WILL IMPACT THE POLITICAL, SOCIAL AND SECURITY ENVIRONMENTS OF THE FUTURE**

- Changes in global religious demography, such as the rapid growth of Christianity in the global South and increased Muslim immigration to Western nations, will shape public attitudes and government policies.
- Growth in religious believers will have an increased impact, with major policy and security implications around the world.

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## ECONOMICS

- **CHINA WILL CONTINUE TO POSITION ITSELF AS A LONG-TERM ECONOMIC POWER-PLAYER AROUND THE GLOBE**
  - China teams with other emerging countries (Brazil and India) to influence currency utilization.
  - China partners with other countries (Venezuela and Africa) to meet energy needs and to import a wide range of raw materials.
  
- **SOUTH AMERICA WILL BE RESHAPED BY PROLONGED ECONOMIC GROWTH**
  - Sustained economic expansion will create renewed global influence.
  - Bad Actors, specifically Venezuela, will challenge US influence in the region.
  
- **SMART POWER WILL COUNTER THE INFLUENCE OF GROWING ECONOMIES**
  - Developed countries will pursue the use of smart power to promote economic development and nation-building, increasingly important strategies for national security.
  - Soft power will get “smart” as knowledge and communications amplify coordination, with countries and NGOs providing assistance.
  
- **MOBILITY IN THE GLOBAL MARKET WILL BECOME A PRIORITY**
  - Safe, efficient transportation will be crucial to the global economy as it lies at the core of international trade. Future economic activity will drive unprecedented demand for global transportation services.
  - The strong demand for faster, cheaper delivery of goods will bring about larger container ships in the shipping industry and spur further improvements to the Suez and Panama Canals.
  - Corporations will become nimble enough to maneuver in and out of other countries very quickly.

■ **KNOWLEDGE WILL BE A MAJOR SOURCE OF CAPITAL**

- The ability to exploit information across traditional boundaries will be a great boon to developing countries as they come to recognize the importance of knowledge capital.
- Recognizing the importance of knowledge capital, developing countries will begin to place priority emphasis on education and knowledge transfer.
- The US will make international education a top priority, encouraging Americans to travel to other countries and see themselves as part of the global community.

■ **HIGH COSTS OF “OBSOLEDGE” WILL IMPACT GLOBAL COMPETITIVENESS**

- Every chunk of knowledge has a limited shelf life, becoming, at some point, obsolete – “obsoledge.”
- Accelerating change speeds up the rate at which knowledge becomes obsoledge. Every passing semi-second, accuracy of our knowledge about our investments, our markets, our competition, our technology and our customers will diminish.
- Obsoledge costs will be in the form of degraded decision-making.

■ **WORK WILL CONTINUE TO EXPAND TO FILL WHATEVER TIME AND SPACE IS AVAILABLE**

- Work will continue to be driven by knowledge. The increased knowledge content of work means that communication and the speed of knowledge transfer will be increasingly critical to the success of business.

■ **WHEN IT COMES TO WORK, “WHERE” WILL MATTER LESS AND LESS**

- The proliferation of high speed internet connections, the growth of low-cost videoconference technology, and the ability to rapidly and easily move around the globe via interrelated networks of airlines will allow white-collar workers to complete their work anywhere in the world, freeing them from their cubicles.
- The major challenge this will create is for local and national governments to play catch-up with regard to modernizing tax law.

■ **TECHNOLOGICAL ADVANCES WILL HELP RESHAPE GLOBAL ECONOMIC POWER**

- New abilities to identify resource deposits and extract them at low cost will give increased economic power to previously poor or ignored nations.

## ENVIRONMENT

- **COMPETITION FOR ENERGY WILL INTENSIFY, SHIFTING STATE POWER**
  - Energy resources will be used as leverage in broad economic warfare.
  - Energy competition will be multi- and cross-regional. Iran and Russia will use energy to increase power.
  - Governments will use diplomatic means to blur the lines between energy and other key issues.
  
- **RAPID TECHNOLOGICAL ADVANCES WILL IMPACT THE PRODUCTION, CONSUMPTION AND STORAGE OF ENERGY**
  - Advances in nanotechnology will lead to a significant proliferation in diversity of high-powered, portable energy generation and storage devices. This will spur the use of renewable electricity generation, which was previously prohibited due to storage deficiencies.
  - Alternatives to oil and natural gas will create losers in a post-petroleum world, including Saudi Arabia, Russia, Iran, Iraq, Venezuela and smaller Gulf states.
  
- **CLIMATE CHANGE WILL SERVE AS A CONFLICT ENABLER IN FRAGILE NATIONS**
  - Climate change will influence all industries and sectors of society, in part by affecting the infrastructures on which they rely.
  - A rise in sea levels and the resulting loss of territorial land will cause a conflict from displaced populations around the world.
  - Buried Arctic mineral wealth and oil fields will be made more accessible by melted seas, fueling conflict.

- **CHINA'S MONOPOLY CONTROL OF THE WORLD'S RARE EARTH METALS MARKET WILL HAVE A SIGNIFICANT IMPACT ON US NATIONAL SECURITY AND THE ECONOMY**
  - The seventeen elements that make up a group known as rare earth metals will remain critical to the performance of hundreds of products and technologies.
  - The US will be reliant on China's metals to produce such things as high-performance weapons components, internal guidance systems, microwave communications systems, radars, the motors and generators that power aircraft and ships, wind turbines, high-performance batteries, hybrid cars, superconductors, computer chips and digital displays.
  
- **RAPID NANOTECHNOLOGY ADVANCES WILL HAVE A SIGNIFICANT IMPACT ON CHEAP WATER DESALINIZATION/PURIFICATION TECHNOLOGY**
  - Advances in water filtration will solve the growing need for drinkable water, significantly reducing global conflict between water-starved nation-states.
  - Better water filtration will eliminate many forms of disease from developing countries, spurring their development.
  
- **AS ENVIRONMENTAL AWARENESS GROWS, SO DOES INDIVIDUAL AND COLLECTIVE ACTION**
  - Individuals will increasingly start and maintain small gardens to reduce their dependence on large food manufacturers and distributors.
  - Community Supported Agriculture (CSA) will continue to grow in prominence and acceptance in urban areas for both individual consumers and restaurants.
  
- **GLOBAL COMPANIES WILL HAVE EMBRACED THE "FOURTH BOTTOM LINE"**
  - Beyond simply reducing harmful outputs, organizations will improve and strengthen the resiliency of the environment, helping ensure that it can withstand and thrive in the face of the threats – both natural and man-made – that accelerating change creates.

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## TOFFLER ASSOCIATES

### Our Vision and Purpose

Toffler Associates was created to change the world. Our passion is to serve as a catalyst for change, creating successful futures for clients through uncommon knowledge.

We are a dynamic, innovative advisory firm that helps organizations with tough problems to solve. These problems are complex, presenting in sometimes unexpected ways. They're ambiguous, unpredictable and most oftentimes non-linear. But their resolution can transform the behavior of individuals and societies, along with the infrastructures, organizations and systems that exist to serve them.

We work with public-sector clients, such as federal agencies, the intelligence community, associations and educational institutions, to develop and implement ways to use resources more effectively and to build lasting public trust. We work with private-sector clients, like those in the transportation, aerospace, chemical, advanced materials, information technology and defense markets, to create and execute strategies that drive top-line growth.

Toffler Associates is different because we start in the future and look back to see what is really driving change around us. Our model for understanding change and its implications is a legacy passed to the firm by our founders, world-renowned futurists Alvin and Heidi Toffler. Our approach is a contemporary reflection of their efforts, combining forward-looking methodologies, in-depth industry knowledge and powerful insights gained through a network of global experts to turn analysis into action. In doing so, we help clients create enduring success by better understanding the forces driving change around them, preparing them for what the future will demand.

We find daily inspiration in working with commercial enterprises and government agencies that are creating something that really matters to people, clients who are trying to make a difference in all of our lives. Our purpose is to help them achieve that. It is the passion that unites our firm as one community.