

Chapter III

The Civilization Index

INTRODUCTION

The purpose of this chapter is to define energy levels of civilizations, particularly in respect to a role of information-communication processes. Rapid changes in the world economy and social structure have brought into question traditional assumptions, prompting some intellectuals to speak of a “clash of civilizations” (Huntington, 1993; 1996) or even “the end of history” (Fukuyama, 1989; 1992). Before one can speculate about a new world order, it is necessary to develop an appropriate set of measurements to compare human societies and a terminology to describe them. The environment described as a “civilization” by Toynbee (1995) and “the world civilization” by Braudel (1993) has changed so drastically that those definitions are no longer sufficient.

The spectacular progress in technology and social life that has been achieved at the beginning of the third millennium stimulates an extensive investigation into the human condition and the world status. Questions like the following need to be answered:

1. What is the state of Western and other civilizations at the beginning of the 21st century?

2. How can it be compared to other civilizations in terms of level of development?
3. What criteria and measurements should be applied in evaluating and comparing civilizations?
4. What is the relationship between a given civilization and the world civilization?

This study falls into a category of wide-ranging comparisons of large structures and processes, in order to understand how human entities behave in a certain way because of the consequences of the civilization system’s behavior as a whole (Tilly, 1984).

THE NEXT ENTITY TO MEASURE

Several attempts to measure civilizations’ vitality have been undertaken. Most of these studies were conducted at the level of the development of regions over several millennia. Kroeber (1944) counted “geniuses,” whom he defined as “superior individuals” whose superiority had been established by a consensus of encyclopedia and textbook authors. He counted them in seven disciplines: philosophy, science, grammar (philology), sculpture, painting, drama, and literature, through the 59 centuries from 4,000 B.C. to 1,900 A.D.

He found 5,323 geniuses; of whom 56% were from Europe, 11% from the Far East, 3% from India, 8% from the Middle East, and 22% from elsewhere (assuming 50% of it from America). Hence, one can assume that about 67% of geniuses were “generated” by the Western civilization. According to Kroeber, the Middle East provided the overwhelming majority of geniuses from 3,000 to 800 B.C. Then Europe took over the supply until 500 A.D., followed by the Far East for a few centuries. The Middle East prevailed for a few centuries, to pass the leadership to Europe since the 12th century. He stopped counting at 1,900 A.D., so “geniuses” from the U.S. in the 20th century are not included, but certainly they received the most of the Nobel Prizes.

Sorokin (1937) provided a count of historic persons, scientific discoveries and technological inventions only in the scope of “Europe” and the “rest of the world.” Naroll, et al. (1971) assumed implicitly that creativeness and civilization were synonymous terms, or at least indicative of each other (Eckhard, 1995).

Taagepera (1978) measured imperial systems of Africa and Eurasia in terms of their areas in square megameters, one square megameter equaling 386,000 square miles. Until 600 B.C., empires were small. Later, when the Medes and Persians invented more effective hierarchical bureaucracy, the sizes of empires grew. There was a leap in average size after 1,600 A.D., influenced by the European trade-industry-transportation and communication revolutions. This progress of empires in the world is meaningful. In the 6th century B.C., they covered only 6% of the earth’s surface; in the 20th century their coverage grew to 95%.

Several researchers measured the number of wars (battles) and number of deaths caused by them. Measurement of battles reflects the intensity of wars as a synonym of civilization. Dupuy and Dupuy (1986) recorded 4,511 battles (29% in Europe) in the last 3,500 years.

Eckhard (1995) correlated geniuses, civilizations, empires, and wars at the global and regional

levels of analysis and found that the more civilized we became, the larger was the area of the earth that came under imperial control. Empires were spreading civilization over larger territories (e.g., Poland, the largest state in 16th century Europe, was civilizing the east in the 16th-17th centuries; the United Kingdom was civilizing its colonies in the second part of the second millennium A.D. He concluded that the relations between civilizations, empires, and wars is such that these three interact in such a way that “promotes” each other’s growth up to a point where surplus wealth diminishes and turns into a deficit. At this point, civilizations, empires, and wars cannot be afforded anymore, and they fall, as is exemplified by the failures of the Persian, Chinese or recent Soviet empires.

In conclusion, one may notice that measuring civilizations should lead to answers why civilizations “rise” and “fall” and whether can we develop civilization without wars by reinventing our values.

THE ARCHITECTURE OF A CIVILIZATION

Civilization is an “interface” that differentiates humans from animals in dealing with nature and the creator (Big Bang or God, according to one’s beliefs). In the general model on Figure 1-5c, one may recognize the following components of a civilization (Targowski, 2004a):

- Human Entity: an existence-driven community, being a member of a given civilization
- Culture: a values and symbols-driven, continuous process of developing patterned human behavior
- Infrastructure: a technology-driven, additive process of acquiring and applying material means

The history of civilization so defined¹ is as long as humanity's life in organized societies. According to accepted estimates, humans began living on Earth about 6-5 million years ago. (Burenhult, 2003). The development of more modern mankind began about 200,000-150,000 years ago, when *homo sapiens* were living in eastern Africa and anatomically resembled a modern man. From this location, *homo sapiens* began to move to southwestern Asia (100,000 years ago), Australia (50,000 years ago), Europe (40,000 years ago), New Guinea (30,000 years ago), Siberia (25,000 years ago), and North America (12,000 years ago) (Burenhult, 2003). Modern man began to be more social first as a hunter/gatherer; later, when the Ice Age ended, as a farmer and a town dweller. The oldest recorded historic civilization is about 6,000 years old (Burenhult 2003a) and is associated with the rise of Mesopotamian civilization (including both Sumerian and Semitic peoples) (4,000 B.C.). Next came the Egyptians (3,100 B.C.); then, others.

Human civilization began about 6,000 years ago, marked by the emergence of organized human entities, under a form of urbanized society. These early info-material structures, or civilizations, were created by humans as a means of coping with themselves, nature, and the creator. During the next six millennia humans developed about 26 civilizations (Toynbee, 1995). Currently, at the beginning of the 21st century, one can discern eight well-established religion-oriented civilizations (Huntington, 1993). The empirical model recognizes (in order of longest duration) the Chinese (3,500 years), Hindu (2,600), African (2,500), Eastern (2,325), Buddhist (1,400), Japanese (1,350), Western (1,200), and Islamic (1,400) civilizations.

A civilization is not a monolithic structure but is made up of many cultures and sub-cultures. The 26 recorded civilizations comprised about 88 cultures and perhaps 100-120 sub-cultures (Targowski, 2004c). The existence of so many smaller components brings into question whether

it is a civilization or a culture that determines the new world order. Certainly, "culture" denotes a mode of world exchanges that is currently based on skills of communicating across cultures.

A religion-oriented civilization is an autonomous structure made up of numerous systems in support of its self-dependent existence. A general model of a civilization as shown in Figure 1-9 reflects the following components:

The "brain" of a civilization is the guiding system, composed of:

- a world view values set (WVVS) common for all members of a given civilization
- a strategizing culture
- an authority infrastructure

The existence system is composed of:

- a human entity
- an entertaining culture
- a foundational infrastructure

The knowledge system is composed of:

- an enlightening culture
- a knowledge infrastructure

The logistic system is composed of:

- a management (strategizing culture)
- an economic infrastructure

The communication system is composed of:

- a diffusing culture
- a communication infrastructure

The power system is composed of:

- politics (strategizing culture)
- a military infrastructure

The integrational infrastructure is composed of:

- a communication infrastructure
- a transportation infrastructure
- an information infrastructure (e.g., the modern “information superhighway”)

A civilization is controlled by its guiding system, which identifies threats to the existence system and generates reflections that are transmitted to the knowledge system. The knowledge system creates awareness and returns the information to the guiding system, which in turn steers the existence system—closing a loop

through which flow data, information, concepts, knowledge, and wisdom. This autonomous civilization interacts with other civilizations through its communication, logistic, and power systems. The entire civilizing process takes place through the channels of the integrational infrastructure. It is interesting to note the difference between a civilization and a state. The former is steered by its guiding system and the latter by its power system. The average citizen is caught between these two systems.

In a democracy, the power system is subordinated to the guiding system, whereas in other political entities the guiding system is usually subordinated to the power system.

Table 3-1. Comparison of the existence systems of civilizations

Civilization	Total Power	Working Power	Coordination Power	Idle Power	Human Entity	Total	Ranking
Western-West	7	7	7	3	5	29	1
Western-Central CeCentral	4	6	4	3	3	20	4
Western-Latin	3	4	2	3	3	15	7
Western-Jewish	7	5	6	3	6	27	2
Japanese	5	6	5	2	3	21	4
Eastern	6	6	2	6	3	23	3
Hindu	2	2	2	4	3	13	8
Chinese	2	3	2	7	3	17	6
Islamic	2	4	1	3	3	13	8
Buddhist	1	1	2	2	3	9	9
African	2	2	1	1	2	8	10

Source: The author's estimates, Kurian (1991), Hunter (2000), and Maddison (2001).

CHARACTERISTICS OF A CIVILIZATION

The comparison of contemporary civilizations will be based on the model depicted in Figure 1-9. Since Western civilization is composed of many cultures/states sharing the same WVVS but at different stages of development, it has been divided for comparison purposes into three member components:

- The Western-West, containing Western Europe (including modern Greece) and Northern America
- The Western-Central, embracing Poland, the Czech Republic, Slovakia, Hungary, Estonia, Latvia, Lithuania, Croatia, and Slovenia (Albania, Romania, and Bulgaria are Orthodox Christian, but the latter two, since 2007 are in the E.U. and perhaps in the future may inspire to be a part of this sub-civilization)
- The Western-Latin, composed of Latin America's states (Spain and Portugal are included in the Western-West sub-civiliza-

tion, despite their strong involvement in Latin America)

- The Western-Jewish, which is in terms of human entities composed of a supranational community, in many countries a very well-developed Diaspora. Culture-wise it is integrated by Judaism and the politics of returning to the Biblical Land. Infrastructure-wise it is based on global networks in finance, media, music, and politics².

The characteristics of each civilization³ are rated on a scale from 1 to 7 and aggregated as a concept of a civilization. The existence system⁴ is characterized in Table 3-1.

The components of the existence system are measured as follows:

- total power: energy consumption in kg (of calories) per capita/year
- working power: average hours per week in manufacturing
- coordination power: number of computers per 1,000 people

Table 3-2. Comparison of flexibility of a human entity

Range	Human Entity	Civilizations	Examples
7	Spheric Community		
6	Supranational Community	Western-Jewish	
5	Transnational Community	Western-West	NATO, EU, NAFTA
4	Political Society		
3	Nation	Western-Central, Western-Latin, Japanese, Chinese, Buddhist, Hindu, Islamic, Eastern,	
2	Proto-nation	African	
1	People		North Korea

Source: The author's estimates and Barry and Honey (2000)

Table 3-3. Comparison of the communication systems of civilizations

Range	TV sets per 1000 People	Internet Users/1K Habitants	Civilizations
7	over 700	338	Western-West, Western-Jewish
6	500-699	371	Japanese
5	300-499	20, na	Eastern, Western-Central
4	100-299	na, 18	Western-Latin, Chinese
3	70-100	10, 6	Islamic, Buddhist
2	50-69	5	Hindu
1	below 49	<1	African

Source: 1997 World Development Indicators, Washington, D.C.: The World Bank, (pp. 284-286); Hundley, R., Anderson, R., Bikson, T., & Neu, C. (2003, p. 96).

Table 3-4. Comparison of the knowledge systems of civilizations

Range	University Professors per 1000 People	Expected Years of Schooling, Males In 1992	Civilizations
7	3.8	16	Western-West, Western-Jewish
6	1.7	14	Japanese
5	1.2	11	Eastern
4	0.7-0.86	12	Western-Central, Western-Latin
3	0.3-0.34	na	Buddhist-Hindu
2	0.26	na, 9	Chinese, Islamic
1	0.2	4	African

Source: George, T. (1999). Kurian: The new book of world rankings, facts on file publications: New York. World Development Report. (1998-99). Knowledge for Development, (p. 200-201). Washington, D.C: World Bank.

- idle power: number of cinema seats per 1,000 people
- human entity: degree of flexibility (Table 3-2)
- The remaining civilization systems of a general model of civilizations are compared in the following tables:
- communication systems of civilizations are compared in Table 3-3
- knowledge systems are compared in Table 3-4
- guiding systems are compared in Table 3-5

Table 3-5. Comparison of the guiding systems of civilizations

Range	Political System	Civilizations
7	Democracy	Western-West, Japanese, Hindu, Western-Jewish
6	Quasi-Democratic	Western-Latin, Western-Central
5	Authoritarian	Buddhist
4	Authoritarian-Theocratic	Islamic
3	Dictatorship	
2	Quasi-Totalitarian	Chinese
1	Chaotic or Transition	African, Eastern

Source: The author's estimates and Honey and Barry (2000).

Table 3-6. Comparison of the power systems of civilizations

Range	Military Capability and Will	Civilizations
7	Super Power	Western-West, Eastern
6	Strong Power	Chinese, Western-Jewish
5	Good Power	Japanese, West-Central
4	Terrorist Power	Islamic
3	Power	Hindu, West-Latin
2	Little Power	Buddhist
1	No power	African

Source: George Th. Kurian: *The New Book of World Rankings*, Facts on File Publications: New York, 1991, and The author's estimation.

Table 3-7. Comparison of logistic systems

Range	\$ GNI per capita (Gross National Income in parity purchasing power)	Civilizations
7	35,500-45,000	
6	20,001-35,000	Western-West, Japanese, Western-Jewish
5	15,001-20,000	
4	10,001-15,000	
3	5,000-10,000	Western-Central, Eastern, Islamic
2	1001-4,999	Western-Latin
1	below 1000	Chinese, Hindu, African, Buddhist

Source: 2003 World Development Report, Washington, DC: World Bank, pp. 234-235.

Table 3-8. Comparison of integrational infrastructures

Range	Degree of Advancement	Civilizations
7	Very Advanced	Western-West, Japanese, Western-Jewish
6	Advanced	
5	Very Good	
4	Good	Western-Central, Western-Latin, Islamic
3	Poor	Eastern, Chinese, Hindu
2	Very Poor	Buddhist
1	Chaotic	African

Source: The author's estimation and Hunter (2000).

- power systems are compared in Table 3-6
- logistic systems are compared in Table 3-7
- integrational infrastructures are compared in Table 3-8

THE CIVILIZATION INDEX

A summary of civilization systems is provided in the form of the Civilization Index in Table 9. The perfect Civilization Index has 77 points, since each of civilization systems has seven points at its highest level of development and is assessed by 11 criteria (5 for the Existence System) and six criteria for remaining systems ($11 \times 7 = 77$).

A comparison of civilizations at the end of the twentieth century permits us to draw the following conclusions:

1. The Western-West civilization is at the stage of "saturation," indicating that it is either ready to expand into other civilizations or to enter into social unrest. This civilization has an almost perfect Index: $CI = 91\%$.
2. The Western-Jewish ($CI = 87\%$) and Japanese civilizations ($CI = 75\%$) are very well developed and will approach the "saturation" point in the near future.

3. The African civilization is either at the beginning of the developmental process or at the stage of disastrous development. Taking into account its very short and tumultuous history, both statements may be correct ($CI = 18\%$).
4. The remaining civilizations have a good prospect for further development or redevelopment. This is presently taking place in the case of the Western-Central civilization after the collapse of the Soviet civilization. Civilization indices of these civilizations vary from $CI = 32\%$ to 61% .

STRATEGIES OF CIVILIZATION DEVELOPMENT

At the beginning of the 21st century, eight civilizations are well established; the one exception is the African civilization. The developmental process of these civilizations should continue in the following ways:

- development based on internal forces within a civilization
- development based on external encounters between civilizations