

## CHAPTER TWO

### Reasoning Competency #1: Systems Thinking

*Living effectively is best understood as living within a system-of-systems.  
Decision making and problem solving that considers related system interdependencies  
almost certainly result in more complete solutions and fewer unintended consequences.*

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## Introduction to Systems Thinking

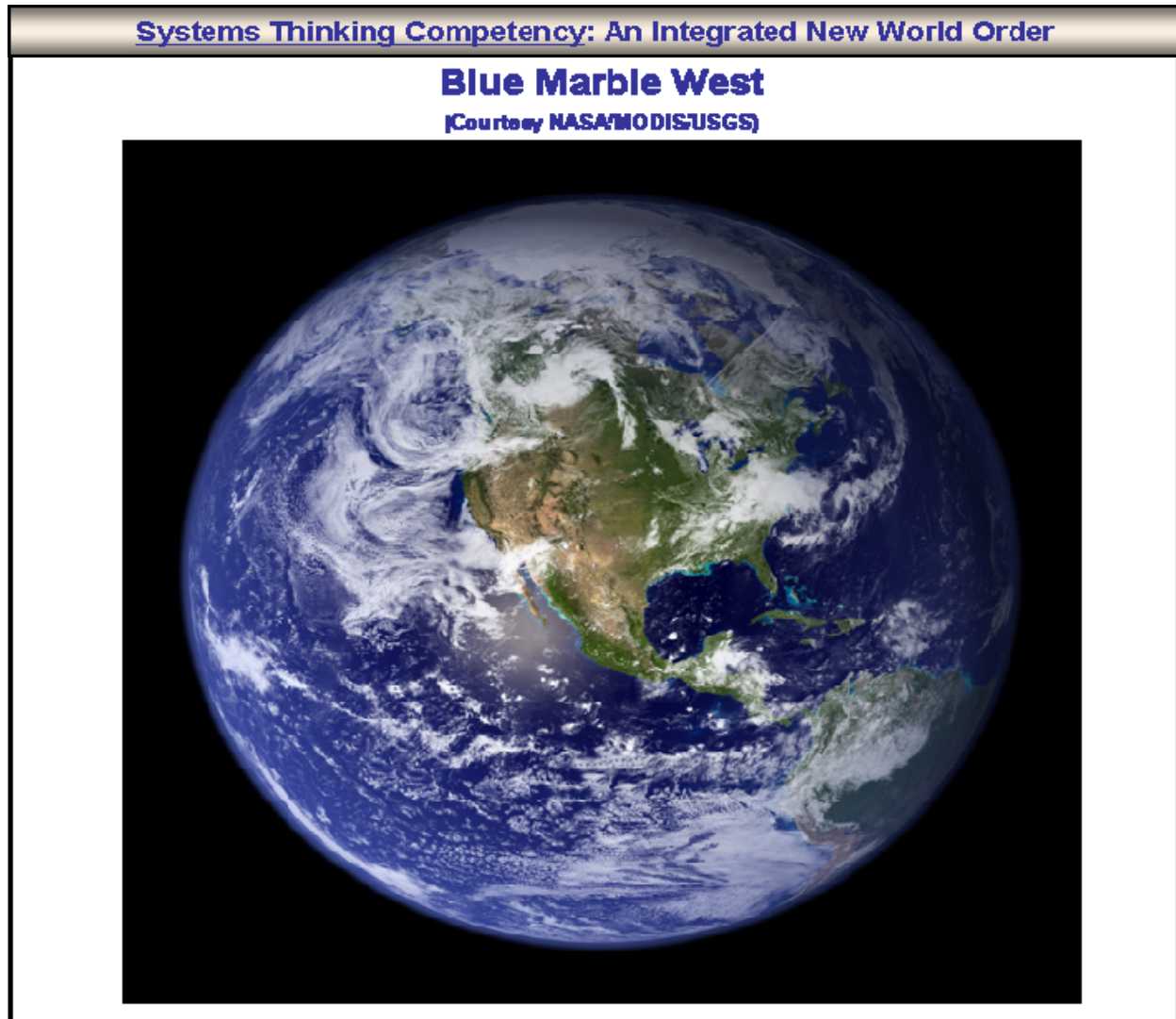
**Systems Thinking.** Systems thinking is the use of a systems perspective on social matters that illustrates the interdependency and mutual support among the personal, organizational, and community subsystems within which we learn, develop, and strive for success. The *systems thinking competency* helps us develop a broader, more integrated outlook, and to expand the contextual environment of our thoughts and decisions. The use of systems thinking inspires us to be integrative thinkers and discover opportunities to synthesize our learning for better understanding. Systems Thinking (ST) and Pattern Recognition (PR) combine to assure more effective Situational Learning (SL).

**Blue Marble.** Figure 2-1 (on the next page) is a picture of the earth from space – our own Blue Marble. Its purpose here is to significantly stretch our imagination and to lift us out of our own daily focus on ourselves and our material needs. From this vantage point, all the nations and people of the earth – whatever our differences in age, culture, race, nationality, etc. – are one.

**System-of-Systems.** The earth has been evolving over four thousand million years. Over that time, it has transformed itself, using electro-chemical means, from a totally inorganic array of chemical substances (basically water and rock) to become the organic garden of life we now know it to be. Originally, the earth was a relatively simple system, but it has developed into an extremely complex entity with millions of species of vegetation and animal life. And that life has formed and reformed not only itself but all manner of structures, tools, relationships and resources into streams of cause and effect activity. As humans evolved, they have learned-to-learn at an exponential rate and to use that learning to sustain themselves and their communities.

As we look carefully downward, we can see in our mind's eye the various physical, biological and social systems going about their respective life processes. On the physical level, we see the land changing in imperceptible ways as cycles of day and night systematically recur, and air and water temperatures change in nearly predictable patterns. Rivers flow to the sea, storms move through the sky, and earthquakes shake the land and mountains. On the biological (plant) level, we can observe the changing of the seasons with all the new life in the Spring, the growth and development in the Summer, the maturation in the Fall, and the death and/or hibernation in the Winter; followed by rebirth and/or renewal again in the Spring of the next year. On the biological (animal) level, we can see yearly cycles of growth and development and the increasing level of social interaction as each species pursues its respective life needs and motives. And for humankind, we observe continued development in the production and distribution of goods and services as communities and societies are formed to provide for the common good.

**Global Commons.** While it is in the nature of mankind for each individual and family to take primary responsibility for their own protection and sustenance, the vast majority of people have learned the social benefits that come from participation with others in matters of personal safety, economic production, and political representation. Wherever groups have formed into communities, states, and nations, we have understood our responsibility to care for resources and property in which there is a joint interest. At the community level, we might care for and share our parks; at the state level, we may have an interest in protecting our rivers and waterways; and at the national level, we might extend ourselves to implement controls on air polluting industries.



**Figure 2-1**

Whenever we take such interest and action, we are working to protect what we hold in common. So too, people and social groups at all levels have a responsibility to be stewards of the earth – this we hold in common for ourselves and posterity. We should always remember that we have a vested interest in the global commons: the rain forests in Brazil are equally as important to Americans as they are to Brazilians, and U.S. industrial plant carbon dioxide and air pollution can be inconsiderate behavior to other nations.

**Ex-Body Objectivity.** The reader should know at this juncture that organizing this book with the Blue Marble picture near the front has a dual purpose. Not only does this overarching view of the earth from outer space help us to appreciate the systems interdependency across all areas of our home planet, it also *challenges us as individual learners and leaders to occasionally step outside our prevailing mindset and take another, outside-in, more objective perspective* at the context within which many of our problems and decisions reside. Too often, the pressure of time or priority forces us to short change our thinking and to proceed with less than adequate

information thereby failing our real or most important objective. We can do better. Systems thinking expands our understanding, develops our skills, and matures our reasoning.

**Flat New World.** In his most recent book The World is Flat : A Brief History of the Twenty-First Century (2005), author Thomas L. Friedman brings new perspective on the worldwide, dynamic change that is engulfing us all. The following section contains extracts from what is surely to become a seminal commentary on U.S. international relations and responsibilities, and is herein viewed as a supportive corollary to the systems thinking theme of this section.

Friedman speaks of “globalization 3.0” in which a “triple convergence” of worldwide forces is already being experienced. The *first leg of the triple convergence* is a composite of his “ten flatteners,” a series of technology and business-based innovations from the last decade that have broken through international boundaries and made all nations more interdependent and competitive. “The net results of this convergence was the creation of a global, Web-enabled playing field that allows for multiple forms of collaboration – the sharing of knowledge and work – in real time, without regard to geography, distance, or, in the near future, even language.” (p.176) Major innovations he notes include: Worldwide Web, search engines, work flow software, open-sourcing, outsourcing, supply chaining, off-shoring, and others.

For the *second leg of the triple convergence*, Friedman says “But for the full effect we needed the emergence of a large cadre of managers, innovators, business consultants, business schools, designers, Information Technology (IT) specialists, CEOs, and workers to get comfortable with, and develop, the sorts of horizontal collaboration and value-creation processes and habits that could take advantage of the this new, flatter playing field. In short, the convergence of the ten flatteners begat the convergence of a set of business practices and skills that would get the most out of the flat world...We have gone from a vertical chain of command for value creation to a much more horizontal chain of command for value creation.” (pp.178-179)

Lastly, for the *third leg of the triple convergence*, Friedman summarizes the explosion of people living in China, India, Japan, Russia, East Asia, and parts of Africa and Latin America that are now taking part in the global economy. He comments that “[It is] this triple convergence – of new players, on a new playing field, developing new process and habits for horizontal collaboration – that I believe is the most important force shaping global economics and politics in the twenty-first century. Giving so many people access to all these tools of collaboration, along with the ability through search engines and the Web to access billions of pages of raw information, ensures that the new generation of innovations will come from all over the Planet Flat. The scale of the global community that is soon going to be able to participate in all sorts of discovery and innovation is something the world has simply never seen before.” (pp.181-182)

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### **Learnership Universal Knowledge Spheres**

The scope of Friedman’s triple convergence, and the breadth and depth of the societal elements undergoing change provides us the opportunity to introduce the concept of learnership “knowledge spheres.” Six knowledge spheres are presented to serve as a high level typology of

interrelated societal topics and as a method for categorizing societal knowledge, relationships and activities. Definitions of these spheres along with comments from Friedman and others follow. Figure 2-2 (on the next page) is provided for reference and is an illustration of pervasive global connectivity and influence on the international stage.

*Google and the internet make all data, information and knowledge available to all in over one hundred languages! This is your new brain, ready to be used for personal, organizational, community and societal growth and development.*

**Technological Knowledge Sphere.** The technological knowledge sphere concerns the application of scientific methods and tools to societal activities. Emphasis here is on the study, development, and application of scientific methods and materials to achieve societal objectives. Major focus is on biotechnology, information technology, and materials technology.

Friedman and the writings of others contribute to a list of information technology innovations that depict the explosion of IT innovation over the last decade. Starting with a focus on networking, there is the huge expansion of the internet itself as a catalyst for web-based communications; improved communication transport protocols (e.g., HTML and XML); satellite and wireless communications; international fiber-optics as well as fiber optic to the desktop; encrypted communications protocols (SSLs); computer system identification certificates; and a significant increase in signal bandwidth to permit the transfer of very large files.

In the area of communication platforms, there is the worldwide increase in the quality and sophistication of PCs and laptops as well as other personal information tools such as cell phones, electronic games, palm pilots, and other PDAs. Applications such as MS Windows; search tools (e.g., Netscape and Internet Explorer); Virtual Private Networks (VPN); database management tools; instant messaging; digitalization and sharing of all previously hard to obtain information; and collaboration tools are proliferating. New work flow platforms, standard communications protocols, and huge free information stores (e.g., Wikipedia) are now available.

In the area of business process management, there are enterprise level applications for all types of support services; employee knowledge portals; e-business management tools; Radio Frequency Identification (RFID) microchips for physical in-process tracking; and horizontal workflow management tools. Additionally, there are virtual support tools that support open-sourcing, outsourcing, off-shoring, supply-chaining, in-sourcing, virtual production, Communities of Interests (COI), and personal in-forming (personal search techniques). The Internet and its associated technologies have become a distributed “global brain.”

*Culturally and politically, we continue to move closer to a global civilization and we continue to move from a bipolar toward a multi-polar world order.*  
*Yevgeny Primakov*

**Geographical Knowledge Sphere.** The geographical knowledge sphere concerns the preservation of geographical, physical and continental regions of the entire earth. Emphasis is on international issues and relationships concerning nation-states’ territorial boundaries and conflicts, population and immigration challenges, and property ownership and resource rights.



**Figure 2-2**

The world has experienced considerable conflict and war during the last century. For the U.S., World Wars I and II, the Korean, Vietnam, and Persian Gulf I wars, and currently the U.S. wars with Afghanistan and Iraq, are significant. Also, Israel is in continual conflict with Lebanon, Syria, Egypt and Palestinians. Additionally, there has been the Serbian-Kosovo war, India-Pakistan war, and numerous conflicts among African states (Sudan, Somalia, Darfur, Ethiopia), and numerous other areas of continued intra-national hostility. These conflicts have been based on a variety of issues including political, economic, social, ethnic, religious, and national resource scarcities. But in every case, the cost has been large. In all these conflicts, the nations have committed huge sums of money, material and the lives of their citizens. Often, damage to the land as well as infrastructure has been notable.

The significance of this saga is that nations go to war as the result of strains in their international relationships and because of their economic and political deficiencies. Leaders and populations often strike out at those they perceive as their offenders. These extreme changes taking place (near chaos in some quarters) are sure to create new winners and losers in the world economy,

thereby exacerbating current tensions. A flatter world is likely to create a preponderance of wealthy states, international businesses, and well-positioned billionaires that will be the cause for rebellion and conflict by those on the losing side. The unequal distribution of resources, talent, ambition and education could become untenable very quickly. Waves of immigration as currently being experienced in the U.S. and elsewhere will continue to burden some nations, while meliorating the tension and suffering in others.

In terms of the management of physical and human resources, some nations are already far ahead in the game. The U.S., Japan, Australia, and much of Europe have productive economies, good natural resources and manageable populations. On the other hand, the billions of people in China and India as well as most people in Africa, Asia and some parts of South America survive on only a few dollars a day income. Often the land is barren and unproductive and the majority of the people have neither the knowledge nor education to move forward in increasingly competitive economies. Some will be helped by international businesses looking for cheap labor and resources, while most will continue to struggle. The elite in these nations will surely have the chance to survive and succeed, but the majority will not. The lesson here is that further inequality of education, ambition, knowledge, opportunity and income is likely as the earth churns with rapid political, economic and social change.

*The emergence of a global economy and global society  
demands that we strengthen global governance.  
Jack Straw, British Foreign Secretary*

**Political Knowledge Sphere.** The political knowledge sphere deals with the study, structure, or affairs of government, politics, or the state. Focus is on citizenship, governance, foreign policy, political and cultural choices, and national defense.

Friedman and others express serious concern on the ability of the international community of nations to manage the period of change and chaos that has begun. Three major factors in play include: (1) the fall of communism in Europe and the end of the cold war – but, with the continued mixture of socialistic, democratic, autocratic, totalitarian and theocratic regimes conspiring for power and money regardless of the implicit social and international impact; (2) the rapid emergence of “political Islam” that threatens both Eastern and Western countries; and (3) the criminal conspiracies (e.g., international trade in drugs and human beings) being bred in many socially and economically deprived nations. The battle for national sovereignty and competitive international positioning will continue, but with the additional trend in which vertical politics and influence are challenged by economically-based horizontal shifts toward greater worldwide collaboration and production.

It is apparent that significant international responsibilities and issues are in need of United Nations leadership – but that is not likely to occur due to that organization’s poor performance as the arbiter of conflict. The bottom line is that international political alliances may be coming apart as fast as new ones are established – a time of great uncertainty. Friedman suggests the time may be right for a new party system in the U.S. in which there would be a WALL party and

a WEB party. The Wall Party would focus on slowing down unacceptable change and globalization while the Web Party would emphasize the exploitation of opportunities for outside/external contact and development.

*The central challenge we face today is to ensure that globalization becomes a positive force for all the world's people, instead of leaving billions behind in squalor.*  
*Former UN Secretary-General, Kofi Annan*

**Economic Knowledge Sphere.** The economic knowledge sphere concerns the production, development and management of income and wealth. Focus is on the production and distribution of goods and services. Primary emphasis is on business management, financial management, and social systems economic development.

Friedman introduces his readers to David Ricardo (1772-1823) and his contribution to free trade and international exchange. Most notably, Ricardo's Theory of Competitive Cost Advantage which applies in international trade between nations is mentioned. His view was that nations should specialize in what they do best to drive down per unit costs of goods and services – and they should then trade with others for products that others can provide more cost efficiently. This supposedly benefits all nations that participate. However, that was before knowledge jobs were predominant and before pervasive worldwide communications and Web-based horizontal work processes allowed the inequitable distribution of efficiency that comes from the dispersal of knowledge, labor, and capital. The global partitions based upon national boundaries, languages, and monetary systems have been breached. We are coming to near free-fall wherein countries can race to the bottom cost-wise thereby reducing the average wage and economic well-being of most people – or, we can continue to strive for greater innovation and a larger economic “pie” in accordance with the belief of those who believe that humans have an unlimited desire for more and more products and services. At some macro-level, the planet's “carrying power” will need to be considered in either scenario.

Friedman also raises the issue of business' relentless attempt to eliminate sources of friction and inefficiency: “From the first stirrings of capitalism, people have imagined the possibility of the world as the perfect market – unimpeded by protectionist pressures, disparate legal systems, cultural and linguistic differences, or ideological disagreement.” But, “some of these inefficiencies are institutions, habits, culture, and traditions that people cherish precisely because they reflect non-market values like social cohesion, religious faith, and national pride.” (p.204) We can say with some certainty that investors in business do not care where or how profit is made on their capital investment – unless it impacts their own jobs, families, or community. How do politicians and other leaders decide what to do? It appears that we want Wal-Mart jobs and prices but we do not want Wal-Mart workers being a burden on our health and welfare system.

The global competitive playing field has flattened. Wage rates are changing significantly as businesses shop the world for the lowest resource costs. China and India have wage rates less than one-sixth of that in the U.S. for people with the same skill level. Japan outsources its lower value work to China as they strive to reserve higher value tasks for themselves. Friedman comments: “We don't know anymore where companies start and stop. Capitalists can sit back,

buy up innovation, and then hire the best, cheapest labor input from anywhere in the world to research it, develop it, and distribute it.” (p.209)

*It ain't what you don't know that gets you into trouble.*

*It's what you know for sure that just ain't so.*

*Mark Twain, Humorist/Author*

**Social Knowledge Sphere.** The social knowledge sphere addresses the associations and living arrangements among individuals and groups in society. Focus is on the dynamics of social activity among individuals, organizations and institutions. Major emphasis is on education, learning, culture, human relations, interpersonal communication and media.

Friedman and others predict continued and increased: economic, political, and social inequality; explosion of population and disease in poorer countries threatening to spread to advanced nations; media and popular culture expansion; cross-social boundary and culture communications; creation of “intelligence commons” for sharing information and knowledge; thousands of self-organizing communities of interest and the cross pollination of cultures and religions; and the establishment of “virtual modules” of trusted knowledge and experience that selected individuals and organizations can use in the pursuit of their personal objectives. In short, increased international integration is a certainty but with the probable downside that the disparity between the “haves” and “have-nots” will become even more pronounced due to the current spate of technological and economic innovations.

*The history of life on earth has been a history of interaction between living things and their surroundings... Only within the moment of time represented by the present century has one species acquired significant power to alter the nature of the world.*

*Rachael Carson, Silent Spring*

**Ecological Knowledge Sphere.** The ecological knowledge sphere concerns the relationships between organisms, their environments and the goal of sustainable habitats. Emphasis is on the life processes and characteristic phenomena of living organisms. Focus is on bio-system management, energy production, population and demographics, and the availability of food and health services.

In April 2007, the Intergovernmental Panel on Climate Change (IPCC) entitled “Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability” issued its Fourth Assessment Report saying that: (1) many natural systems are being affected by regional climate changes, particularly temperature increase, (2) warming has had a discernable influence on many physical and biological systems, and (3) other effects of regional climate changes on natural and human environments are emerging. Evidence provided includes: changes in Arctic and Antarctic ecosystems; increasing instability of permafrost regions; warming of lake and rivers; shifts in plants and animal species; longer growing seasons – all of which are attributable to the increase in greenhouse gas concentrations and a rise in average global temperatures since the mid-20<sup>th</sup> century. And, they admonish that this occurrence is very unlikely to be due to natural variability in earth systems.

Future impacts from the same report include: (1) up to a 40% increase in average annual river runoff in high elevations concurrent with a decrease of up to 30% in an area already too dry; (2) reduced rain water where approximately one sixth of the world's people already live; (3) 20 to 30% of plant and animal species are in danger of extinction; (4) increasing acidification of oceans due to increasing atmospheric carbon dioxide; (5) decreases in crop productivity due to droughts and floods; (6) wholesale destruction of fish species due to warmer water; (7) increased glacier melting and ocean levels, coastal hurricanes and flooding; (8) devastation of poorer unprotected communities; (9) increased human death and social costs; (10) higher concentrations of ground level ozone; (11) increases in malnutrition, disease and death; (12) significant disturbances from pests, diseases and fire; and (13) a huge amount of coral bleaching and death to ocean species.

In his book An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It (2007), Al Gore makes the case for action by presenting data showing two major points. First, the earth's atmosphere is quite thin meaning that we are able to change its composition, and second that there has been an extraordinary and increasing, level of carbon dioxide in the global atmosphere in just the last few decades. The critical point is that average global temperature follows these increases very closely meaning that without an immediate effort to reduce carbon dioxide, the world's temperature will shortly rise a few degrees causing the aforementioned global warming, glacier melt, property and human losses like we have never seen before. The essential point here is that most of this problem is man-made; the whole planet is affected; the U.S. is the major contributor to the problem (but the Chinese and others with growing economies will contribute their share of the problem as they become more industrialized); our vulnerability can be mitigated and reduced; but we have to take action on the personal, organizational, community, and national level beginning now.

[Author's Note: The reader should appreciate that the book's developing undertone concerning Total Knowledge Management (TKM) is that TKM is possible when learning, knowing, and leading are being performed concurrently in both the six knowledge spheres and the four learnership social systems.]

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### **Learnership Social Systems**

Now that the six learnership knowledge spheres have been defined and described, it is important to note that in this book these spheres are viewed as having a support or contextual role in relationship to the "learnership social system" itself, which is part of the core content in the learnership architecture. The learnership social system is a dynamic, meta-system worldview that accounts for multiple social system levels of human goal-setting, development and accomplishment. The subsystems of the societal meta-system are the personal, organizational, community, and societal systems for which an optimal level of maturity and social achievement is desired. These systems are herein defined and described

*I am inclined to attribute my good health, and that of my family, primarily to our outlook on life, and to our philosophical approach to other people and to ourselves.  
Harry Truman, 33<sup>rd</sup> U.S. President*

**Personal (Micro) Systems Development (PSD).** PSD is social synthesis at the micro-cognitive level, and is the starting point for managing the quality of our lives at the personal, family and associates subsystem level. Our learnership *reasoning competencies* are focused on continuous improvement of our primary PSD domain elements: *our health, our character and our ability*. The universal goal selected for the personal level is *self-fulfillment*, and the key role for us to play is *fellowship*.

*America has become a society owned by corporations and a political system dominated by corporate and special interests, and directed by the elites who are hostile – or at best indifferent – to the interests of working men and women in the middle class and their families.  
Lou Dobbs, Financial Commentator*

**Organizational (Macro) Systems Development (OSD).** OSD is social synthesis at the macro-cognitive level, and uses recognized benchmarks for achieving highly efficient and effective organizational performance. Our learnership *reasoning competencies* are applied to the organizational domain elements selected for intense management focus: the organization's *direction, operations and performance*. The universal goal selected for organizational accomplishment is *high performance*, and the key role for us to play is *leadership*.

*We will do collectively, through our government, only those things  
we cannot do well or at all individually and privately.  
Abraham Lincoln, 16<sup>th</sup> U.S. President*

**Community (Mega) System Developments (CSD).** CSD is social synthesis at the mega-cognitive level, and is conceived as the pathway for building a rewarding community life. Our learnership *reasoning competencies* at this level are applied to the community domain elements under development: the institutions of *government, education and business*. The universal goal selected for community accomplishment is termed the *common good*, and the key role for us to play is *citizenship*.

*The challenge, then, is to make sure that U.S. policies move the international system in the direction of greater equity, justice and prosperity – that the rules we promote serve both our interests and the interests of a struggling world.  
Barack Obama, U.S. Senator*

**Societal (Meta) Systems Development (SSD).** SSD is social synthesis at the meta-cognitive level, and consists of fully integrating our learnership *reasoning competencies* across all four levels of social synthesis. The universal goal selected for societal level accomplishment is *human enlightenment*, and the key role for us to play is *statesmanship*.

[Author's Note: This overview of the learnership universal knowledge spheres and social systems is noteworthy because when coupled with the learnership competencies previously described we have all the major components of the learnership process model. And as mentioned earlier, this model is also a depiction of a universal, Total Knowledge Management framework.]

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### **Application of Systems Thinking**

**Open-System Dynamics.** An essential capability in systems thinking is being able to visualize the myriad and interdependent factors and forces that could or should be considered in decision making or problem solving. Learning to ask the right questions – and having the courage to bring attention to those questions – when scoping the level of inquiry is often more challenging than coming up with an acceptable answer. Time available, issue priority, personnel involved, and cost impact are some of the risk management factors that need to be weighed and evaluated.

Whether the decision or problem exists within a closed or open system environment is another important consideration in framing our thinking and deriving well-reasoned solutions. If the choice is a closed system model the tendency is to de-scope the problem space, limit the number of variables, and use a zero-sum approach in evaluating the availability of solution aids and resources. When time is of the essence and situational complexity is minimal, adequate, albeit incremental solutions are often successfully achieved. All too often, however, this rapid and simplified approach becomes a standard and uniform practice which prevents individuals, organizations, and other social entities from becoming more knowledgeable, innovative and successful.

On the other hand, a more dynamic open system environment is chosen for framing thinking and conducting reasoned inquiry. This is the appropriate methodology when many factions and interests demand inclusion, complexity cannot be avoided, longer-term solutions are required, and the risks and costs of error are significant. In this situation, it is more productive to envision that sources of energy and resources currently outside the problem domain could be brought to bear on the issue, thereby expanding the range and depth of factors that may be used in achieving a more holistic solution.

The learnership systems thinking reasoning competency is expressly designed to encourage greater use of open systems thinking. The exercises that follow are designed to demonstrate high level open systems thinking, and Figure 2-3 (on the next page) which illustrates the relationships among the learnership knowledge spheres and learnership social systems is provided as a reference tool.

#### Situation #1 – Illegal Immigration into the U.S. from and through Mexico:

Initial Impacts – Estimate is that there are at least 12 million illegal immigrants in the U.S. as of 2006 and many more are on the way. The vast majority is mostly welcomed by low skill level U.S. businesses to cut their operating costs and by low cost retail businesses to

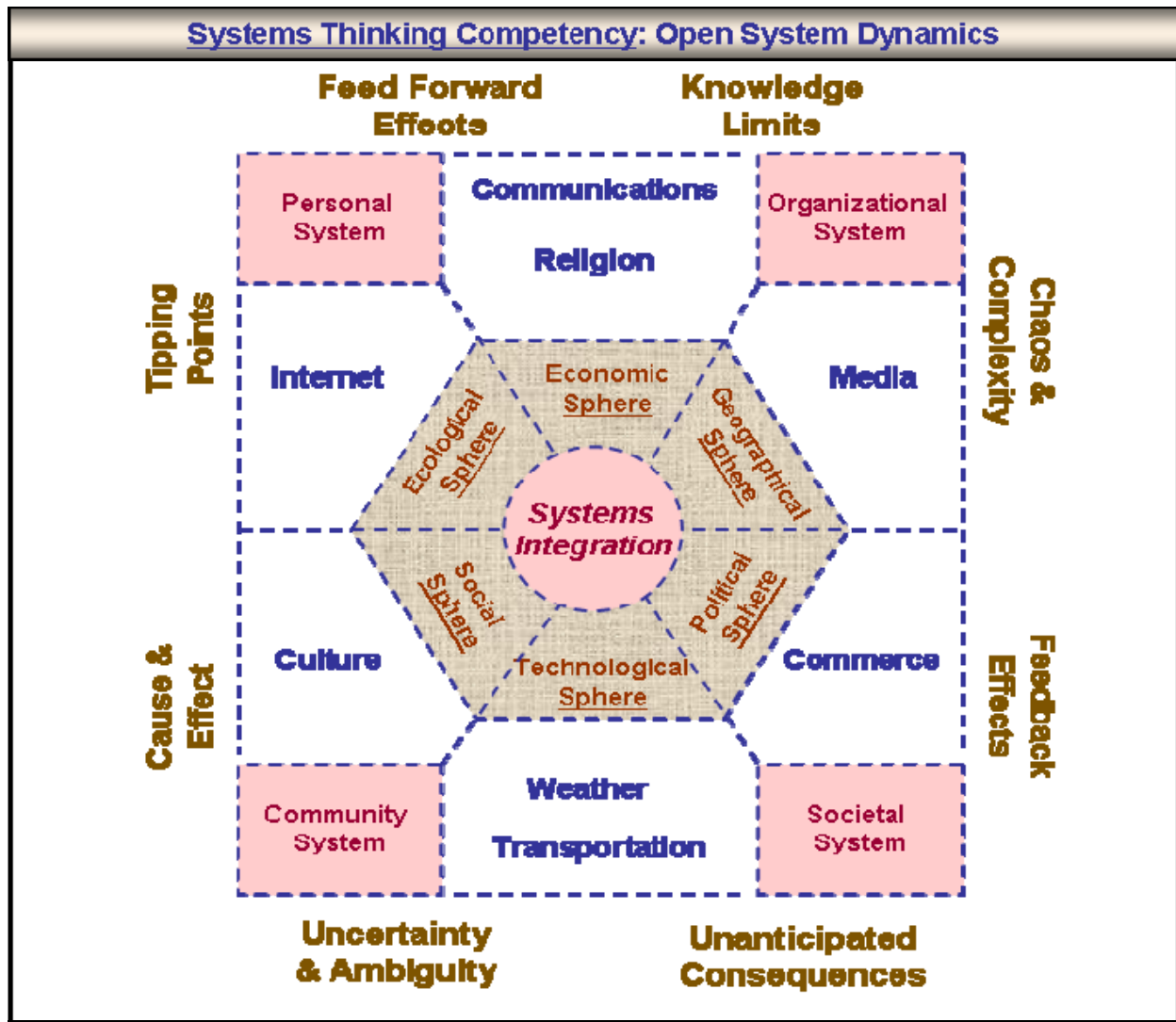


Figure 2-3

sell them services (*economic, organizational system, commerce*); the U.S. borders are being illegally crossed (*territorial, political, social*); many immigrants are being abused and exploited (*unanticipated consequences*); most have minimal education, do not have IT skills, do not speak English (*economic, social, technological, knowledge limits*); many politicians look to get the immigrant votes (*political*); many U.S. communities have high concentrations of immigrants looking for housing, work and free education and medical care (*community system, social system, organizational system, tipping points, culture shifts, more unintended consequences*); higher levels of gang activity, drug violations, petty crime (*economic, political, community system*); tendency to have large families in the U.S. or on the way here, high birth rates due to religious preferences with children automatically becoming U.S. citizens (*feed forward effects, political, economic, social*); inability of U.S. Congress, White House, and law enforcement entities to establish appropriate policies, enforce laws, solve crime in many affected communities (*uncertainty, chaos, feedback effects*).

Comment – This is a multi-billion dollar a year problem that is steadily getting worse. While recognizing the human needs and aspirations of the immigrants themselves, this problem involves illegal and criminal behavior; huge economic costs to U.S. citizens; dubious political game-playing; corporate deception and tax evasion; and a myriad of social and cultural impacts involving all the learnership knowledge spheres and social systems.

The Solution – What would you do? What should be addressed, what should not, and how? Which issues and interest groups have priority? What open system insights might be appropriate? Can we learn to reason more fully and take mature action? The answer is certainly: “yes we can by using systems thinking.”

Situation # 2 – Global warming and the U.S. responsibility to the international community:

Initial Impacts – Global warming and its derivative problems are caused in large part by the huge increase in carbon dioxide formation in industrial areas of the planet (*ecological, economic, commerce, organizational systems, cause and effect*); major studies and regional treaties place most of the responsibility for finding solutions on the leading industrialized nations and those rapidly modernizing nations with huge populations (*economic, territorial, political, commerce, community and societal systems, tipping points*); global weather patterns will change for the worse, fresh water flowing into the sea along with higher temperatures will kill hundreds of species and decrease organic sea life, deserts will become dryer while wet areas get wetter (*economic, social, political, territorial, ecological, tipping points, chaos, knowledge limits*); seas will rise flooding major cities worldwide, killing people, causing chaos and crime, costing billions, bankrupting insurance companies and financial institutions (*economic, political, social, ecological, technological, unanticipated effects, feed forward effects, cultural disruption*); transportation systems, petroleum refineries and petroleum-based fuels, and gas and electric production facilities are large greenhouse gas contributors and polluters (*technological, economic, ecological, commerce, weather, feed forward effects*); nations and regions across the globe are seeking cost-effective solutions without disrupting their own economic development or political influence (*political, social, technological, economic, organizations, communities, uncertainty, feedback effects*).

Comment – Within the next 50 years, the loss of life and cultural ties; disruption of plans and investments; elimination of thousands of plant and animal species; destruction of industrial and commercial facilities; international debates, arguments and threats; lack of stability in family life and careers; and general turmoil and anxiety could significantly reorder the economic, political, and social priorities of many nations and their citizenry. Some would say the issue here is overstated and that the planet is always going through change – and that we can and will incrementally adjust. Others would say we are late in recognizing this tremendous, negative impact on our nations and societies – we must immediately adopt risk mitigation strategies so as to minimize the disruption and damage to our common good and well-being.

The Solution – Similar to Situation #1 above, what are the facts; who should own which aspects of this problem; who will lead; who will pay; and how and when will we take action? There are dozens of “wicked problems” that can and should be addressed in the interests of the development and advancement of communities, nations and societies. In all cases, however, the recurring need is for greater systems thinking by those responsible for studying, advocating, leading and adapting to necessary change.

**A Change of Perspective.** Peter Senge, author of The Fifth Discipline (1990), comments that: “Today, systems thinking is needed more than ever because we are becoming overwhelmed by complexity. Perhaps for the first time in history, humankind has the capacity to create far more information than anyone can absorb, to foster far greater interdependency than anyone can manage, and to accelerate change far faster than anyone’s ability to keep pace.” The result is that: “Complexity can easily undermine confidence and responsibility...Systems thinking is the antidote to this sense of helplessness that many feel as we enter the age of interdependence.” (p.69)

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## Conclusion

*Acquire new knowledge whilst thinking over old,  
and you may become a teacher of others.  
Confucius*

**Systems Thinking Competency: A Conscious Evolution?** Barbara Marx Hubbard is a noted futurist whose extraordinary capacity for understanding the past-present-future continuum of human experience is reflected in her lectures and writings. The following excerpts from The Futurist Magazine interview with her entitled “Conscious Evolution: Examining Humanity’s Next Step” (The Futurist, Sep-Oct 1993) are presented for the reader’s contemplation and inspiration.

1. On Societal Change – “Humanity is now learning the process of evolution and becoming consciously responsible for it...I believe that we as individuals are becoming part of a larger whole, both through our consciousness and through our electronic connections. Rather than it just being an individual or saint, it will be in a collective capacity, both technologically and spiritually. Traditionally, nature evolves through the formation of larger whole-systems – from atom to molecule to cell to humans, and now through Planet Earth to one interacting system. As the whole-system matures, its parts exercise synergy and become greater than they were when separated.” (p.38)
2. Conscious Evolution Defined – “The capacity to be aware of the process of evolution and to guide that process for the good of all Earth life. Conscious evolution is based on three new conditions. One (1) is the new *cosmology*. Only recently have we learned that the universe had a beginning (the Big Bang), has a history, and is still evolving now.

Two (2) is our *new crises*. Never before has a species had the power to destroy the world. Three (3) is our *new capacities*. These capacities, social, scientific, and spiritual, indicate that we can transform the world – through deliberate intervention.” (p.39)

3. Fostering Conscious Evolution – “We need images of social wellness to attract us forward. We need a mass media to communicate our evolutionary potentials. We need radical education at all levels in self-esteem, cooperation, and self-actualization. We need an expanded ‘Earth-space human development process;’ with the goal of restoring this Earth, emancipating human creativity, and exploring the universe.” (p.41)

**Implications for Total Knowledge Management.** Working in a complex world and a competitive marketplace tends to cause leaders and employees alike to reduce the scope of their thinking and attention in an attempt to become more efficient in accomplishing their life and employment responsibilities. Better, cheaper, faster can sometimes seem like an oxymoron; especially when “time is of the essence” or “the customer is on the phone.” If we really learned from our not-so-positive experiences, why are we doing things over again so often? Part of the reason is that projects, problems, and workflow issues are being handled with minimal attention to the larger context, longer timeframe, or increasing risks associated with the status quo. Failure to take the time to observe, reflect, and consider all influential factors is the basis for attempting to solve the wrong problems and wasting time and resources on ill-conceived solutions. Effective knowledge management requires decision-making and problem-solving based on timely, accurate, and relevant information. Leaving out that which is relevant due to an unwillingness to pursue a larger, systems thinking approach is not wise personally or organizationally.

Systems thinking is an essential part of knowledge management, and is particularly important in that the six Universal Knowledge Spheres described in this chapter are essential elements in the construction of the Learnership Integrated Systems Architecture (LISA); and by extension, are contributing elements in building a Total Knowledge Management (TKM) capability.

**Personal Reflection.** This topic appears at the end of each chapter and is meant to serve two purposes: (1) be a reader’s guide to main points and “takeaways,” and (2) to encourage everyone to take a moment to engage their mental cognition and intuition on what the chapter means to them – especially at this time in their lives. Questions for chapter reflection follow immediately below; and for those readers inclined to maintain a self-assessment, your thoughts may be recorded in your Learnership Journal for Life and Career Reflection and Renewal which is located at the epilogue.

### Questions for Discussion:

1. Have you been able to experience some aspect of what Thomas Friedman calls the flat new world in your own life and career? Please explain.
2. Which of the universal knowledge spheres do you believe has the greatest likelihood of damage to the U.S. National interest in terms of worldwide acceptance of U.S. world leadership? Please explain.

3. Can you list two to three major learning points from this chapter that you want to keep in mind to improve your ability to manage your life and career?
4. What do you think the impact of this chapter's information might be on the personal, organizational, community, and/or societal systems to be discussed later in the book?
5. Can you identify two to three topics, models, or perspectives in this chapter you would like to learn more about?
6. Should you be making an entry into your learnership journal at this time?

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