MEDIA PLANNING FOR THE

POST INDUSTRIAL AGE

1974

Only 26 years left until the 21st Century

Submitted by Nam June Paik

The telephone has been around over 100 years and has influenced almost every aspect of our lives. However, according to Kas Kalba of Harvard University, only two essays have been written about this important subject during this time while countless studies have been conducted about some dead languages in Maya or Babylonia. Television's influence in our lives is equally prevalent, and the average American is spending 6.5 hours daily in front of this small box. However, it is still a chic thing to say,"I don't watch TV," or "I don't own a set."

Is this attitude a harmless snobbery, which we all relish discreetly, or an alibi for cynical defeatism? What price did we pay for this intellectual hauteur?

I. Many New Yorkers take it for granted that Public Television comes on channel 13, but this is not so in other parts of the country. In more than half of the American cities and villages, including such important megalopolises as Los Angeles, Washington, D. C., Philadelphia, Pittsburgh, San Diego, etc., Public Educational TV stations are operating on the inferior UHF frequency bands, such as Channel 26, 44, 56, 86, etc., which are very difficult to tune in, and if somehow tuned in by tinkering with the circular knob, reception is so bad that proper appreciation of the TV programs is quite difficult. Subsequently, in those UHF areas, high quality programs on Public TV channels, including daytime school programs, are largely wasted, resulting in the loss of millions of dollars every year. How was such a grave handicap imposed in the important public/educational TV while up to seven strong channels were allocated to commercial TV, often showing nothing but ten-year-old reruns of "I Love Lucy"?

Who is to be blamed? No one but the liberal establishment and their traditional indifference toward communication media other than prints and books.

In the late 1940's the FCC announced that any qualified company could be awarded up to five channels on the strong VHF band, such as Channel 2 or 13. However, hardly any intellectual community paid attention to this small magic box. They could have occupied one strong channel in every community almost free of charge. How much would it cost now for one to buy VHF TV licenses (such as channel 13, 9, or 7) in the 120 areas in which public TV is now operating on the weaker UHF frequency band? Easily $30 billion or more - the price we are now paying for this intellectual aloofness toward TV.

Lord Thompson, the newspaper king in Britain, once remarked that a television license was a license to print money. Recently the Washington Post paid $34 million to acquire a TV station on the VHF band in Hartford, Connecticut which, by the way, has its public/educational TV on the inferior UHF band. If it costs that much in Hartford, how much would it cost in the more populous cities of Los Angeles or Washington, D. C.? Valuable VHF bands are occupied by commercial interests just as valuable park land has been asphalted by the mindless real estate developers for the "suburban-exurban sprawls." It is by far not enough to care only about physical environment such as air, water, and greenery. Mental environment is equally important. Mind pollution is as bad as air pollution.

History will repeat itself if we do not plan the future carefully. A brother bought the franchise right of Cable TV in the same town - Hartford, Connecticut - for $50 in 1967 and sold it to a cable company for three hundred thousand dollars recently.

II. 1974 is the world population year. Finally a communication satellite will beam educational TV into 5,000 vilages in India. However, one sixth of the Indian population is living in the big cities, which need not be covered by expensive networking via microwaves. A few populous Indian mega-cities could have had inexpensive educational TV with a heavy accent on population control as early as the 1950's, and community TV sets on the street corners or in mobile vans could have absorbed the minds of entertainment-hungry masses like a sponge. There is no reason why media waited 20 years for this. South Korea, quite poor and war ravaged, entered into the TV age back in the 50's. How much difference would it have made to the 100 million people in urban India for the past 20 years - the critical period of the population explosion?

Research has shown that population control is a complex socio-economic communication problem, which can neither be cured by purely medical solutions nor simplistic slogans on billboards and Madison Avenue-style commercials. Deep and long-term persuasion needs a medium as complex and versatile as television.

III. A peculiar sense of history is happening in our consciousness of TIME. The 1930's are alive every night at home on the late, late shows, whereas the 1920's are gone forever. Since this unbalance is bound to continue and accumulate indefinitely, someday a demarcation line between the 1920's and 1930's could become as distinct as Gothic and Renaissance. However, what kind of visual resources have we inherited from the 1930's? Again the complete neglect of audio-visual language by the academic people in the past made us lament the loss of enormous educational resources. We spent countless feet of films on Class B Hollywood movies and the Fuehrer's newsreel; however, we somehow managed to miss the film recording of almost all of our great humanists, thinkers, and artists, such as Husserl, Freud, Proust, Debussy, Ravel, Joyce, Kandinsky, Berdaiev, Merlau Ponti, Gide, Mann, Schoenberg, Dilthey, Wittgenstein, Shaw, Jung, Keynes, Schumpeter, Einstein, etc. Future generations might think that the 1930's was the age of W. C. Fields and the Marx brothers.

IV. The major problems of today, such as energy, ecology, balance of payment, population, and multi-national business practices are essentially global problems which require global thinking and treatment. So is our century-old prayer for peace on earth. Even before the age of the communication satellite, TV has been a potentially important tool for international understanding. It is a super-Esperanto, which can skip language barriers through meta-verbal expressions. How much have we used this medium for world peace during the past 30 years?

> TV cameras are following so busily the latest spots of violence that kids, who receive most of their education from TV, think that such noble countries as Switzerland and Norway are chunks of real estate lying somewhere in the

> Milky Way or at best beyond Madagascar. How can we teach about peace while blocking out one of the few existing examples from the screen? Most Asian faces we encounter on the American TV screen are either miserable refugees, wretched prisoners, or hated dictators. But most middle-class Asians are seeing essentially the same kind of clean-cut entertainment shows on their home screens as most American Nielsen families. Did this vast information gap contribute to the recent tragedies in Vietnam? Weren't those simple-minded GI's in Song My prejudiced, even in the slightest degree, by the All-American TV screen of the Mid-West before landing in Saigon, which necessarily has all of the miseries of a war-torn country? If yes, those accused GI's are also victims of monistic TV networks to a certain extent. Don Luce, a former director of the International Voluntary Service in Vietnam with a ten-year service record, notes: "American failures in Vietnam have been essentially failures in communication and understanding." (Introduction: Senator Edward Kennedy, from Vietnam: Unheard Voice, 1967 Cornell University Press.)

V. Certainly TV has contributed to much of the stupidity and evil of our decade, but its hidden benefit should not be forgotten either. Since 1946 the number of weekly movie-goers has decreased from 78 million to 17.9 million in 1972.* If we had not invented TV, movie-goers would still be storming to the Times Square area and parking and causing congestion, which, unbearable as it is today, would have been multiplied manifold. Luckily, TV has decentralized our entertainment pattern to the home screens so that various evils connected with congestion, such as parking, pollution, juvenile delinquency, violence, sexual offences, and possible group-racial flare-ups have been contained. The benefit of TV is so omni-present and at the same time so invisible that even the most ardent ecologist forgets to be thankful for it.

VI. Due to poverty and high illiteracy, many children in disadvantaged areas had hardly any access to information before the TV age. The advent of television broadened the horizons and aspirations of poor people beyond the confines of the plantation and ghetto walls.

This is why South Africa bans any TV, even today.

An authoritative study conducted for CBS in 1970 by Robert T. Bower, Director of the Bureau of Social Science Study, revealed the extreme importance which black people attach to TV culture. Sixty-five percent of the black people questioned found television important, whereas only 26 percent of the white people said so. Television is informative for 61 percent of the blacks, for 32 percent of the whites, and relaxing to 62 percent of the blacks and to 29 percent of the whites.

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*Statistics provided by the Motion Picture Association of America.

This study allows the interpretation that TV is a major source of education, information, and entertainment for black people, and it is even more significant because there had been hardly any such opportunities for black people before the advent of the TV age. Anything TV gives them is a pure plus, whereas TV is often a replacement for something already existing for white people.

It was not until the mid-sixties, however, that the liberal establishment started to employ this new tool for the improvement of the racial situation, and in this neglected time lapse of 15 years, there has been much tragedy.

Now we are standing at another point in history, when bussing has failed and the effort for integration is being questioned. Television power, an integration and understanding on the air, can be even more useful, because it can skip the dirty, complicated earth. I wonder what would happen if a two-way cable television link connected two pre-school day care centers in white and black neighborhoods, and children from the two cultures would start to play with each other through two-way cable TV without the strain of bussing and its negative effect. Is this an escapism, a hypocrisy, or a first remedy for the long-term cure of the racial problem? In any case, technology is here waiting to be used with much less expense than bussing.

The Presidential Report of The Rockefeller Foundation (1973) defines the following seven areas as the major concerns of the Foundation: the conquest of hunger, problems of population, university development, conflict in international relations, equal opportunity, cultural development, and quality of the environment.

The communication problem is critically related to all of these programs.

Even hunger is a problem of communication, because it is the function of population growth, which is now more of a communication problem than a medical one. Can we afford to continue this complacency? Is philanthropy a mere self-condolence of an expensive conscience, or is it a real commitment to improve humanity with a workable policy?

If the latter attitude is the case, we can no longer afford to say,"I don't watch TV."

Television as a mass entertainment medium is slowly but steadily approaching a complex juncture.

The double jolt of the ecology and the energy crises questioned the validity of an economic system based on cheap energy and high growth. Still, however, very few people realize that these two evolutions meet on a profound plateau.

The mass entertainment TV as we see it now will be divided into, or rather gain many branches and tails of, differentiated video cultures. Picture phone, tele-facsimile, two way inter-active TV for shopping, library

research, opinion polling, health consultation, bio-communication, inter-office data transmission and many other variants will turn the TV set into the expanded mixed media telephone system for a thousand and one new applications, not only for daily convenience but also for the enrichment of life itself. This is the so-called MINI TV, a point to point information format. And there will also be MIDI TV, an information flow for and among limited numbers of special interest groups via video-cassettes, video discs, pay TV and cable TV - equivalent in print form to Xerox copying machines, academic hardcover publications, mimeographs, and posters.

This mini and midi TV will merge with many other paperless information forms - audio cassette, telex, data transmission, domestic sattelite, microfiche, private microwave - and eventually the laser-optic carrier band. They all will form a new nuclear energy in information and society-building, which I would call tentatively BROADBAND COMMUNICATION NETWORK. Setbacks in urban cable companies retarded considerably the coming of this new nuclear energy. A recent article in The New York Times, however, says as follows:

> Whether cable will become a medium unto itself, instead of an aid to television reception, has never been a question; the question has always been when. Optimists still predict it will happen in the nineteen-eighties; pessimists give it longer, some not until the 21st century. (March 10, 1974)

Even if we take the most pessimistic view, the 21st century is only 26 years away. The fact that the plight of the VHF frequency band and public/educational television is the direct result of misplanning exactly 26 years ago, demonstrates beyond any doubt that planning for the BROADBAND COMMUNICATION REVOLUTION must start NOW.

Investment by United States industry in communication is already $13.9 billion, which is 7.5 times bigger than its $2.58 billion investment in automobiles, trucks and parts put together. (1974 estimate: source, The New York Times, November 25, 1973.)

If the liberal establishment continues to ignore media and communication and leave it to the mercy of purely commercial capital, government agencies, or computer-analysts, all hardware will again be monopolized by some mysterious power complex and the result might be a super-Watergate.

It may not be purely coincidental that Watergate is a "communication game" from start to finish; two executives from an ad agency, bugging, walkie-talkie, Sam Ervin topping soap operas in Nielsen ratings, an 18-minute erasure, secretary's long telephone call, acoustic analyst, instant analysis, super-spy as a best seller writer, and so on. Contrarily, well managed revolution will become a backbone for the post-industrial society while reducing pollution and energy consumption as follows:

1. Transportation and communication are considered generally as two separate issues. However, we have to ask first WHY people travel. People travel to communicate something, either for profit or pleasure. In the case

of pleasure driving, they are, in fact, subconsciously communicating with themselves via machine, since few have the courage to scrutinize into their deep selves. The frequency of travel will reduce if the need to travel reduces. What we need is an Ersatz (substitute) technology to travel, and broadband communication is the strongest candidate for it. The Economist of London (January 1974), a publication not known for an easy enthusiasm, states as follows:

> Above all, the greatest of the three main transport revolutions since the 1770's is now speeding towards us. It will clearly replace the internal combustion engine revolution as dramatically as that revolution replaced steam, and it happens to be extraordinarily energy-saving. This great new transport revolution is telecommunications. Because the businessman's future essential tool, the computer, talks to other computers by telecommunication, instead of by taking a walk, much of present business travel and then personal travel to work are going to become unnecessary in the main growth jobs in post-industrial societies. Even in the 1970's some of this travel will be replaced by a great growth in telex transmission, facsimile transmission by telecommunication, picturephone, etc. As there is no logical reason why the cost of telecommunication should vary with distance, quite a lot of people by the late 1980's will telecommute daily to their London offices while living on a Pacific island if they want to; and temporary price rises for oil-driven travel in the early 1970's will now bring a few of these habits forward.

The University of Southern California at Los Angeles, with a grant from the National Science Foundation, is investigating the possibility of tele-commuting and its implications in urban life. Jack M. Nilles, its director, estimates that

> . . . the monetary costs of telecommuting, using technology now available, are about the same as those for commuting by private automobile and will decrease relative to private auto commuting as gas prices to up and computer associated technology gets less expensive. An initial finding, he said, is that the average Los Angeles commuter uses the equivalent of about 50 kilowatt hours per day driving to and from work in his private car. This compares with a cost of two kilowatt hours per day used by a modern computer terminal and telephone line. For more information on this study, contact Mr. Nilles at 213/746 - 7464. (ETV Newsletter, March 4, 1974)

Peter Goldmark, retired director of the CBS Laboratory, and Douglas Davis, Editor for Art and Architecture of Newsweek, are also advocates of tele-commuting. (New York Times, November 11, 1973 NW)

2. WGBH, Boston's public TV station, has fund-raising auctions twice a year, and it is not only their most popular program, but reaches the proportion of a city-wide festivity. This demonstrates that TV can function

as a department store. A large mail-order concern is using rural cable TV as a supplement to their catalogue output, and someday benefits in ecology and energy will be noticeable.

3. Recently, there has been a steep rise in paper prices, which would cast a negative effect on press, education, and culture. Even without the paper shortage, it is an ecological sin to chop up so many trees to print junk mail, when we have alternative ways of information storage and dissemination. The whole Encyclopedia Britannica can be printed on a tape of 30 minutes or less, and every day newspapers can be fully recycled by printing on magnetic paper via cable TV, and underground video artists can make a living making the commercials for the corner supermarkets. Reduction of junk mail and direct ads alone will seriously take the burden off of the beleaguered postal system. Fuel saving in trucking the heavy papers in newspaper distribution and postal service will also be significant. Tele-communication has a peculiar advantage. It takes the same amount of money and energy to send a message to four families or to four million families.

4. Daniel Bell, noted sociologist at Harvard, published an interesting chart on the "General Schema of Social Change" in his recent book, The Coming of Post Industrial Society (1973). This entire chart deserves careful scrutiny and contemplation. (See page 12.)

According to Professor Bell, "Manufacturing goods," the dominant economics of the industrial society, will be replaced by "SERVICE" in the post industrial society. "ENERGY," the main technology of the industrial age, will yield to "INFORMATION" in the post industrial age. Moreover, "GAMES BETWEEN PERSONS" will be the chief design of the post industrial society and our "AXIAL PRINCIPLE" will no longer be "ECONOMIC GROWTH", but "CENTRALITY AND CODIFICATION OF THEORETICAL KNOWLEDGE." Professor Bell cites the following criteria as further features of the post industrial age: health, education, research, government abstract theory, simulation, models, system analysis, future orientation, and forecasting, etc.

What is the largest common denominator running through all these criteria? It is again nothing but a cerebral amalgam of media, communication, knowledge and information, which will function as substance, lubricator, impressario and cybernetic interfacer in the future society.

4. The prognosis on the ecological doomsday and the proposal for the zero growth economy (e.g. by Club of Rome, etc.) has met stiff resistance from business and some economists (e.g. Milton Friedman, etc.). Many ordinary citizens also prefer later eco-crisis to immediate recession. The two positions, however, are not unreconcilable. Not all economic activities are EQUALLY energy consuming or polluting. For example, a $10,000 expenditure on two big cars, plus maintenance costs, is incomparably more energy consuming than a $10,000 expenditure on a painting. A $400 vacation to Miami (jet, car rental, heated pool) for a week's vacation is far more taxing to energy and ecology than buying a $400 stereo system, which can be enjoyed for many years.

A $100,000 production of a PBS drama (enjoyed by millions of people) is not more energy consuming than a $100,000 private airplane enjoyed by one

man for sport. Yet both sets of activities contribute to the GNP in the same way. Instead of blind worship of the GNP, we must subdivide the GNP into two categories, one with a high energy-ecology factor, and the other with a low energy-ecology factor. If we promote the latter case in economical activities, we can combine high growth economy, energy independence of America, and preservation of the environment harmoniously. In addition to the blind sum-total of the GNP or the per capita income, we have to also measure this same index divided by the energy-ecology factor, which reflects the long-term welfare of the individual and the nation.

Will low-energy GNP be big enough to support the whole economy? Daniel Bell's prophesy (a high information-low energy sector as the dominant force in our post industrial society) is buttressed by a comprehensive study or art and artist by New York State Senator William T. Conklin. According to this report, artist and art institution contributed $1 billion to the New York State economy. One billion dollars equals the revenue of a whole state the size of Maryland, Virginia, or Tennessee.

If we also add up the ripple effect of this $1 billion to adjacent economic fields such as real estate, restaurants, hotels, fashion, and advertisement, the following excerpt from a recent editorial of The New York Times (March 4, 1974) becomes fully justifiable:

> New York's cultural activities are the cornerstone of a vast range of businesses that reach to the very heart and reason for the city's existence. Its arts and entertainments are one of the bases of its identity, supremacy and attraction, not only for individuals, but for the corporations that are its financial lifeline. The improvement of cultural operations and funding is essential.

This is not a local New York phenomenon. John Kenneth Galbraith echoes the same opinion and even amplifies it for future forecasting:

> Over a longer period of time the arts and products that reflect artistic accomplishment will, for the foregoing reasons, be increasingly central to economic development. There is no reason, a priori, to suppose that scientific and engineering achievements serve the ultimate frontiers in human enjoyment. At some point, as consumption expands, a transcending interest in beauty may be expected. This transition will vastly alter both the character and structure of the economic system.
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> . . . They (arts) will also be an expanding part of economic life. The opportunities for enjoyment from artistic development have no visible limit; they are almost certainly greater than those from technical development.
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> But this expansion would be much greater were the sources of our present attitudes on art, science, and technology better understood. The arts now have an infinitely smaller claim than science and engineering on both private and public resources. This, we have seen, is the result not of public preference,

but of conditioned belief. People - including artists themselves - are persuaded to accord importance and priority to what is within the competence and serves the needs of the technostructure and the planning system. (pp. 68-70, Economics & the Public Purpose)

Conclusion

The Depression of the 1930's was fought back by bold public works and capital expenditures such as the TVA, Rockefeller Center, and highway building. Especially massive interstate highways have become the backbone of economic growth for the last 40 years. New economic dislocations caused by the double shocks of energy and ecology and the historical necessity for the transition into post industrial society require equally radical remedies. This social investment must also be economically viable. These remedies should modernize the economical infra-structure, make American economy internationally more competitive and contribute to the long-lasting post industrial prosperity.

A vast new industrial complex surrounding the broadband communication network will be one of those much needed stimuli; e.g., almost limitless new video programs required to fill empty channels on cable TV, empty cans of video discs and cassettes will keep new generations busy for a long time. Since video programs have little room for automation, employment will stay on a high level for an indefinite period, especially for the educated worker.

For the same reason, boredom with conveyor-belt jobs, the symbol of the past automotive age, will be minimal, and many people will find renewed and continued pleasure in their work. The present import of foreign video equipment would not affect the balance of payment for too long, because America is destined to be a huge exporter of video programs, as it has been in film and music for the past half century. Its impact is not only economical but social and political. As a Korean growing up in Seoul in the 1930's, Shirley Temple was the first name I heard and retained in my memory - before any Korean or Asian name, including my father's. Repackaging and translating tens of thousands of old Hollywood movies for the whole world will be a new industry in itself.

The building of new ELECTRONIC SUPER HIGHWAYS will be an even bigger enterprise. Suppose we connect New York and Los Angeles with a multilayer of Broadband communication networks, such as domestic satellites, bundles of co-ax cables, and later, the fiber-optics laser beam. The expenses would be as high as a moon landing, but the spinoffs would be more numerous. Long distance telephone will become practically free. Multi-point color TV conference calls with sophisticated input-output units will become economically feasible. While not energy consuming in maintenance, (except for the initial copper), it will cut down air travel and snarling airport-downtown limousine service forever. Efficient communication reduces social waste and malfunction in every corner, resulting in exponential savings in energy and ecology. They will cease to be just an Ersatz or lubricator but will become the springboard of unexpected new human activities. One hundred years ago Thoreau wondered: "Even if the telephone company succeeded in connecting people in Maine with

people in Tennessee, what would they have to say to each other?" The rest is history.

Before indulging in this Utopian script, however, we have to define a concrete program which The Rockefeller Foundation can immediately embark on with its limited resources. I suggest that we choose a professional sub-group as a prototype model and study their communication needs carefully and experiment with them in depth toward the application of the new broadband technology in all facets of their social activities and measure their contributions to energy, ecology, and efficiency factors.

This prototype model will be applied to other professional sub-groups later. Toy salesmen, golf teachers, insurance men, cancer researchers, Ford distributors, the HEW Department - anyone can be in this prototype group. I, however, would choose artists, not only because I have some professional stake in this, but also for the following reasons:

1. In recent history the artist's instinct has often functioned (sometimes better than the computer) as an early warning system for forthcoming social change.

2. The artist is by definition a specialist in trans-media manipulation and meta-verbal languages.

3. Artists have already invented a brand new art genre: "Video Art."

4. John Kenneth Galbraith predicted over-average growth in the art-related market.

5. Artists don't work on a union scale - overtime and doubletime - yet they are as a group more creative than, say, a shoe salesmen's association.

The French Anthropologist, Claude Levi-Strauss, said, "Culture is (a) network of communication." American anthropologist G. Bateson and psychoanalyst J. Ruesch go even further:

> "Values are . . . simply preferred channels of communication . . . as soon as interpretation of message is concerned, no clear distinction can be made between communication theory, value theory and anthropological statements about culture. This combination of features is the medium in which we all operate: therefore we call it social matrix."

The history of the 1960's has shown us what the interrupted communication, the so-called credibility gap, can bring to the social matrix and value system.

So far the Ford Foundation has spent about $250 million on Public Television for the past 23 years and will spend $50 million more in phasing out its commitment to public TV. The Rockefeller Foundation's expenditure

to television has been $2.8 million for the past twelve years, and their grants are distinguished for their future-oriented investment. It has funded three experimental centers at the three best TV stations in the country (KQED in San Francisco, WGBH in Boston, WNET in New York). While giving high art experience to millions of viewers, it has also succeeded in expanding the outer limits of this medium. The inventions of Paik-Abe and the Steve Beck video synthesizers show that artists can compete with big corporations in hardware design, with very minimal capital. It is the first step toward the humanization of technology - the utmost necessity for our survival.

Another big goal is how to cut the prohibitive TV production cost ($2,000 a minute) without sacrificing the quality. Experimentation is still going on, and with positive prospects.

Further foundation funding includes the following ventures: Two conferences were held concerning video arts, one held at the Museum of Modern Art in New York and the other at the Everson Museum in Syracuse. Global Village personnel went to Bangladesh and did an experiment involving the villagers concerning the efficacy of video as an intra-village communication tool. The Alternate Media Center at New York University is experimenting with new applications of video to medicine, and the Aspen Institute of Cable TV held an important conference on this theme last summer. The National Endowment for the Arts and the New York State Council on the Arts have also contributed to the above projects.

How are other countries doing? The budget of NHK, the Japanese public TV/radio channel is only ten times bigger than American public television, but the real difference is much bigger, because the NHK has been getting this sort of money for the past 40 years - since the heyday of radio. The accumulation of resources in many forms is formidable. Herman Kahn was quite right when he ascribed to Japan's excellent educational television her quick post-war ascendancy.

From Industrial to Post-Industrial Society

TABLE 1–1

General Schema of Social Change

	PRE-INDUSTRIAL	INDUSTRIAL	POST-INDUSTRIAL
Regions:	Asia Africa Latin America	Western Europe Soviet Union Japan	United States
Economic sector:	Primary Extractive: Agriculture Mining Fishing Timber	Secondary Goods producing: Manufacturing Processing	Tertiary Transportation Utilities Quaternary Trade Finance Insurance Real estate Quinary Health Education Research Government Recreation
Occupational slope:	Farmer Miner Fisherman Unskilled worker	Semi-skilled worker Engineer	Professional and technical Scientists
Technology:	Raw materials	Energy	Information
Design:	Game against nature	Game against fabricated nature	Game between persons
Methodology:	Common sense experience	Empiricism Experimentation	Abstract theory: models, simulation, decision theory, systems analysis
Time perspective:	Orientation to the past Ad hoc responses	Ad hoc adaptiveness Projections	Future orientation Forecasting
Axial principle:	Traditionalism: Land/resource limitation	Economic growth: State or private control of investment decisions	Centrality of and codification of theoretical knowledge