A

CONCEPTUAL FRAMEWORK

OF

HUMAN CONCERNS

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PRESENTED

AT

THE FIRST GLOBAL CONFERENCE ON THE

FUTURE.

TORONTO, JULY 1980.

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INTRODUCTION

This study is an attempt to order and define the disparate wordly phenomena, as they are reflected in human thought. Such attempt should help clarify and conceptualize our impressions in a holistic and systematic manner.

The scientific specialization of the modern world has creat ed quite narrow fields of vision. This condition tends to isolate the working disciplines and thus loose sight of the broader picture of reality. In order to re-establish a balance between analytic depth and synthetic bredth, we should emphasize not only specific r esearch into minutae but also general investigations of the entire system. Together, focused-disciplinary and synoptic-integrative approaches will complement each other and so give us a more complete r eflection of reality.

The synoptic view presented in this essay should contribute to a better understanding of the complexities of our world by arragenging the various elements of relevance into an overall pers pective. The result of such attempt is a conceptual framework of human concerns built around four parameterns: space-time and image-process. This four-dimensional structure serves as a global taxonomic scheme in which we classify and interrelate all aspects of human reality.

The pr esentation which followes is divided into five chapters. The first one introduces the general conceptualization of the subject-matter and sets the infrastructure for the ensuing analysis. The next two chapters elaborate the four parametric dimensions by dichotomizing them into static and dynamic sets. The fourth chapter weaves the inter-relationships among these dimensions and the various combinations that they create. Finally, we conclude with a synopsis of the whole construct in a multi-dimensional imagery. We may thus proceed in this step-by-step build-up of some basic elements into a complex system of stylized reality.

I. CONCEPTUALIZATION

We begin our investigation into the complexities of the modern world by defining the scope of our subject-matter. Since the purpose of this study is to present a synoptic view of world affairs which should clarify the manifold aspects of our reality; we shall try to conceptualize our perceptions in a systematic and comprehensive manner. For this reason, we shall first explain what we mean by "reality" and second outline the conceptual framework within which we intend to look into such reality.

A. Persistance and Change in Reality.

The notion of "Reality" is one with which man[+] has grappled for a long time. Our conceptualization of such controversial notion cannot possibly do justice to the complexity of the referent nor to the different positions regarding it.[++]

All that can be said here is that "reality" is a human concept based on the juxtaposition of man's self-consciousness and perception of his environment. Reality, therefore, is such a primordial notion that can hardly be defined. Its existance has to be accepted axiomatically.

The reflection of this reality in the eyes of man presents various patterns which the mind of man tries to put in some order so that he can satisfy his need for comprehension. This study is such an attempt to put in an orderly perspective the seeming complexity of what goes on out there.

To do so, we have selected what we considered to be the most important characteristic of this reality and thus defines the essence of its nature. This characteristic is the <u>contradictory</u> <u>appearance</u> of the various manifestations of reality.

[+]The term "man" is not used here in any sexist sense of "male" as opposed to "female." Rather, it has been chosen as the shortest and simplest symbolic expression for "humanity" or "mankind," which of course includes women, men and children!

[++]This evidently is not another study in metaphysics. We have chosen the term "reality" because of its all-inclusive nature which fits the broadness of our subject-matter.

We note, for example, that everything is in flux and yet there is some continuity in all things. In some sense things always change, but in another sense there is nothing new under the sun. As another saying puts it: the more things change, the more they stay the same.

Ever since the Parmenidians and Heraclitians of ancient Greece, this opposition between persistance and flux has been debated without resolution. One way of resolving this apparent contradiction is to accept it as the dual nature of reality and interpret it in relative, rather than absolute, qualitative and quantitative terms.

In this way, we conceptualize reality as a mixture of sense impressions and mental images of relatively constant or variable extent and duration. We assume, then, that these are different aspects of the same reality, as are two sides of the same coin.

B. Dynamic and Static Parameters.

On the basis of the above conceptualization, we are considering persistance and change as the two fundamental parameters of our search for order. In other words, we accept that there are certain relatively static aspects of reality and certain relatively dynamic ones. The former may be said to form the structures of reality, while the latter form its processes.

Perhaps the most striking manifestation of this duality is in the apposition between space and time. One way of highlighting this apposition is to say that structures are things which occupy space, whereas processes are events which happen in time. Space measures the relatively static elements of reality, while time measures the relatively dynamic; thus reflecting the relative difference between structure and process.

Another way of looking at this dychotomy of reality is through the apposition between substance and procedure. The former notion pertains to the more persisting elements of reality, whereas the latter describes the rather fluctuating ones. Thus, substantive characteristics are contextual and constant relative to the procedural characteristics which are functional and variable.

We shall utilize the above dualities to construct the basic framework of our system. Taking the two fundamental aspects of reality to be stability and change, we shall place them in such way as to show the interrelationships between them. The table below illustrates the way we conceive of these relations.

The horizontal dimension of this table represents the variable or dynamic aspects of reality; whereas the vertical dimension represents the stable or static aspects. Their orthogonal interposition forms the general frame of our study.

Within this frame, we have divided the dynamic parameter into its two components: time and process; and the static parameter into its two components: space and substance. This dychotomy of each parameter forms a two by two matrix producing four categories: space-time; space-process; substance-time; and substance-process.

In the chapters that follow, we shall treat each of the four dimensions separately and then look into their four combinations together. Finally, we shall draw a synopsis of the total picture that this conceptual framework presents. This picture will provide the theoretical foundations upon which we can then build practical institutions and rational behavior.

CONCEPTUAL FRAMEWORK "PRST"

PARAMETERS & DIMENSIONS		D Y N A M I C	
		T I M E	P R O C E S S
S T A T I C	S P A C E	Space (S) X Time (T)	Process (P) X Space (S)
	C O N T E X T	Context (R) X Time (T)	Process (P) X Context (R)

2 x 2 Matrix

II. THE STATIC PARAMETER

In this chapter we shall consider the vertical dimension of the conceptual framework. This will involve a study of the spatial and contextual elements of world affairs which is our reality. We begin with this parameter because it is the relatively simpler of the two. In it, we shall first consider the most elementary of the four dimensions: space; and second we shall go into the context of world affairs. These two dimensions of the static parameter will give us the <u>form</u> and <u>content</u> of our subject-matter.

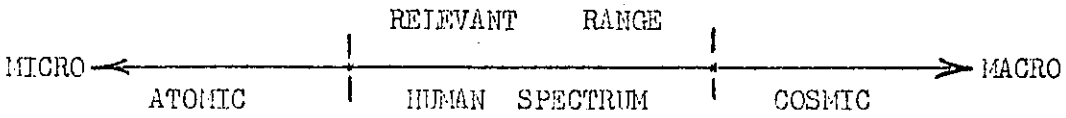
A. The Spatial Dimension.

The most concrete and direct experience of reality is spatial. Through his senses, man perceives the objects of his environment in space. Man himself occupies space as well as acts within it. Physical or material reality, thus, cannot be conceived outside our three-dimensional space.

For reasons of simplification, however, we are considering space as one of our dimensions, rather than three. Although this distorts reality somewhat, it is necessary for purposes of clarity of our model. All we have to do is keep in mind that our spatial dimension (S) contains all three dimensions of reality.

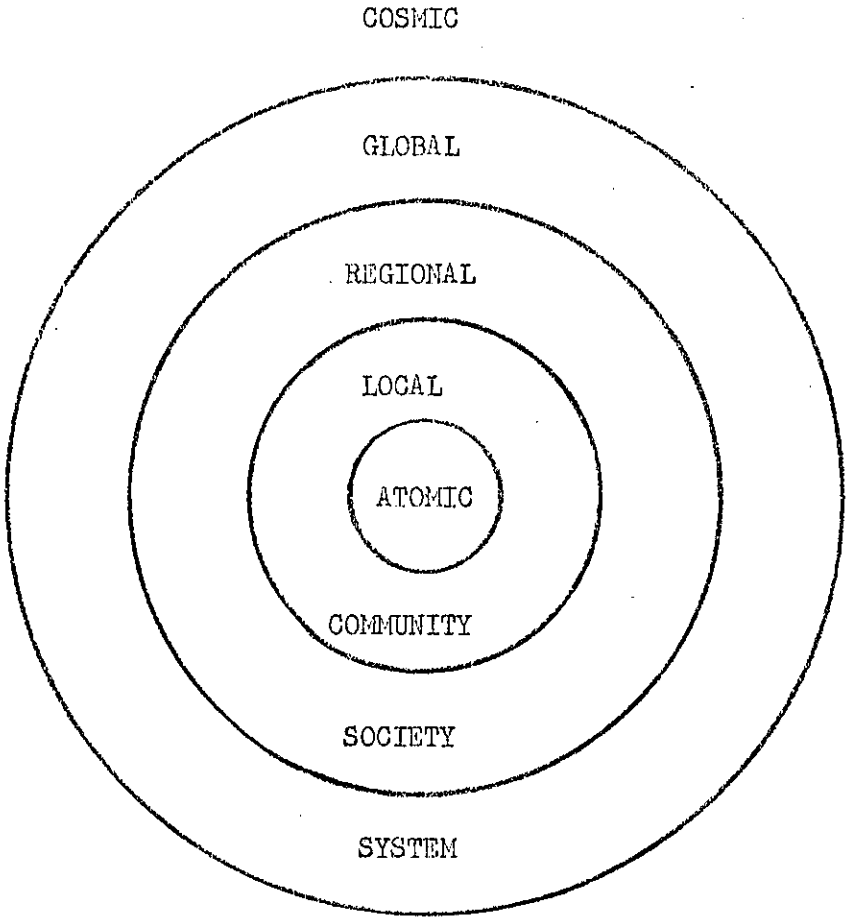
Within this compound dimension take place many activities and exist various things. Since the basic measurement of space is size or distance, we can distinguish objects and activities by the spatial measurements involved. Man is now able to distinguish structures and processes which take up space ranging from the infinitesmally small to the astronomically large. From the movements of sub-atomic particles to the motions of gallactic clouds, we can differentiate various levels of <u>spatial magnitude</u>.

SPACE CONTINUUM



ORDERS OF MAGNITUDE

CRITERION



CONCENTRIC LEVELS

These different levels of magnitude may be conceptualized within our single dimension as segments of a continuum ranging between two extremes: infra-nuclear to supra-gallactic. Man and his activities occupy only a narrow segment somewhere in the middle of this range. Yet, it is this small segment which concerns us here.

Since human affairs is the focus of our reality, we will not go into the micro-space of nuclear physics nor into the macro-space of cosmic phenomena. Rather, we shall limit our range between the existence and activities of individuals on the one end, and global structures and events on the other end. The following diagramatic representation of our continuum illustrates this point.

Another way of illustrating the same concept is to use a circular rather than a linear representation. In it, human magnitudes may be shown as concentric circles extending outwards from a central point. The following diagram shows the various circular levels of magnitude from the atomic to the universal.

In this representation we have distinguished three main orders of magnitude between the micro and the macro-space. These three spatial levels constitute the arenas of human activity and as such are the only significant ones for our purposes. We have labled them: local; regional; and global.

The local level is the individual's most proximate domain of existence and action and constitutes his immediate circle of activities and his primary group of relationships. We shall extend this level to include national affairs and even the local relations between nations. The next level contains regional affairs of a continental or hemispheric nature. Finally, the all-inclusive level of global affairs involves institutions and activities of inter-regional or world affairs.

We have ranged these three levels and their sub-divisions in a tabular form in the following page. It seems to us that this classification scheme represents most accurately the geographic reality of our world, thus its

SPATIAL UNIDIMENSIONAL TRINARY CLASSIFICATION SCHEMA.

i	LEVELS	ii	AREAS	iii	ARENAS
1	LOCAL	11	INTRA-NATIONAL	111	PRIMARY
				112	COMMUNITY
				113	MUNICIPAL
		12	NATIONAL	121	COUNTY
				122	PROVINCIAL
				123	STATE
		13	INTER-NATIONAL	131	BILATERAL
				132	MULTI-LATERAL
				133	SUPRA-NATIONAL
2	REGIONAL	21	WEST	211	OCEANIA (PACIFIC)
				212	AMERICA (NORTH)
				213	EUROPE (WEST)
		22	EAST	221	EUROPE (EAST)
				222	EURASIA (SOVIET)
				223	ASIA (FAR EAST)
		23	SOUTH	231	ASIA (SOUTH EAST)
				232	AMERICA (SOUTH)
				233	AFRICA(ARAB & BLACK)
3	GLOBAL	31	TRANS NATIONAL	311	CORPORATIONS
				312	ASSOCIATIONS
				313	MOVEMENTS
		32	INTER-CONTINENTAL	321	EAST-WEST
				322	WEST-SOUTH
				323	EAST-SOUTH
		33	WORLD	331	EXTRA-NATIONAL
				332	UNITED NATIONS
				333	EXTRA-TERRESTIAL

Although the table is unidimensional, it has depth in the sense that it divides the range into three degrees of detail: (i) the three main levels of human activity, i.e. local, regional and global; (ii) nine areas of interaction - three for each level; and (iii) twenty-seven specific arenas of action - three for each area.

We are using this trinary classification scheme in order to maintain symmetry and consistence throughout our model. Of course, such division is arbitrary, in the sense that all classifications are human constructs and hence artificial. Both the quality and quantity of categories could have been different; but it would not have been any less arbitrary. Thus, the justification for this particular scheme is that it optimizes a balance between practical relevance and theoretical elegance.

Both criteria are admittedly subjective and may change in time and place. These particular divisions, for example, would have been meaningless a few centuries ago and may become meaningless by the next century. In the contemporary world, however, they seen to offer the most relevant classes of our reality.

Furthermore, it should be noted that the range itself has been expanding in recent times. It was not so long ago that most human activities were confined within the local level for a long time. It is only lately that global affairs have taken such importance. Finally, we may say that even global affairs are not the ultimate level of human action. With the breakthrough in outer space, extra-terrestial affairs could presently be added as the next level of significant activities.

One last explanation involves the numerical coding scheme we are using in this model. It is a trinary numbering system for purposes of uniform identification of our categories. (i.e. 312 locates the second group of the first area of the third level, or INGO's operating in the trans-national area on the global level.) For reasons of comparative simplicity, we shall keep this model throughout this study.

B. The Human Reality.

At the beginning of this study we stated that "reality" was a human concept derived from man's perception of himself and his environment. Thus human reality results from human self-awareness within a certain contextual experience. It may be said that reality is the context in which man relates to the things that affect him.

In this context, reality is a combination of what man feels and thinks. It is, therefore, both internal and external; intellectual and empirical. In this reality, human consciousness discerns a fundamental dichotomy between self and environment, between his internal and external worlds. The reality of the internal world consists of human thoughts, emotions and awareness. The reality of the external world impinges upon him constantly and thus defines and confines his existence and sphere of action.

It is on this conceptualization that we shall base the second dimension of our framework. This dimension shall constitute the reality context (R) of humanity. In order to differentiate between the aspects of this reality, we shall utilize the criterion of the above dichotomy which seems to us the most fundamental.

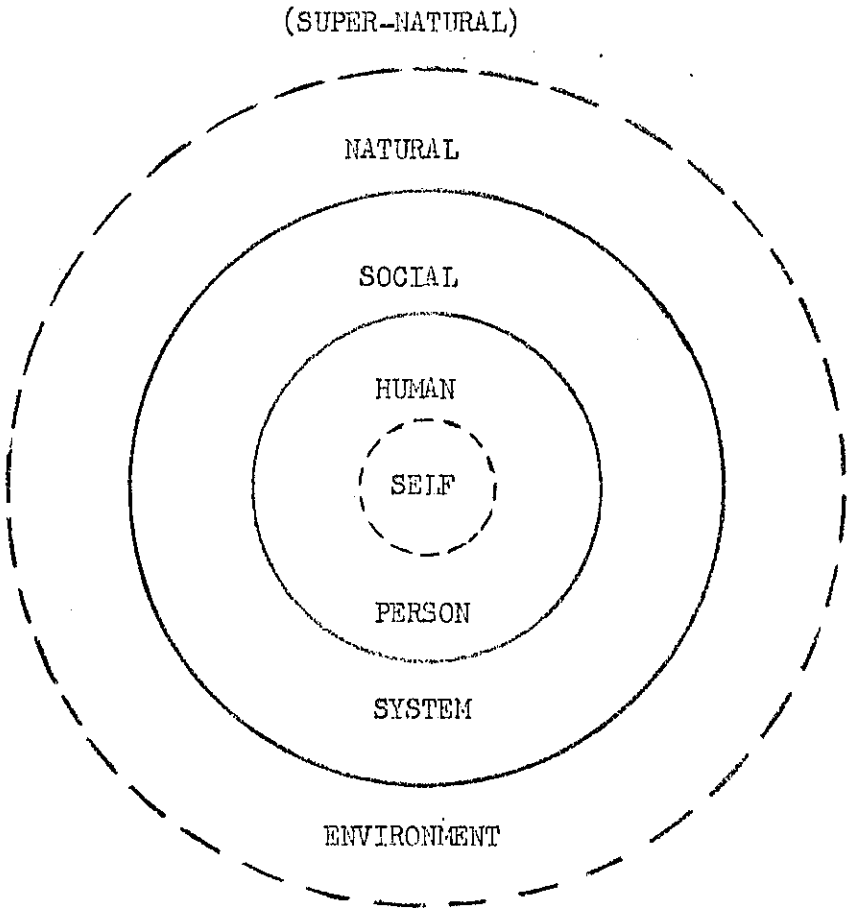
Using the same format as the spatial dimension, we shall range the contextual aspects of reality along the continuum which appears below. The two opposite poles of this continuum are the inner and outer worlds which divide reality into its internal and external components. Thus, man faces, on the one side, the internal reality of his humanity; and on the other side, the external reality of his environment.

This environment, however, is too broad a category to be left intact. It too, has a fundamental dichotomy which separates it into two significantly different components. Man can distinguish that his extenal reality is made up of other men like himself, as well as everything else. This important difference separates the social from the natural environment, both of which are indispensible to human existence.

CONTEXT CONTINUUM

REALMS OF REALITY

CRITERION



CONCENTRIC SPHERE MODEL

These two dichotomies mean that man can distinguish three principal domains within which he interacts: his self-consciousness; his fellow men; and his natural environment. Man has to live with himself as well as with others, within the constraints of nature. He, therefore, must come to terms with three different kinds of relationships: man to self; man to man; and man to nature.

These three spheres of activity and their inter-relations can best be illustrated by using the concentric circles diagram in the previous page. This stylized representation of reality locates "man at the centre of things." It, therefore, followes in the humanistic tradition began with Protagora's "man as the measure of things."

From this point of view, man interfaces with both the internal world of his self and the external world of his social and natural environments. In this scheme of things, man interacts (affects and is affected by) via the three relationships (self, others, nature). As a social animal, man becomes human within the social circle and it is through it that he conceives his relationship with both self and nature.

This simplified version of a complex reality should be seen for what it is: a model to clarify our interpretations of what is going on inside and outside of ourselves. One, of course, can go further than this and elaborate the schema with more details. At the same time, one can draw many inferences which are implicitely present in the model.

For example, we may connect the two poles of the contextual continuum, thus producing a circumference out of the line. If this is done, the extremes of the inner and outer worlds meet at one point. This point may be said to be where the supernatural fuses with the metaphysical; in a similar manner as the other end of the interface fuses the psychological with the technological aspects of man. The same inference can be easily made by transforming the concentric diagram into a torus (folding the outer into the inner circle).

CONTEXTUAL UNIDIMENSIONAL TRINARY CLASSIFICATION SCHEMA

i	REALMS	ii	DOMAINS	iii	THEMES
1	PERSONAL	11	SOUL	111	SUPER-NATURAL
				112	EXTRA-SENSORY
				113	RELIGION
		12	MIND	121	WISDOM
				122	REASON
				123	KNOWLEDGE
		13	SPIRIT	131	VALUE
				132	CREATIVITY
				133	BEHAVIOR
2	SOCIAL	21	SOCIETY	211	POPULATION
				212	STRUCTURES
				213	PROCESSES
		22	POLITY	221	LAW
				222	GOVERNMENT
				223	POLITICS
		23	ECONOMY	231	FINANCE
				232	MARKET
				233	INDUSTRY
3	NATURAL	31	LIFE	311	ANIMAL
				312	PLANT
				313	ECOSYSTEM
		32	RESOURCES	321	CLIMATE
				322	ENERGY
				323	MATTER
		33	COSMOS	331	EXISTENTIAL
				332	UNIVERSAL
				333	META-PHYSICAL

Indeed, the multifaceted nature of reality may be depicted in infinite ways. No one way can capture the whole truth, yet each one reflects some aspect of it. For our model, we have chosen certain aspects which seemed to be the most pertinent in the contemporary world. Thus, as the table in the previous page shows, we have divided the three realms of contextual reality into nine principal domains (three for each realm). Then, we have taken the categories to a third degree of detail, by sub-dividing the domains into twenty-seven themes (three for each domain). In this way, we have kept the standard format of the model.

Without going into great explanations of the chosen categories; we have selected more or less accepted groups or sets of classes for our divisions. For instance, the inner world of man is divided into spirit, mind and soul, in the traditional manner. The third degree sub-divisions of these three domains should explain sufficiently what we mean by these terms.

Similarly, for the external world, we have divided the social system into its societal (cultural), political and economic aspects; as is usually done for analytic purposes. The sub-divisions of these domains also reflect accepted disciplines and should thus pose no problem.

Finally, the natural realm of the external world of man has been divided into the domain of living things, that of innanimate matter or energy and at the end the all-inclusive sphere of the cosmos.

This taxonomy, we contend, is sufficiently exhaustive to contain all areas of human concern, from the innermost to the outermost. There is no context of reality that cannot be subsumed within this range of themes. As such, one can add any topic of interest by sub-dividing some particular area shown in the table.

We, thus, end the presentation of the static or structural parameter of our model. The two dimensions of this parameter give as the spatial and contextual aspects of reality, which together form the foundations of our conceptual framework.

III. THE DYNAMIC PARAMETER

Upon the basis provided by the stucture we have built so far, we can now proceed to add the dynamic aspects of our model. These aspects, which form the second parameter of the conceptual framework, provide the active dimensions of reality. They are, as we have mentioned already, time and process. Both share the same essential characteristics of change and movement, thus could be dealt with in parallel. For the sake of clarity, however, we shall look at each one separately, in the following sequence.

A. The Temporal Dimension.

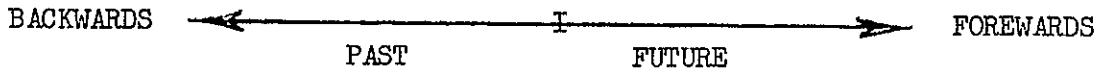
Time is often said to be the fourth dimension of reality. We shall so consider it here and treat it the same way as our other dimensions. Like space, time is an essential element of human reality. However one looks at it, reality is inconceivable without space and time. These two elements, therefore, provide man with his most basic orientations in the awareness of self and environment.

The measurement of time, of course, is not as concrete as that of space. The size of physical objects and the distance between them is more readily perceived than the length of time and the duration of events. Nevertheless, man has succeeded in measuring time in different fashions as a necessity for his activities.

It is also said that a uniqueness of time is its unidimensionality. It can only move in one direction: forewards. This difference with space, however, may be more apparent than real; since the space-time continuum cannot be separated in reality. Physical objects, including man, cannot be moved either forward nor backward from their own time, they can only ride on its natural flow.

Yet, what the body of man cannot do, his mind certainly can. The thoughts of man can move both backwards and forewards in time and space. It is in this sense that we have constructed the following time continuum.

TIME CONTINUUM



We have ranged the above continuum in two directions: back and forth. The two directions begin from the central point (I) which is the present instant of time. The mind of man does not live only in the present instant, but extends its existence, through memory and expectation, in both directions.

For a detailed breakdown of this basic dichotomy of time, we have utilised the familiar table in the next page. The significant difference in that table and the above continuum is that the present has been extended from a point into a range. This is more than a semantic change. Since time does not stand still, the present has a certain duration. This duration may differ somewhat in different cultures and people. But, whatever its actual numerical representation, the present extends some time in the past and future and thus blends imperceptibly with them.

Looking at the table then, one can see the further divisions of each time segment. From our point of view, the past is measured by the history of mankind, all the way from its dim beginnings to the penultimate generation. The present is really the lifetime of a generation and can thus average about fifty years. As for the future, it can extend as far as we care to look.

One cannot help but notice that the subjectivity of time is much greater than that of space. Here, the classifications are even more arbitrary than the spatial ones. The perception of time is much more culture bound than that of space and furthermore changes at different historical periods. Thus, mankind is now extending its collective memory further and further backwards, as well as extending its collective concerns further and further into the future. Our time horizons, therefore, are expanding logarithmically in both directions.

TEMPORAL UNIDIMENSIONAL TRINARY CLASSIFICATION SCHEMA

i	ERAS	ii	AGES	iii	PERIODS-YEARS
1	PAST	11	PRE-HISTORIC	111	ANTIDELUVIAN - 50,000
				112	PASTORAL - 25,000
				113	AGRICULTURAL - 10,000
		12	ANCIENT	121	CIVILIZATION - 5,000
				122	CLASSICAL - 2,000
				123	MEDIEVAL - 1,000
		13	MODERN	131	SCIENTIFIC - 5,000
				132	COLONIAL -300
				133	INDUSTRIAL -100
2	PRESENT	21	CONTEMPORARY	211	LAST GENERATION -50
				212	THIS GENERATION -25
				213	LAST DECADE - 5
		22	CURRENT	221	LAST YEAR -1
				222	NOW 0
				223	NEXT YEAR +1
		23	IMMINENT	231	SHORT TERM +2
				232	FIVE-YEAR PLAN +5
				233	THIS DECADE +8
3	FUTURE	31	IMMEDIATE	311	NEXT DECADE +10
				312	MEDIUM TERM +15
				313	THIS GENERATION +20
		32	INTER-MEDIATE	321	THIS CENTURY +25
				322	LONG-TERM +50
				323	NEXT GENERATION +75
		33	ULTIMATE	331	NEXT CENTURY +100
				332	SCIENCE-FICTION +1,000
				333	ESCHATOLOGICAL + ∞

B. The Process Dimension.

Closely associated with time is process. It may be said that time is the vehicle within which process takes place. Process, therefore, is a sequence of events happening during a certain length of time. It is the activity which can be discerned in the temporal flow.

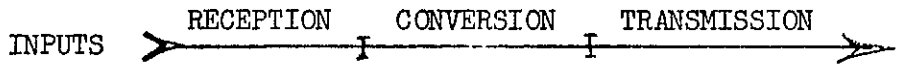
So that the series of events which constitute process may be put in some logical order, we shall utilize a simplified version of systems theory. According to this theory, systems are groups of interrelated units operating together in some way to perform a function. A system may be likened to a mechanism or organism which does something.

As such, the system must receive some energy and information from its environment (since we are dealing here with open systems and not isolated ones). These inputs into the system are necessary for it to perform its function. In a sense, the system is a transformer which converts inputs into outputs. The outputs are the functions of the system and are released into the environment.

From the above description, we may discern a process which takes place in three main stages: reception of incoming necessities; conversion of some stimuli into some responses; and transmission of these products abroad. The function of the system, therefore, is to produce something that will affect the environment which in turn will respond in some way. Certain of these environmental responses become further inputs into the system and thus begin the cycle all over again. These, so called feedbacks, then, complete the process conceptualized by systems theory.

In keeping with our established method, we shall show this process as a dimension, similar to the previous three. The sequence of activities in this process are hence outlined as the three main stages of the following continuum:

PROCESS CONTINUUM



On the basis of this simple systems process we shall construct the fourth dimension of our model. This dimension captures the most prevalent elements of any activity. As such, it rationalizes human actions and generalizes their essential steps. Since the same process holds for any system, be it an individual or a group, a machine or an organ, it may be applied to any operation.

For our purposes, the application of this method is best suited in the following manner. We can generalize the input stage as that when the system studies its experiences. This means that the system analyzes and evaluates the messages it receives from the environment so as to determine their relevance. Upon this determination, the system will have to decide its action and prepare its response. Once these intentions have been adopted, what remains is to put them into effect by involving itself in their execution.

The above three stages of this process and the detailed steps contained therein are illustrated in the table of the next page. That standard table shows the sequence of stages, phases and steps that a systemic procedure requires. Whether explicitly or implicitly, this process is generally followed by all organized activities. The more complex the system or action, the closer this procedure applies to it.

The relation of this process to time means that in general the three stages correspond to the past, present and future. This rough chronology, however, does not mean that every detailed step must follow each other in that precise sequence. The activities involved in each step may take place concurrently in real time, even if the do not in logical series.

Since we have tried to use standarized classifications for our concepts, this explanation should suffice for the presentation of the model. Moreover, the value of this conceptual framework is not in the accuracy of its details nor in the originality of its categories. Rather, it is to be found in the systhesis of the whole which is greater than the sum of its parts. It is in this light that our four-dimensional construct should be seen.

PROCEDURAL UNIDIMENSIONAL TRINARY CLASSIFICATION SCHEMA

i	STAGES	ii	PHASES	iii	STEPS
1	EXPERIENCE CONCEPTION	11	ANALYSIS	111	PERCEPTION
				112	CONCEPTION
				113	ETIOLOGY
		12	DIAGNOSIS	121	MONITORING
				122	PROBLEMATIQUE
				123	EVALUATION
		13	PROGNOSIS	131	PROJECTION
				132	EXPECTATION
				133	FORECASTING
2	INTENTION	21	PARAMETERS	211	VALUES
				212	STANDARDS
				213	OBJECTIVES
		22	DIALECTICS	221	OPTIONS
				222	CALCULUS
				223	RESOLUTION
		23	STRATEGIES	231	PLANNING
				232	PROGRAMMING
				233	BUDGETING
3	EXECUTION	31	LOGISTICS	311	FUNDS
				312	RESOURCES
				313	PERSONNEL
		32	CYBERNETICS	321	SERVICES
				322	ADMINISTRATION
				323	MANAGEMENT
		33	PRAXIS	331	PERFORMANCE
				332	IMPLEMENTATION
				333	RESULTS

IV. TWO-DIMENSIONAL RELATIONSHIPS

So far, we have treated each of the four dimensions in isolation. In reality, however, these dimensions are inextricably interwoven. Thus, now that we have presented the dimensions separately, we must take the next step and bring them together in various combinations which approach their realistic relations. As a first step in this procedure, we shall look at two dimensions at a time and investigate the resulting correlations. In order to investigate these two-dimensional relationships systematically, we have chosen two well-known methods: one is the Cartesian coordinates and the other is cross-cutting matrices. We shall look into each in turn.

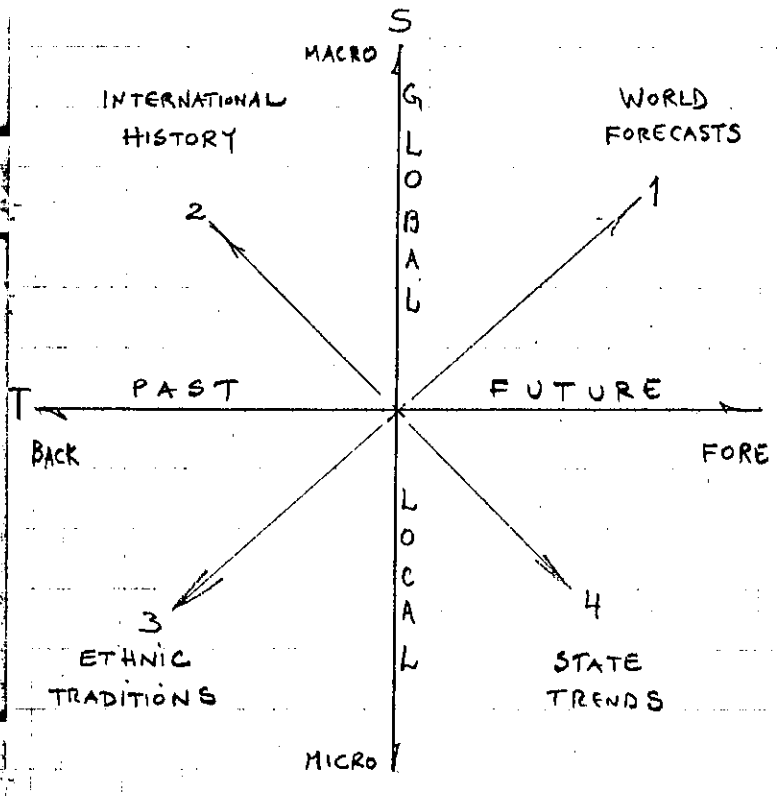
A. Cartesian Fields.

Applying the Cartesian coordinates to our subject-matter means arranging two dimensions at a time at right angles to each other. This orthogonal presentation reproduces the x and y axes of the cartesian plane. (With the x being the horizontal and the y the vertical axes; each representing a dimension).

In our case, we have chosen the x-axis for the dynamic parameter and the y-axis for the static one; much the same as in the two-by-two matrix of our conceptual framework. However, since we have two dimensions per parameter, we have to utilize different fields to represent them. Four elements can only be paired in six different ways; thus our four dimensions (space:S; context:R; time:T; and process:P) produce six pairs: RS; PS; PR; PT; RT; ST.

We could have investigated each of these combinations. However, in order not to be too repetitive, we have selected only four for presentation. Since PT and RS are in the same parameter, their combination is not so interesting, so we have eliminated them from our list. This leaves four significant bilateral relationships: PR; PS; RT; ST. It is these four pairs that we are showing in the diagrams of the next page.

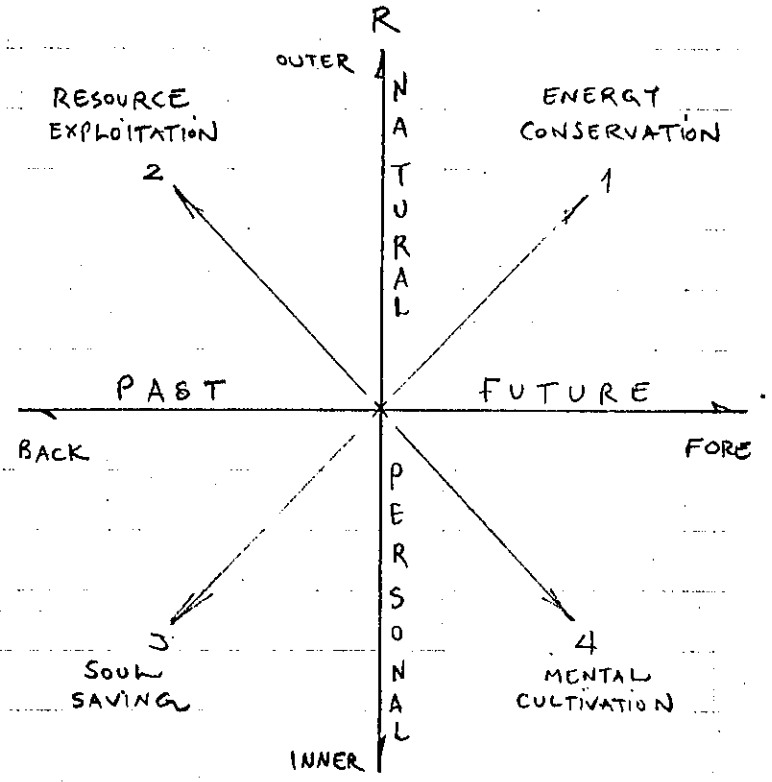
TWO-DIMENSIONAL FIELDS



O = PRESENT x REGIONAL

R = SOCIAL ; P = EXPERIENCE

ST



O = PRESENT x SOCIAL

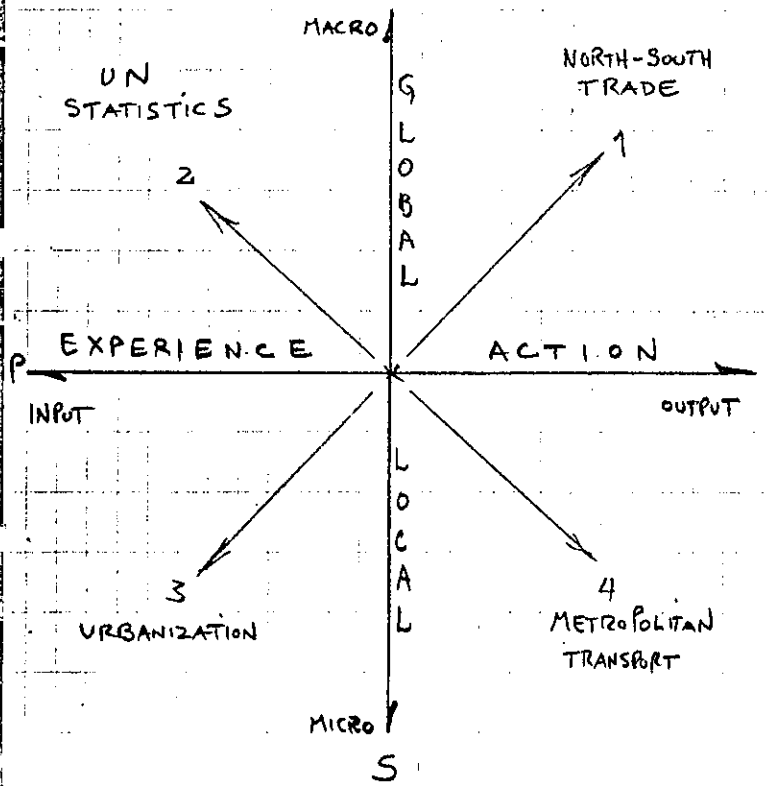
S = NATIONAL · P = DECISION .

RT

PS

R = ECONOMIC ; T = PRESENT

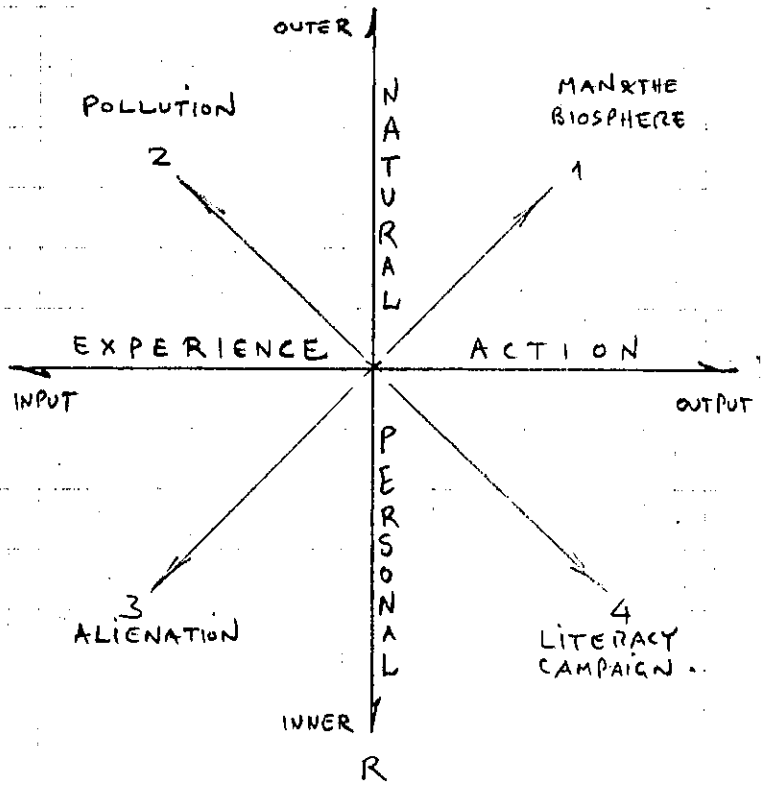
O = DECISION x REGIONAL



PR

S = INTERNATIONAL ; T = PRESENT .

O = DECISION x SOCIAL



Since each diagram utilizes only two dimensions, it means that it holds the other two dimensions in abayance. To put it in another way, each field has two variables and keeps the others constant. The point at which these two constants are held is indicated at the bottom of each diagram.

Another point of interest is the origin of each diagram. The origin or zero-point is where the two dimensions cross each other. This point is usually in the middle of the range used. If that point is zero, as in the case of time, the right side becomes positive and the left negative. The origin (0) is also indicated at the bottom of each diagram. (For the space-time combination, as an example, the usual origin is the "here and now;" for our purposes, however, this has become the regional present).

In each of the four quadrants of every diagram (marked: 1;2;3;4), there is a light arrow indicating a vector. Each vector points to an extreme corner of the field in order to exemplify what the combination of the two variables in question would produce. Thus, if we move forewards in time and upwards in space (ST diagram), in the context of social affairs at the input stage of our process; it means that we are concerned with global long-range social forecasts. We have given such an example for each quadrant in the diagram, so there is no point for further elaboration of it here.

These examples would be changed depending on the position one takes within the field. The further away one goes from the origin, the more extreme the example. If one could assign quantitative values to the range of each dimension, then the location of the examples would be more accurate. (For the above example, we would specify exactly how global and long-range we wanted to be, in square kilometers and years). This,however, is a technicality which we left for another study. Alternatively, we did assign codes to each dimension that will serve our purpose qualitatively, as we shall see presently.

B. 3x3 Matrices.

Another way of correlating two variables is by constructing two dimensional matrices. A matrix is very similar to the field coordinates just presented; but it emphasizes different things. Instead of the left--right, up-down dichotomies of the field, the matrix can distinguish as many divisions as desirable.

It so happened that the matrix we presented for our conceptual framework at the beginning of this study was a dichotomus one; thus it gave the same information as a field would have given. The collumns and rows of that matrix could become the vertical and horizontal axes of a field, in which case its four boxes would become the four quadrants of the plane.

Now, however, we want to present the divisions of each dimension more accurately, so we have to go beyond the dichotomies of a 2x2 matrix. As a first approximation, we need not go too far; so we will begin with a 3x3 format. This means that each dimension will be divided into its three main segments. Using two dimensions at a time, we thus produce three horizontal and three vertical divisions, which superimposed form a 3x3 grid.

For the sake of consistency, we shall take the same bilateral combinations as we did for the fields; i.e. PR; PS; RT; ST. With each of these pairs, we shall construct a matrix containing three rows and three collumns. As they cross-cut each other the three sections of each dimension produce nine boxes which correspond to the main interrelations of the two variables.

The four following pages illustrate these four combinations by showing one different matrix per page. It should be noted that each matrix interrelates only two variable, thus keeping the other two constant at a particular point, as indicated at the bottom of each page. Unlike the field, however, the matrix has no point of origin and cannot distinguish intermediate correlations. Rather, it operates in quantum jumps which form its salient points; in these particular cases: nine.

STRUCTURAL - PROCESS RELATIONSHIPS

3 x 3 M A T R I X

P \ R	NATURAL	SOCIAL	PERSONAL
EXPERIENCE SENSING	MEASURING CLIMATIC CHANGES	TECHNOLOGICAL FORECASTING	WATCHING & SUNSET
DECISION MAKING	DEBATING EXISTENCE OF RESOURCES	POLICY PLANNING	CHOOSING A CARREER
ACTION TAKING	PROTECTING AGAINST EARTHQUAKES	ANTI-RACISM CAMPAIGN	WORKING

S = WORLD T = PRESENT

SPACE - PROCESS RELATIONS

3 x 3 M A T R I X

P / S	INPUTS	SYSTEM	OUTPUTS
GLOBAL	NORTH - SOUTH CONFRONTATION	CIEC	STALEMATE
REGIONAL	EXCHANGE RATES INSTABILITY	EEC SUMMIT	COMMON MONETARY UNIT
NATIONAL	LIBERALIZATION PRESSURES	USSR	NEW CULTURAL POLICIES

T = PRESENT R = SOCIAL

RATIONAL - TEMPORAL RELATIONS

3 x 3 M A T R I X

R \ T	PAST	PRESENT	FUTURE
NATURAL	ICE AGES	POLLUTION	RESOURCE DEPLETION
SOCIAL	RELIGIOUS WARS	INTERNATIONAL CONFLICT	OVERPOPULATION
PERSONAL	SOUL SALVATION	HUMAN NEEDS	NEW VALUES YOUTH

S = WORLD P = PROBLEM

SPACE - TIME RELATIONS

3 x 3 M A T R I X

S \ T	PAST	PRESENT	FUTURE
WORLD	CULTURAL ISOLATION	ECONOMIC GROWTH	INTERNATIONAL COORDINATION
REGIONAL	MIGRATIONS	DESERTIFICATION	A UTOMATION
LOCAL	TYRANIC GOVERNMENTS	HABITATION	A UTONOMY

R = SOCIAL P = PROBLEM

For that reason, each matrix illustrates nine examples; in place of the four illustrated by each field. Of course, the examples are not exhaustive of each category; others could easily been added or substituted. The reader, however, can provide his own examples to suit his particular interests. As it is, we feel the point has been made; i.e. that this classification scheme can encompass any and all human concerns.

The 3x3 matrix, however, may not show enough details for some purposes. In that case, we could go deeper into our sub-divisions and produce more information. Instead of taking only the primary trinary divisions of each dimension, we could move on to the second degree of detail and use the nine sub-divisions for each dimension. If that is what was wanted, we could then construct a 9x9 matrix producing eighty-one classifications.

We have not done so at this stage because it would complicate matters unnecessarily. (We will, nevertheless, do so later on in the second part of this report). Similarly, if one went to the third level of detail and used the twenty-seven divisions of each dimension, one could differentiate hundreds of dual relationships.

What this means is that the taxonomic scheme we are presenting here could be taken to any level of detail without any conceptual difficulty. It is, therefore, a tool that can fit any job. It can classify broad and general concepts as easily as fine and specific ones, and thus show at a glance the relationships among them.

Whether it is the field or matrix technique that one utilizes, correlating two variables for purposes of classification is a necessary prerequisite to the systematization of knowledge. From that point, one can move on to the construction of cross-impact matrices and then on to valid hypotheses. These further steps, we shall leave to another study. What we are doing here is lay the bases for a synoptic approach which will synthesize all four dimensions of reality. For that reason, we now turn to the last chapter of this part of the report.

Now that we have explained the two-dimensional combinations of our parameters, the next logical step is to try three-dimensional constructs. Since reality is multi-dimensional, the more dimensions we consider in a model the more accurate its reflective power. On the other hand, of course, the more dimensions we add, the more complex the model up to the point where we cannot understand or utilize it any more. We, therefore, must hit upon the optimum number of variables that will balance accuracy and utility. The four dimensions we have conceived seem to approach such optimality; perhaps, five dimensions reach the limits of feasibility for our modelling capacity. In this chapter, then, we shall consider, first, the three--dimensional combinations of our conceptual framework, and second, the four-dimensional ones.

A. Three-dimensional Volume.

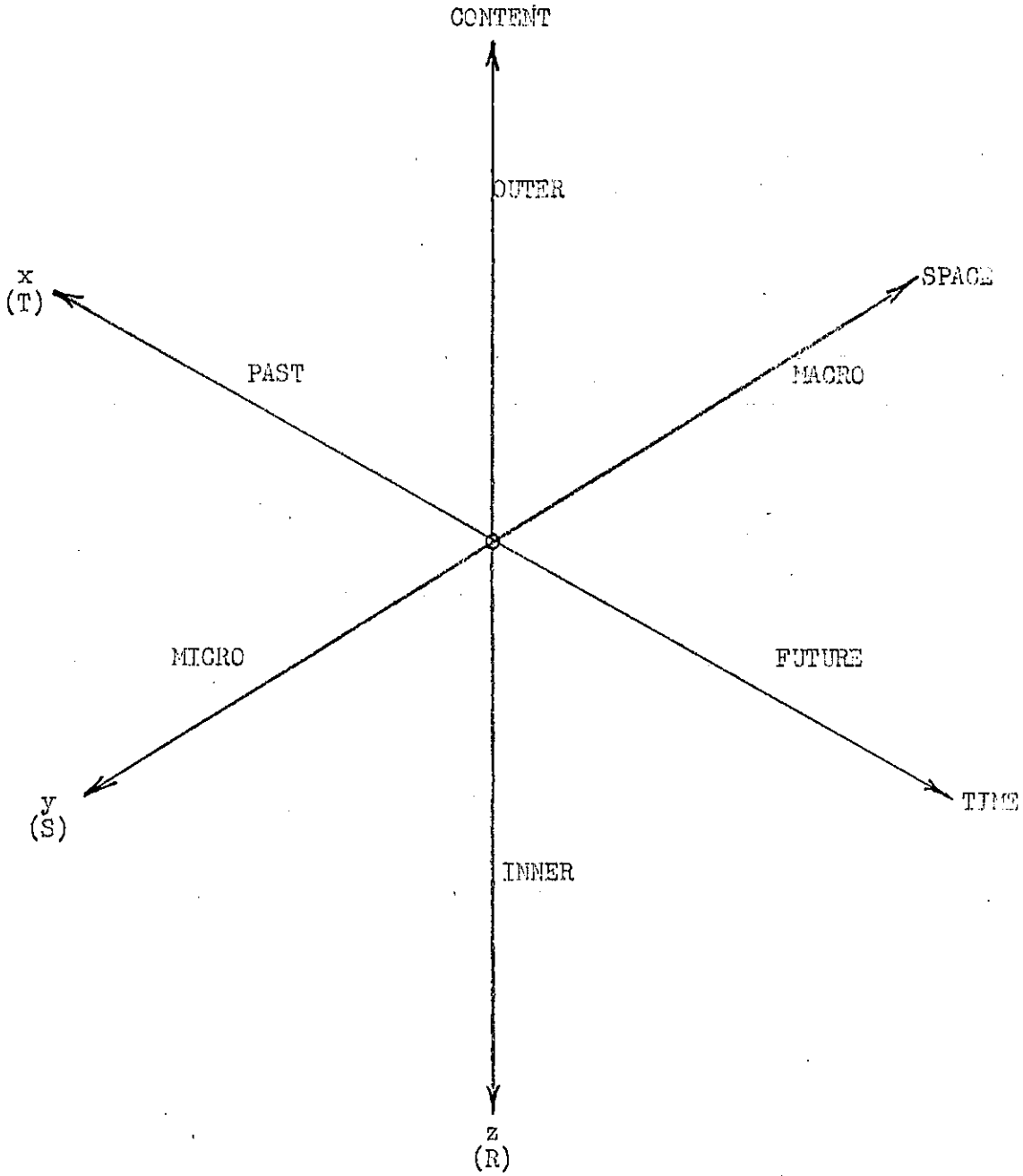
In our presentation of three-dimensional coordinates, we shall use the same method as the two-dimensional ones: i.e. the cartesian and matrix. In this step, all that is required is to add one more dimension to the two-dimensional models we have already constructed.

In cartesian terms, the third (z) dimension completes the spatial coordinates of any physical location. By giving the x-y-z coordinates, one determines the exact position of a point in space. From there on, of course, the equations of solid geometry can extend this point into a curve, surface or volume.

In our case, the x-y-z coordinates are not all spatial, since space is only one of our dimensions. We are thereby trying to include much more information in our coordinates than merely spatial position. The problem is which three out of the four dimensions should be chosen at any particular time. This choice will determine the combination of variables and constant for a specific purpose.

THREE DIMENSIONAL

PARAMETRIC COORDINATES



Origin (O) = Present (T); Regional (S); Social (R)

Process (P) = constant

It is easy to see that four variables can combine into four distinct triads. Therefore, using our four dimensions P-R-S-T, we can produce the following three-dimensional combinations: PRS; PRT; PST; RST. Another way of looking at it is to add one dimension to the four two-dimensional frameworks we presented in the last chapter: i.e. ST+R; RT+P; PS+T; PR+S. This will give us the four possible new diagrams.

To avoid repetion, however, we only chose to present one of these conbinations (RST),because the space-time-context is perhaps the most basic triad. It is this combination that we present in the previous page. Three-dimensional diagrams are, of course, difficult to illustrate in a two-dimensional plane, so the viewer must use his imagination to see the three-dimensions of that framework.

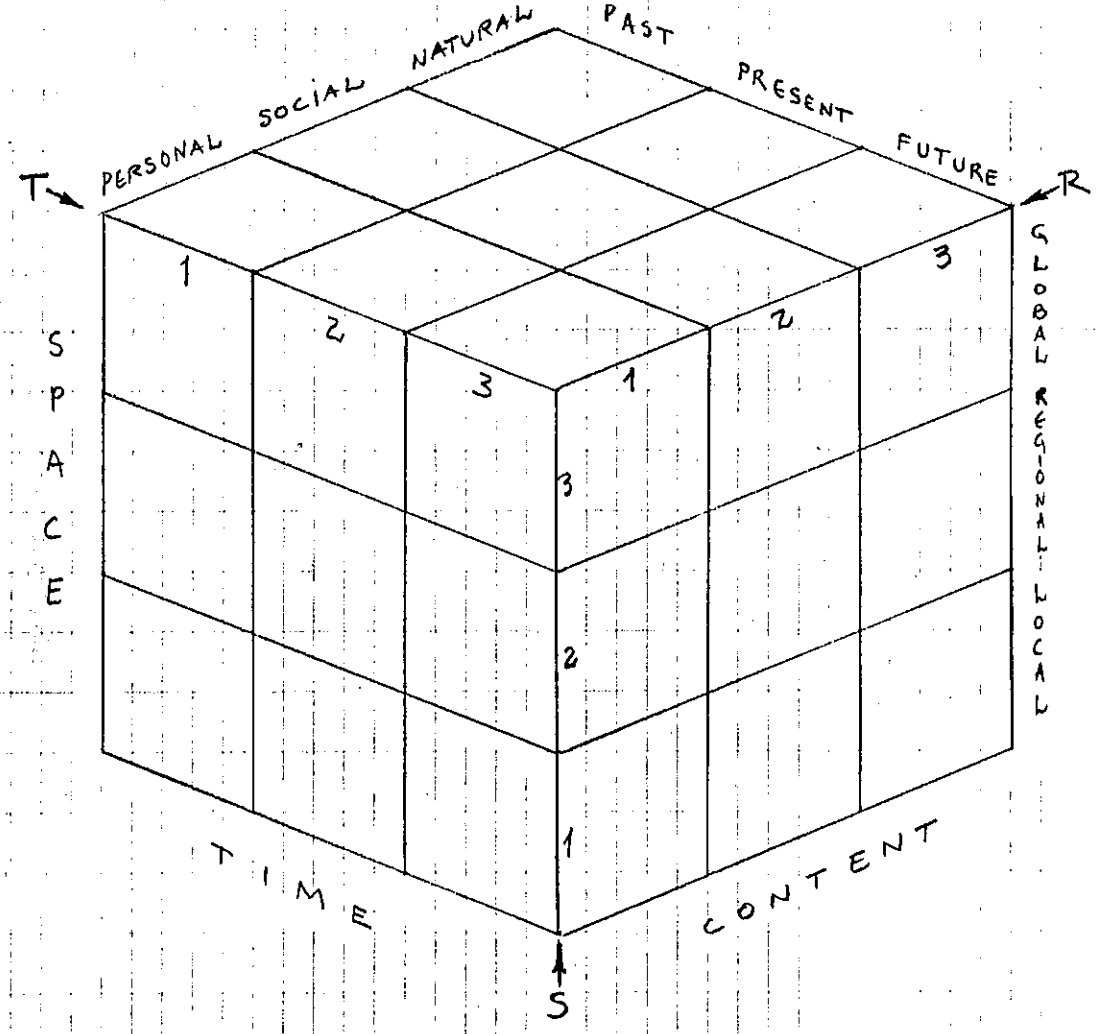
As it is noted at the bottom of that page, the origin is at the social regional present; while the process dimension is kept constant. Keeping that in mind,we can locate any subject (natural, social, personal) taking place anywhere (locally, regionally, globally) at any time (past, present, future), by giving its r-s-t coordinates.

As a crude example, using only the eight quadrants (outer-macro-past; outer-micro-past; outer-micro-future; outer-macro-future; inner-macro-past; inner-micro-past; inner-micro-future; inner-macro-future); we would locate the global forecasting of natural resources within the outer-macro-future and the history of french thought within the inner-micro-past quadrant.

In order to be more specific, we would have to assign further subdivisions to the eight quadrants. This is precisely what the use of the matrix technique does. The illustration in the next page should clarify this point.

In constructing the three-dimensional matrix, we proceed in the same manner as that of the cartesian coordinates. Thus, we add one more dimension to the square matrices we presented in the previous chapter and get various cubical ones. For purposes of illustration, we have only chosen to present one such cube; using the same variables as the RST volume above.

CUBIC [3x3x3] MATRIX



P = CONSTANT AT EXPERIENCE

Since we are using the first-degree divisions of each dimension, we have a 3x3x3 cube, which makes twenty-seven boxes in all. The limitations of the two-dimensional drawing only allowed us to show twenty--one boxes or classes of things; so the viewer has to imagine the other six which are hidden behind the cube.

On this diagram, we have also put the numerical codes for each dimentional division. Thus in our trinary system, we have R:1;2;3 - S;1;2;3 - T:1;2;3. These combinations of letters and numbers codify the identification of our classifications in three-dimensional terms. By specifying the location in this code, one can easily find any topic in time and space.

Using the examples we gave above:"forecasting the natural resources of the world"would be located within the 3R-3S-3T cube (the upper right-hand corner of the diagram). Similarly,"the history of french thought"would be found in 1R-1S-1T cube (the exact opposite, lower left-hand corner). Conversely, to take a fix at random: 2T-2R-2S would identify any social event going on at present at the regional level. Whichever way one looks at it, this coding scheme provides a quick reference point in three dimensions.

B. Four-dimensional Coordinates.

We are now ready to conclude this conceptual framework by adding the fourth and last dimension to the other three. This would constitute the ultimate systhesis of our model which would be composed of four (PRST) dimensions. We shall thus be able to vary any dimension without having to hold one of them constant.

Unfortunately, we have not found a way of illustrating a four-dimensional construct; so the reader will have to do with only verbal explanations at this point. If possible, one would have to imagine adding another axis to the last cartesian diagram, or another grid to the matrix in the previous page; which in this case would represent the P dimension that was left out of the three-dimensional drawings.

Although the PRST framework cannot be drawn, it is easy to extend our numerical codes to all four dimensions. Using the trinary system which appears in the four tables at the beginning of this report, one can locate any point by its four coordinates, in whatever degree of detail one desires.

For instance, the two examples we identified above in three coordinates can now be identified completely in four by adding the code of the P dimension. This would give: 1P-3R-3S-3T for the first example and 1P-1R-1S-1T for the second. We have put 1P for both, because we had kept P constant at experience (our procedure was the study of these topics).

If instead of studying the future of global natural resources, we wanted to do something about it, then the location would change to 3P-3R-3S-3T. At this point one will realize that the same chage cannot be made for the second example. We cannot change the history of french thought because we cannot undo the past; we can only study it. Therefore, 3P-1R-1S-1T would be a null-set in reality, if not in logic. Unless, in a metaphorical sense, we plan to change the past by rewriting its history!

We shall not here try to look at the characteristics of each of the eighty-one (3x3x3x3) classes of things in this four-dimensional scheme. Much less go into second or third degree detailed classifications (which would produce 9x9x9x9 for the second and 27x27x27x27 for the third degree). Suffice to extend the first example to the third degree of detail. This would mean trying to forecast (P133) what the energy resources (R322) of the United Nations (S332) would be around the year 2000 (T321). Such endeavor would then be coded as: P133-R322-S332-T321.

Of course, if one wants more details than that, one could code a fourth degree to the scheme as a whole or to a particular dimension only. Thus, if we wanted to know the above example for Canada, rather than the UN; we could assign that country number 26 in a list of 150 states in the world and get a code of S123.25. Similar coding schemes can be generated for the other dimensions to any degree of detail.

In conclusion, we may say that no matter what the depth of this scheme, its breadth covers the whole gamut of human concerns. Its four dimensions enclose the basic information anyone could want about anything. Through it, one could answer the four fundamental questions on any subject. That is to say: the What (Context); Where (Space); When (Time); and How (Process).

If one can answer these four questions about a topic, one can locate it within this conceptual framework. If not, the topic is not well formulated or there is not enough information on it. Thus, the New International Economic Order as a subject in question would have to be restated in the standard language of our model: i.e. the implementation (P33) of a new economic order (R23) on a world scale (S33) as soon as possible (T23).

There is yet an obvious omission to our list of basic questions:"Why?" This, evidently, is a fifth question which our scheme dos not explicitly answer. In order to do so, one would have to add another dimension to this model and thereby assign a classification order to the purpose or function of things.

Theoretically, there would be no problem in adding such dimension (let us call it Q for quality) to the overall scheme. The resulting PQRST model would, thereby, be more complete and more complex than the PRST one. The elements of the Q dimension, however, are even more subjective than those of the other dimensions, because they depend on the use or function one wants to make of the model.

For that reason, we have left the Q dimension open at this stage of the general presentation of the conceptual framework. It is only when, we try to apply this theoretical model to a practical situation that we may need to specify this extra dimension. This, sure enough, will pertain to a continuation of this study,when we operationalize the model we have constructed so far. At this point, then,we end the presentation of the theoretical foundations of our conceptual framework.

CONCLUSION

We have kept the report of this study sufficiently succinct so as not to require a separat e summary. For this reason, we shall not repeat here the points already made throughout the paper. What we shall do is to mention one particular case-study which used this conceptual framework as a basis. That study applied the generalities of this conceptualization to help policy--planning in international organization.

The study was commissioned by UNESCO as part of the preparation of its next Medium-Term Plan. In this case the motivation was to investigate whether policy-planning could be done in a more systematic and synoptic manner. The result, at least theoretically, was that it could indeed. The conceptual framework, with the addition of a fifth qualitative dimension, was translated to fit the organizational and policy requirements of UNESCO. The outcome was an isomorphic model which called for some re-structuring of the organization in such way as to increase its functional efficiency. Building upon this model, it then became possible to construct a policy-preparing methodology to improve the medium-term planning process.

It should be evident by now that the all-inclusive nature of the conceptual framework has an unlimited potential for application to various areas. As such, it is not expected to be applied exactly and entirely as is. Rather, it could be used as a heuristic tool for different purposes, depending on specific needs. Future studies, for example, would require further research on the pro cedural dimension, especially P-13, combined with the temporal dimension T-3. The purpose of this typology, therefore, is not to further metaphysical explanations of the cosmos, but to serve as a basis for systematic decision-making. The appropriate application of such systemic model should make us more aware of the salient issues of the world and thus improve our ability to control and resolve them. If it can open up these various possibilities, then this study would have served its purpose.

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