AURAVANA PROJECT

PROJECT FOR A COMMUNITY-TYPE SOCIETY

The Social System

SSS-SS-003 | May 2024

SOCIETAL SPECIFICATION STANDARD

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GREETINGS

In an effort to provide the greatest possible clarity and value the Auravana Project has formatted the system for the proposed society (of the type, 'community') **into a series of standard publications. Each standard is both a component of the total, unified system, as well as intended to be a basis for deep reflective consideration of one's own community, or lack thereof. These formal standards are "living" in that they are continually edited and updated as new information becomes available; the society is not ever established, its design and situational operation exists in an emergent state, for it evolves, as we evolve, necessarily for our survival and flourishing.**

Together, the standards represent a replicable, scalable, and comprehensively "useful" model for the design of a society where all individual human requirements are mutually and optimally fulfilled.

The information contained within these standards represent a potential solution to the issues universally plaguing humankind, and could possibly bring about one of the greatest revolutions in living and learning in our modern time. Change on the scale that is needed can only be realized when people see and experience a better way. The purpose of the Auravana Project is to design, to create, and to sustain a more fulfilling life experience for everyone, by facilitating the realization of a better way of living.

Cooperation and learning are an integral part of what it means to be a conscious individual human. A community-type societal environment has been designed to nurture and support the understanding and experience of this valuable orientation.

The design for a community-type society provides an entirely different way of looking at the nature of life, learning, work, and human interaction. These societal standards seek to maintain an essential alignment with humankind's evolving understandings of itself, combining the world of which humans are a regenerative part, with, the optimal that can be realized for all of humanity, given what is known.

The general vision for this form of society is an urgent one considering the myriad of perceptible global societal crises. Together, we can create the next generation of regenerative and fulfilling living environments. Together, we can create a global societal-level community.

THE UNIFIED SOCIETAL SYSTEM: SOCIAL SPECIFICATION STANDARD

This publication is one of six representing the proposed standard operation of a type of society given the category name, 'community' (a community-type society). This document is a specification standard for a social system.

Every society is composed of a set of core systems. Different types of societies have different internal compositions of these systems. The composition of these systems determines the type of society. The type of society described by the Auravana Project societal standard is a, community-type society. The standard is a composition of sub-system standards. The Auravana societal standard may be used to construct and duplicate community at the global level.

For any given society, there are four primary societal sub-systems. Each of these sub-systems can be specified and standardized (described and explained); each sub-system is a standard within a whole societal specification standard. The first four primary standards of the six total standards are: a Social System; a Decision System; a Material System; and a Lifestyle System. Each standard is given the name of its information system. The fifth publication is a Project Plan, and the sixth is an Overview of the whole societal system. Together, these standards are used to classify information about society, identify current and potential configurations, and operate an actual configuration. Because of the size of some of these standards, they may be split into two or more publications.

Essential figures and tables related to this standard exist beyond what is shown in this document.

Figures and tables on the website are named according to their placement in the standard.

- Those figures that could not be accommodated here are readily accessible in their full size, and if applicable, in color, on the Auravana Project's website [auravana.org/standards/figures].
- Those tables that are too large to include in this document are referenced with each standard on the Auravana Project's website [auravana.org/standards].

Articles

Article Section Headings

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List of figures

This is the list of figures within this document.
There are more figures associated with this standard than are identified in this document; those figures that could not fit are freely available through auravana.org, in full size, and if applicable, color.

List of tables

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Document Revision History

A.k.a., Version history, change log.

This document is updated as new information becomes available.
The following information is used to control and track modifications (transformations, changes) to this document.

VERSION	REVISION DATE	SUMMARY (DESCRIPTION)
003	May 2024	The structure of this document has changed. The "Project Direction" article previously in the Project Plan has been integrated into the "Social Direction" article. The hanging concepts at the end of the previous version of the Social System have been integrated into this standard as well as the other relevant standards. There have been many additions throughout the rest of the document. The breakout boxed content has been removed and integrated into the flow of text. Many grammar and spelling corrections have been made throughout. Formatting throughout has been improved. Citations have been improved throughout and are now at APA 7th generation.

GENERATION ON	NAME	CONTACT DETAIL
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The Social System Overview for a Community-Type Society

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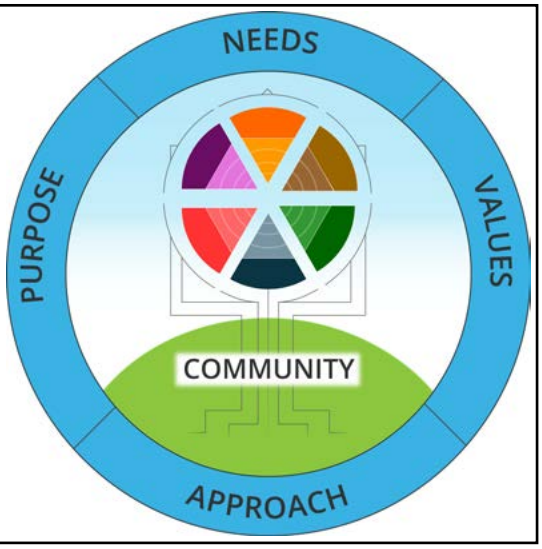
Abstract

This publication is the Social System for a community-type society; it is a social system for the organized structuring of a social population. A social system describes the organized structuring of a social environment. A social system is a grouping of units of individuation (here, units of consciousness) forming a cooperative network in which information is shared and integrated through a data structure. The term social system is used, in general, to refer to lifeforms in definite relation to each other, which have enduring patterns of behavior in that relationship. This social system standard identifies humanity's aligned interests, and that which everyone has socially in common. It is an organizing system for social navigation that specifies a direction, orientation, and approach to socio-technical life. The standard details the purpose for the society's existence (a direction, 1), its value system (an orientation, 2), and its approach (a methodology and methods, 3). Herein, these concepts, their relationships and understandings, are defined and modeled. Discursive reasoning is provided for this specific configuration of a social system, as opposed to the selection and encoding of other value-oriented configurations; consequences are evidenced. The social system provides a description of who humanity is, and where humanity is going, by identifying its social organization.

Graphical Abstract

Figure 1. *The social organizational model visualizes the relationships between the primary organizing conceptual understandings that lead to the formation of the proposed community. The model presents a top-level view of the social organization of the Community. It shows a community arising out of the similar organization and elucidation of four primary concepts: needs; purpose (& goals); values; and approach. Each of these concepts is a principally influential aspect affecting human behavior and social arrangements. The model is a conceptual framework that reflects, supports, and guides the emergent design and participative development of the Community. The Community itself is symbolized by the green emerging elliptical circle within the larger encompassing blue circle.*
Within the Community a greater subtlety of dynamic organization and refinement of information exists, and this is symbolized by the six triangular slices representing the Community's habitat systems. These concepts and their relationships are described and modelled in this Social System 'design specification', which is a 'blueprint' for the social organization of the Community.



1 Introduction

The Social System Specification Standard details the organized structuring of the social environment; the social structuring of community. A social system is a grouping of units of individuation (units of consciousness) forming a cooperative network in which information is shared and integrated through a structure. Essentially, the social system identifies humanity's aligned interests, and that which everyone has socially in common. It is an organizing system for social navigation that specifies a direction, orientation, and approach to social organization (to humanity's socially coordinated experience). This specification standard details the purpose for the community's existence (a direction), its value system (an orientation), and its approach (a methodology and set of methods).

The social formation of a community-type society arises out of the visualization and elucidation of a set of primary organizing concepts. These concepts and their shared understanding lead to the formation of the proposed community (hereafter known as 'Community' or 'the Community'). These concepts and their relationships are defined, described, and modelled in this document, which is a "blueprint" for the social organization of community at the societal level.

A top-level view of the social organization of said society shows a community arising out of the similar organization and elucidation of three primary categories that contain four primary concepts. The category of 'direction' includes: needs, purpose and goals. The category of 'orientation' includes, values. And, the category of 'approach' includes: a methodological set. Each of these concepts is a principally influential aspect affecting human behavior and social arrangements. As a whole, the model is a conceptual framework that reflects, supports, and guides the emergent design and participative development of the Community.

Within the Community a greater subtlety of dynamic organization and refinement of information exists, detailed in the other societal specification standards (i.e., decision, material, and lifestyle).

Fundamentally, a community-type society forms out of the similar organization (definition and application) of conceptual relationships; from this recognition of commonality arises community.

> **NOTE:** *A social system only continues if the people within it support it with their own behavior.*

2 The triality structuring of community

Although this specification standard may be represented [as a whole] by the Social Organizational Model, it may also be described at a high level as a triality structuring of social information sets. Together, these "awarenesses" forms a structure by which a cooperating social population can navigate a society in an existent world toward everyone's highest potential state of experience.

This specification standard is divided into three principal sections [by these three awarenesses]:

1. The Social Direction.
2. The Social Orientation.
3. The Social Approach.

A coordinated and mutual approach provides the ability to explore the dynamics of society, of cities, and of the ecology as a whole (as a complex system) through the application of various methods and modeling techniques, which provide for the potential of understanding and designing more fulfilling, more resilient, and more sustainable societies. Models and tools (e.g., instruments) that provide greater confidence in answers, verification, and understanding are identified and applied. There is a complex nature to life existence that can be understood through patterns. The design of any societal environment is built around patterns of how a population conceives of and how they use informational concepts and material space. In order to apply a common structural approach, there is the need to use common semantics and common kinds of models. Commonality among society allows for the optimization of communication and of work. A unified means of thinking and communicating is likely to generate a work environment that is commonly understandable and integratable (i.e, that everyone can commonly understand work with). Herein, all work on the societal system can be traced back to a purpose, a purpose that includes individuals and society as a whole. A single, unified way of approaching life at the societal level is essential to making everyone across the [societal] team/group more successful (i.e., more free, effective, and efficient in their work). Society may come to a recognition of the interconnection and unification of a set of universal patters (the systems approach), it may discover new patters (the scientific approach), it may clarify and understand patters (the critical approach), and it may generate and guide new patters (the systems engineering approach).

2.1 The three forces model

> **APHORISM:** *Three by three creates complexity.*

The three force(s) model is a theoretical representation

of the three "forces" required to be present for new directional creation, including thinking. The model's claim is that at least triality must be present for directed creation to flow and for rhythm to coalesce into structure, to transform and exchange creativity in the expression of new states of organized existence.

The three forces are known as:

1. **The activating force** - any force that initiates. The concept of direction fits under this category.
2. **The restraining force** - any force that limits or moderates the initiation. The concepts of qualification, conditions, and values fit under this category.
3. **The reconciling force** - any force that balances and connects the other two forces. The concepts of integration and synthesis fit under this category.

The triangle is the first formable, stable geometric structure. Also, the triangulation of coordinates is the simplest way of calculating orientation in a three-dimensional [action potential] space.

Below is an abbreviated list of the 'three forces models' involved in the design of the social organization of a community-type society. Note that some of these triality models do not fit precisely with the definitions of the three forces in the "three forces model"; they are instead stated here to show the significance of the conception of triality. The list of three forces models includes:

1. To change the dynamic (Read: active[ly changing]) structuring of a society the following concepts may be applied:
   A. Direction (activates).
   B. Orientation (restrains).
   C. Approach to integration (reconciles).
2. To change the mental state of empowerment in an

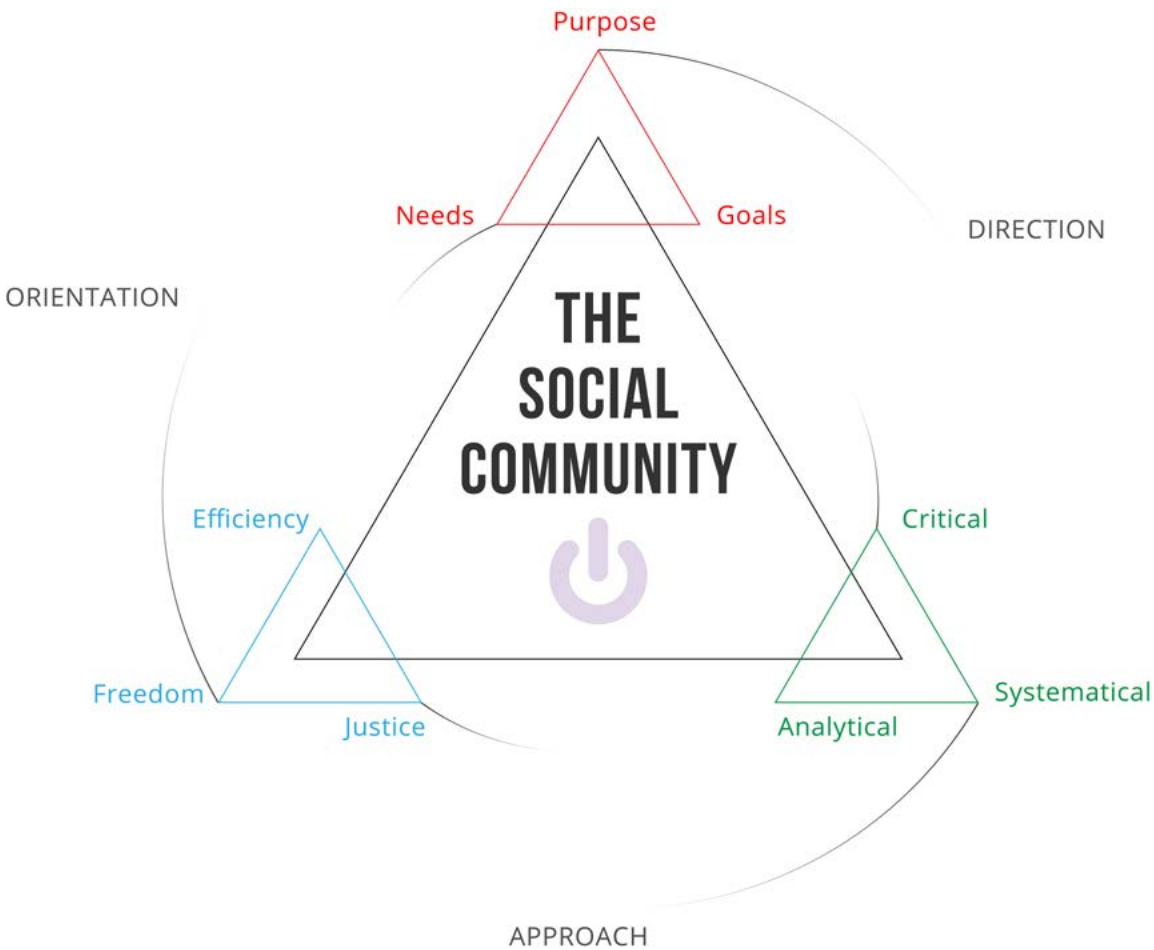


Figure 2. *The triality structuring of a the social system of community. The model depicts the social structuring of the Community in the form of a "triality of awarenesses": a direction [information] set (i.e., vectors); an orientation set (i.e., values); and an integration set (i.e., approach). At a high-level this community may be differentiated into these three "awarenesses" (or experience patterns), which are each sub-divided into three additional "awarenesses". Together, these information sets structure the whole social patterning of the Community. In a sense, the power icon within the center of the model represents the "power" of the structure of the awareness of all sensorily conscious beings among a social community of beings.*

individual the following concepts may be applied:
   A. Focus.
   B. Language & meaning.
   C. Physiology.
3. To change the approach and/or state of integration in an individual the following concepts may be applied:
   A. Systems approach (systems science, systems methodology, systematic inquiry).
   B. Analytic approach (scientific method, analytic inquiry).
   C. Critical approach (critical thinking, trivium method, critical inquiry).
4. To change the oriented state of fulfillment among a society the following concepts/values may be applied (the definition and degree of):
   A. Freedom.
   B. Justice.
   C. Efficiency
5. To change the state of intrinsically creative motivation in an individual the following concepts may be applied:
   A. Autonomy.
   B. Mastery.
   C. Purpose.
6. To change the state of a system the following concepts may be applied:
   A. Structure.
   B. Environmental feedback.
   C. Connections (or interrelationships).

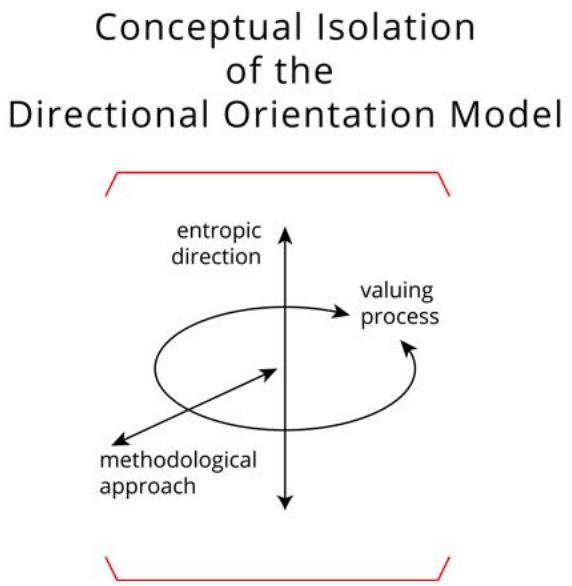


Figure 3. *Directional-orientation model conceptual isolation.*

2.1.1 The three forces model applied to societal organization

In concern to societal organization, the three forces model shows many applications, including but not limited to:

> *Note that some of these triality models do not fit precisely with the definitions of the three forces in the "three forces model"; they are instead stated here to show the significance of the conception of triality.*

1. In a system there is:
   A. Input.
   B. Process.
   C. Output.
2. In a cybernetic system, the three "forces" are:
   A. Input as the activating force.
   B. Process as the reconciling force.
   C. Control of feedback as the restraining force.
3. Alternatively, a cybernetic system could be viewed as having:
   A. Input.
   B. The feedback design-control process.
   C. Output.
4. Organisms live through the phases of:
   A. Sense.
   B. Predict.
   C. Act.
5. Organisms live through the phases of life:

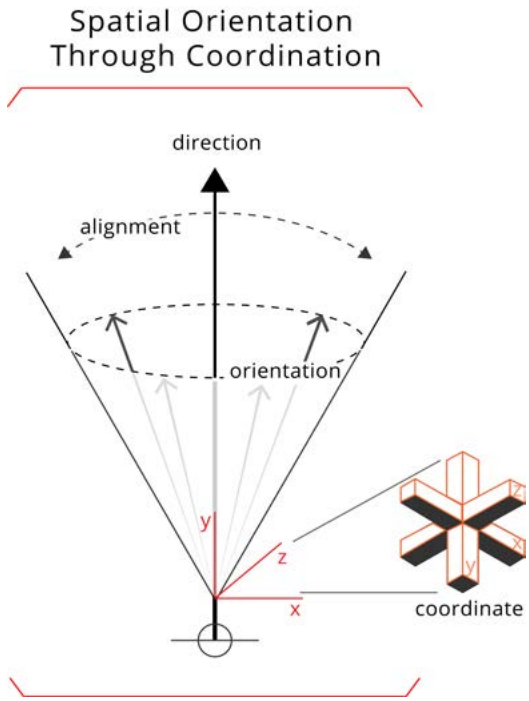


Figure 4. *Directional-orientation model conceptual isolation.*

   A. Birth.
   B. Living (education, contribution, leisure).
   C. Death.
6. Humans living their best life have good:
   A. Education.
   B. Contribution.
   C. Leisure.
7. Organisms project using information:
   A. Why: purpose, given situation.
   B. What: value, given objectives.
   C. How to: approach, given methods.
8. In all of potential (i.e., in "source") there exist layers of fluctuating potential:
   A. The electric field (atom).
   B. The potential difference (interconnected rope with tension).
   C. The fluctuation of the electric field (vibration/pulsation).
9. In electromagnetism there is:
   A. Frequency.
   B. Wavelength.
   C. Photon (rope).
10. In the material there is:
   A. Chemical.
   B. Magnetic.
   C. Electric.
11. Within irreducible wholeness, there is:
   A. Consciousness.
   B. Concept.
   C. Object.
12. The three essential parts of a circuit are:
   A. Power (activating force).
   B. Load resistor (resisting force).
   C. Connection (reconciling force).
13. The essential functions of a circuit may then be broken down into:
   A. Inductors.
   B. Resistors.
   C. Capacitors.
14. In motivation, there is:
   A. Source (energy).
   B. Flow (current).
   C. Effort (voltage).
15. In self-motivation, there is:
   A. Experience (felt [conscious] being); with location.
   B. Thought (information processing); self-intelligent

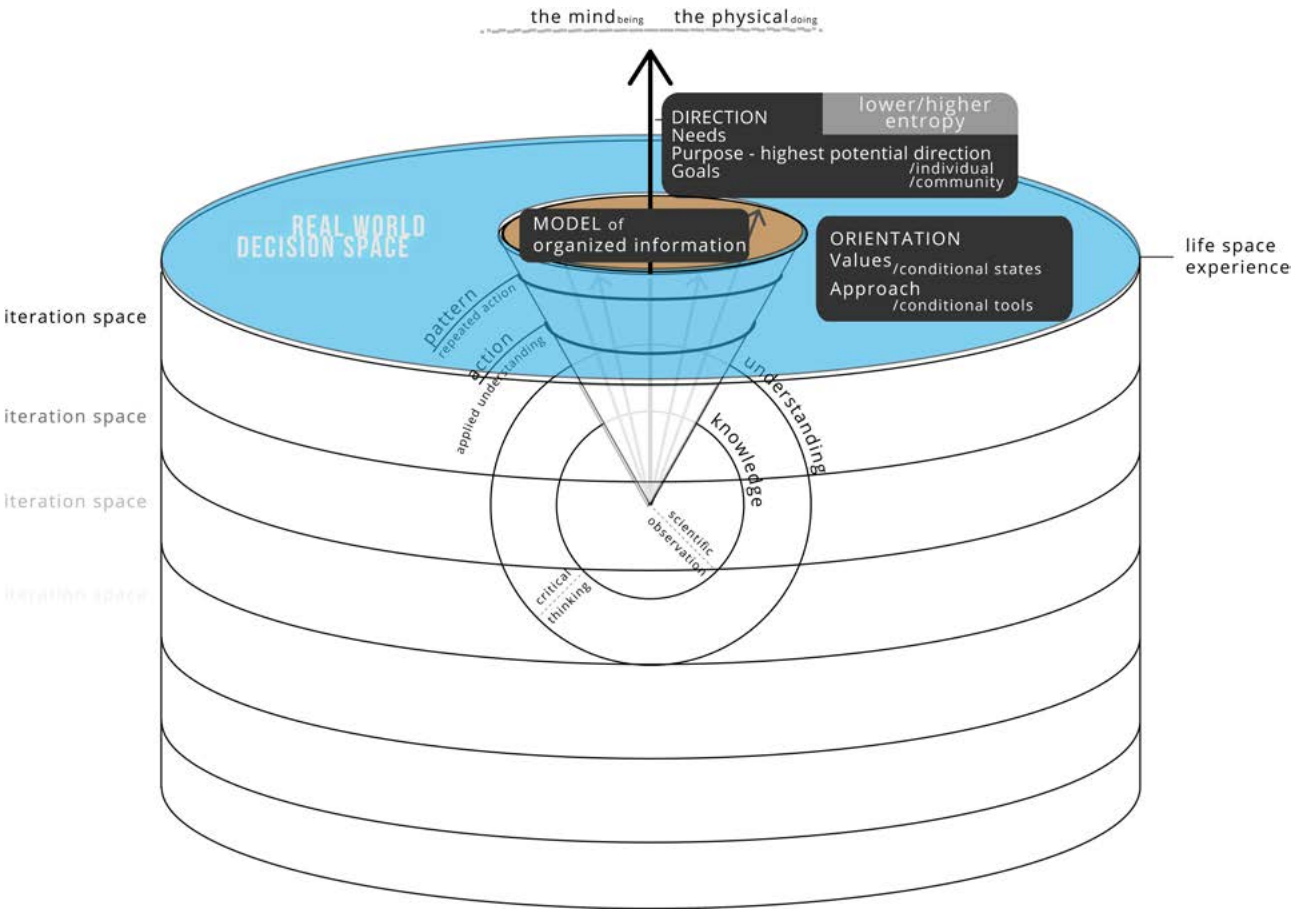


Figure 5. *Iteration applied to the model for directional-orientation.*

control.
   C. Action (physical movement, motility); self-motion in a physically interfaceable environment.
16. Motivation then exists within the complete context of:
   A. Self (sense of self).
   B. Society (mental model of society).
   C. Environment (physical conditions and conditionings).
17. In the homeostatic loop of a biological organism there is the:
   A. Receptor (e.g., free nerve ending).
   B. The integrator (e.g., the brain).
   C. The effector (e.g., a muscle or a gland).
18. In a general homeodynamic system there is:
   A. The environment.
   B. There is a stimulus.
   C. There is a response (note that feedback provides dimensionality to the experience).
19. In reality, there are three axiomatic sets to experience:
   A. Information (mental, concepts, abstractions).
   B. Material (physical, objects, spatializations).
   C. Consciousness (awareness fixation using embodiment of a [human] body, an informational-material actionable object, bio-unit).
20. In common "spirituality" there is:
   A. Mind (mental).
   B. Body (physical).
   C. Spirit (consciousness).
21. In a computing system there is:
   A. Start.
   B. Task (process, computation, instruction).
   C. End.
22. There are three distinct systems:
   A. Isolated system - exchanges no energy or matter with its environment.
   B. Closed system - exchanges only energy, but not matter with its environment.
   C. Open system - exchanges both energy and matter with its environment.

3 The directional-orientation model

NOTE: *Taking decisions is easy (relatively) when you use [at least] two compasses to guide you: your purpose (direction) and your values (orientation).*

The Directional-Orientation Model represents the relational arrangement of concepts that direct and orient an individual's decisive actions toward different states of the mental (of being) and the physical (of doing) world. The model presents a conceptual system, as a guide, for use by individuals or communities in adjusting their intentions and arriving at decisions that lead to desirable states of their world and the potential fulfillment of their total [human] being. It is a basic tool for thinking accurately, acting morally, and deciding strategically—it is a conceptual guide for decision making.

The upward arrow in the model represents an individual's or community's ultimate direction of intention, its life vector(s). A vector is an arrow (e.g., purpose or intrinsic goal). Pushing and pulling (e.g., extrinsic motivation or coercive pressuring) may lead to navigated movement, but a vector is more efficient. Herein, the vectored direction is sub-composed of three concepts: needs; purpose; and goals. Humans have needs that ultimately motivate and determine their direction toward particular internal and external states of the world. When needs are recognized and [at least] basic and psycho-social needs are sufficiently fulfilled, then a higher potential direction is likely to become visible. The higher (or highest) potential direction is conceptualized by the term 'purpose'. Individuals can have a purpose and a group of individuals can come together to form a community with a common purpose (a 'community of purpose'). For every purpose there exists an accompanying set of goals. Goals clarify how a purpose is fulfilled. Needs provide goals with their psychological potency (i.e., motivation) and influence which regulatory processes (e.g., planning, monitoring, acquiring) direct people's goal pursuits.

It is important to note that the cohesion, coherence, and consistency of a community is highly dependent upon individuals in the community selecting, organizing, and coordinating a similarly directed orientation in life.

Whereas needs direct, values orient. Values determine [someone's] orientation and exist to meet needs by coordinating decisive action using information derived from a methodical approach. An orientation in turn determines alignment: more greatly aligned with a desired direction or less in alignment with that direction. In the Spatial Orientation diagram there exists a direction and an probable orientation (represented by the dashed elliptical circle) in a non-specified alignment with the axial direction. Note that an x-y-z three-dimensional axis coordinate (a.k.a. "gizmo", "gimbal" or "metaphorical compass") is also shown in the model. Herein, the notational references "x", "y", and "z" represent a

referential framework for the directing of attention along three spatial axes.

In concern to an adaptive orientation, to get a compass pointing in the right direction, the compass has to [be allowed to] see the wrong direction. Hence the saying, "If you see where you are wrong, only then can you go right."

All decision-making at a personal level represents the process of values clarification - is this the right thing to do, the optimal action, for the good, in "my" best interests? Herein, the practice of objectively examining a personal value system is an attempt to live in authentic alignment and accordance with reality itself. Novel information and decisions lead to a refinement of an individual's value system and a potential re-orientation and re-direction.

Orientation also involves the idea of a coordinated approach, the coordination of interrelationships. Coordination involves relationships (or relatedness) at a conceptual level, which rapidly become patterns of personal behaviors, social behaviors, and also, economic behaviors.

Every action in life is approached in a particular manner with some degree of organized knowledge and understanding (i.e., information). A diversity of approaches to action often lead to a diversity of end decisions (i.e., different orientational directions). Diversity within the context of decision-making may make it difficult for a community to align with a particular and desired direction, let alone identify their common needs. When individuals in a community follow different approaches to decision-making and maintain different understandings, then they are likely to arrive at divergent [directional] decisions, which increase the probability of conflict. When individuals arrive at similar decisions, then this is an indication that they have a similar direction and orientation in life. Within a system, a diversity of approaches is highly likely to turn individual against individual leading to "divide and rule"-type thought processes and behaviors.

When actions are repeated, patterns [of thinking and of behavior] appear. Patterns of thought and action, of experience, occur in an iterative manner in the real world. Repeated actions will eventually lead to greater or lesser alignment with a particular direction. Because change is constant, patterns of action can either conditionally orient in a desired direction, such as toward a fulfilling purpose, or they can control and direct lives toward less fulfilling states of the world, more erratic behavior patterns, and an increasingly disassociated population.

Actions that orient in the direction of human need and a higher potential are derived from an aggregated integration of objective and rational information (Read: scientific inquiry and critical thinking). Therein, new understandings may modify an existing orientation and direction so that they remain in alignment with one another and with a [stated] purpose—inquiry and integration facilitate stable adaptation. All living systems evolve through the unbiased discovery of new knowledge and understanding derived [at least] from observation, scientific study, and critical thought. This information enables human needs to be met in a more efficient and effective manner over time. New information leads to new approaches, technologies and organizations, and hence, new social and economic systems that are known to more greatly align everyone with their highest potential. Fundamentally, however, all inaccurate models have the potential for disorientating

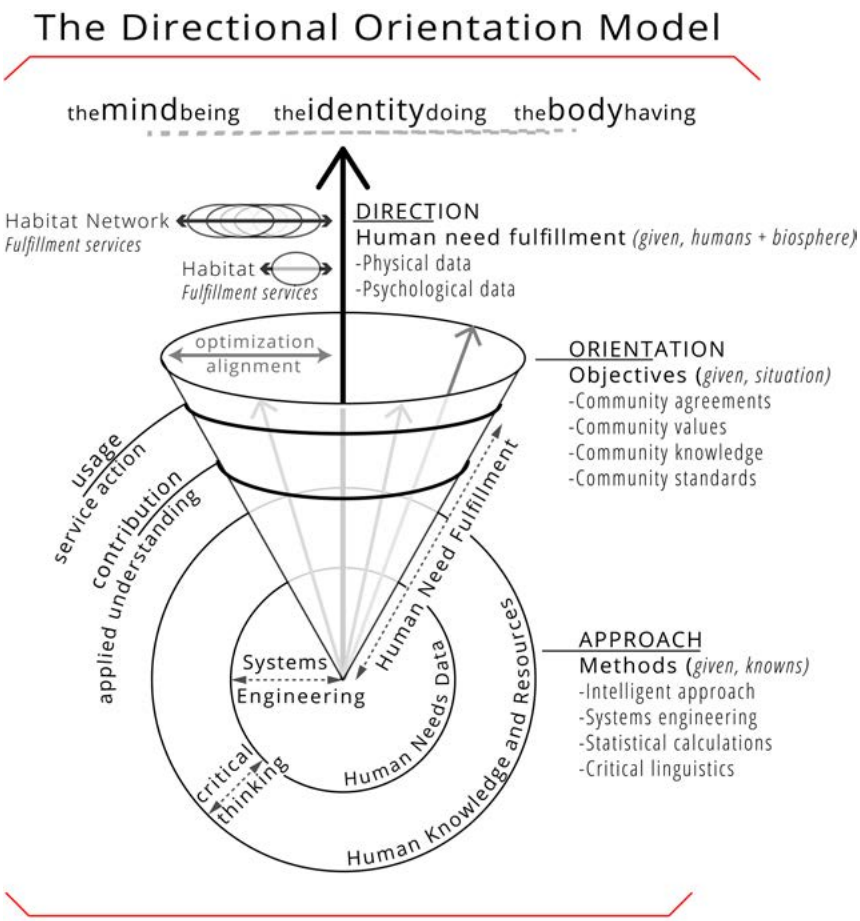


Figure 6. *Applied version of the directional orientation model. Applied to a societal community building project for human need fulfillment and ecological flourishing.*

their users.

> **INSIGHT:** *If you have an outcome and you keep missing your target, then what do you do? What you do is that you change your approach, you re-evaluate your orientation, or you set a new target. Therein, A change in approach is likely to lead to a change of orientation (i.e., values) and direction (i.e., purpose) over time. Whereas, a change in values will immediately re-orient a new direction; though, it might only be slightly different than a former direction. One common definition of 'insanity' is doing that which doesn't work over and over again with the hope that there will be some kind of different outcome, eventually.*

3.1 Gyroscopic stability

In a sense, the directional-orientation model could be compared to a gyroscope. Normally a gyroscope axis points in a fixed direction (a.k.a., a fixed axis orientation); a direction informed by other dynamic elements (forces). When a system achieves the state of "gyroscopic equilibrium", then it becomes "untippable" (i.e., gyroscopically stable; without wobble). A gyroscope is a device that utilizes the principle of angular momentum to maintain a fixed axial direction (a.k.a., fixed axis orientation), and sense changes in direction. It is induced angular momentum that resists change in the rotation's direction or axis. The faster the spins of the internally arranged object, the greater its angular momentum, and the harder it is to tip over (i.e., to have its axial direction forcibly changed by environmental forces.

The idea of a gyroscope could be used as a metaphor for a common organizational structure that provides humanity with the coordinated power to remain flexibly fulfilled, and to perceive solutions along desirable axes. The axis humanity spins around is human need and preference fulfillment (i.e., the direction *of spin*). The next layer of potential angular [feedback/control] momentum out is society's (i.e., humanity's) values (and objectives; the orientation). The next layer of potential angular [feedback/control] momentum out is society's methods of collecting, analyzing, and deciding (i.e., the approach).

Herein, humanity may integrate changes to and information from its environment toward the maintenance of a specified direction (e.g., lower entropy in the social information system and higher fulfillment among people). Humanity may use:

1. a specific approach to integrate information from an environment, and
2. a specific set of orienting objectives (functional engineering),
3. in order to build new environments,
4. in order to maintain the cyclic frequency (and amplitude, quality and quantity) of the completion of human need fulfillment.

Practically speaking, a gyroscope is a balanced mass around an acknowledged center (central mechanical object). And, if the balance is able to be maintained, where more mass is added (i.e., more accurate information and quality human services are add), the more stable it (i.e., society) becomes.

3.2 An axiology

In some sense, the moral coordinating system described herein could be considered an axiology. 'Axiology' refers to the study of values and their logic, and it is primarily concerned with inquiring into and classifying what things are "good" (and fulfilling), and how they are so.

3.3 Diversion and division

In early 21st century society, a lot of that which is referred to as "diversity" is actually a division of common unity (i.e., division of the community), and it is not the beneficial thing that it is purported to be by politically correct mentalities; it is not equivalent to ecological biodiversity (as 'biological diversity' or 'biochemical individuality'). Biodiversity and 'biochemical individuality' are not the same thing as a diversity of approaches to common decisions within a human community (i.e., a diversity of values and approaches to common fulfillment). Note herein that the greatest barrier to overcoming any type of division is overcoming one's own indoctrination.

Biodiversity refers to the diversity of biological species in a biosphere, and it is an indication of the biological "health" of a particular ecological environment (and the functional capacity of land). A biodiverse environment is essentially a functionally information rich environment. However, a diversity of approaches to community decisions and to common heritage resources has little to do with the scientific concept of 'biological diversity'. The greater the diversity of fulfillment in the community, the greater the potential for misunderstanding and conflict. And yet, the "richer" (i.e., more accurate and plentiful) the information in the common information systems, the more accurate decisions are for real world, individual human fulfillment.

Even without malicious intent, conflict can arise in situations where an action carries different meanings when interpreted through a diversity of meaning and experience. Social diversity [of beliefs] sets the metaphorical stage for misunderstanding, mistrust, tension, and conflict. When the idea of "individuated diversity" is applied to social situations, then the conversation, which is often forced by an authority, moves into ambiguous territory where both sides may have degrees of validity. Therein, authority is presented with the opportunity to co-opt the whole conversation (i.e., the diversity of opinion) for its own agenda.

Social diversity (not biological diversity) is just as harmful as social conformity, for neither generate an emergent approach toward the optimal fulfillment of a

community of individual humans with common needs. Individuals in a community must remain open to moving their "position" on any issue as soon as new and more accurate information becomes available and is critically understood (i.e., emergent verification occurs). Neither the idea of "social diversity" nor that of "social conformity" maintain the condition of emergence. Social diversity is not something to be treasured, but a challenge of fulfillment-oriented coherency to be overcome (i.e., sought resolution to).

Decisions based on evidence and common need are much more likely to create a fulfillment-oriented community than decisions based on forcing a bunch of people with different backgrounds and different skin colours to work together for the benefit of the authority.

The sociological research is quite clear, a diversity of values, beliefs, and other approaches to important decisions have a high likelihood of generating misunderstanding and conflict within a given population (i.e., the claim toward diversity at the social level becomes divisional). Therein, different approaches will lead to the selection of different decisions and the desire for the subjective allocation of common resources—social diversity is the product of and reinforces subjective

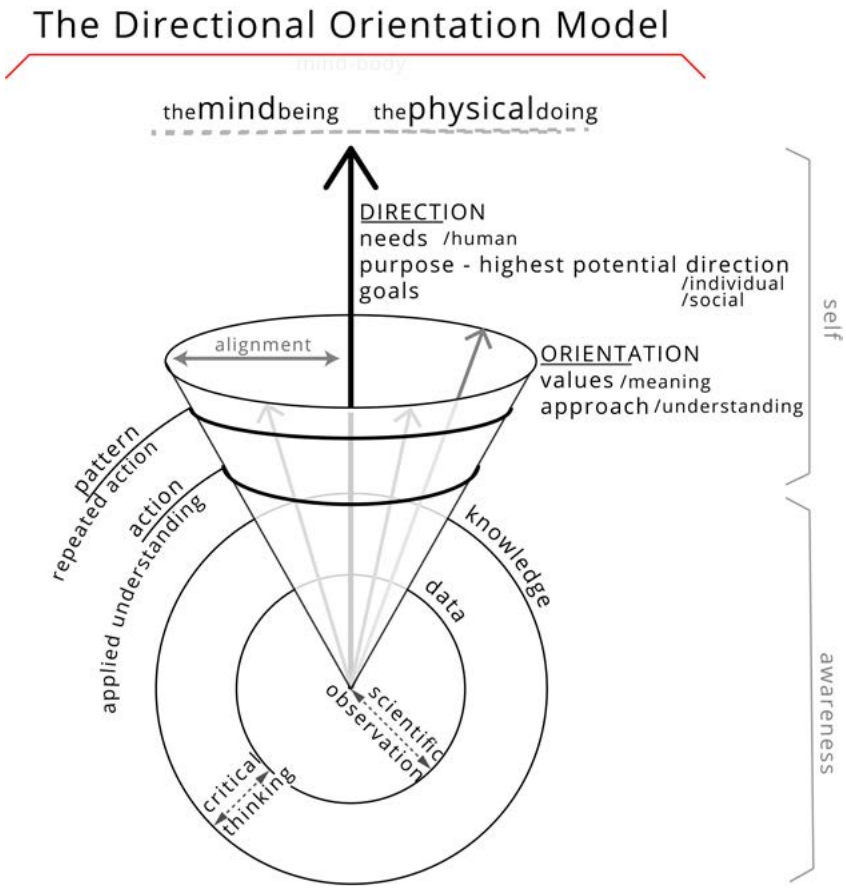


Figure 7. *Directional-orientation model. Also known as a model of an oriented direction. The model represents the relational arrangement of concepts that direct and orient an individual's decisive actions toward different states of the mental (being) and the physical (doing) world. The model presents a conceptual system, as a guide, for use by individuals or organizations in adjusting their intentions and arriving at decisions that lead to desirable states of their world and the potential fulfillment of their total [human] being. It is a basic tool for thinking accurately, acting morally, and deciding strategically—it is a conceptual guide for societal decisioning. The upward arrow in the model represents an individual's or community's ultimate direction of intention, the life vector(s). Herein, the vectored direction is sub-composed of three concepts: needs; purpose; and goals. Humans have needs that ultimately motivate and determine their direction toward particular internal and external states of the world. When needs are recognized and [at least] basic and psycho-social needs are sufficiently fulfilled, then a higher potential direction is likely to become visible. The higher (or highest) potential direction is conceptualized by the term 'purpose'. Individuals can have a purpose and a group of individuals can come together to form a community with a common purpose (a 'community of purpose'). For every purpose there exists an accompanying set of goals. Goals clarify how a purpose is fulfilled. Needs provide goals with their psychological potency (i.e., motivation) and influence which regulatory processes (e.g., planning, monitoring, acquiring) direct people's goal pursuits. Whereas needs direct, values orient. Values determine [someone's] orientation and exist to meet needs by coordinating decisive action using information derived from a methodical approach. An orientation in turn determines alignment: more greatly aligned with a desired direction or less in alignment with that direction.*

values, while continuously re-generating a subjective economic environment. And, when conflict does appear, a diversity of approaches in resolving the conflict is not helpful. In general, any approach at a community level that is not common is likely to generate conflict within the community.

> **INSIGHT:** *The resolution of social issues lies in a society's evolving conversation, in learning to understand oneself and others in new and more compassionate ways.*

4 The purpose domain

A.k.a., Direction domain.

The Purpose Domain's primary function is to identify and define the purpose for the society's existence in the world, as well as detailing the goals (i.e., "task objectives") that support the fulfillment of that purpose. The purpose for a community-type society's existence is documented in the Social System specification standard. The purpose domain is part of the social organization of a community-type society. Fundamentally, a society's purpose reflects its highest level of intentional understanding. The purpose of a societal engineering project is a specific configuration of society. Society is, in part, a group of individuals relating to each other in order to achieve and preserve their common goals. A community-type societal proposal has the aim to coordinate resources in order to fulfill human needs while restoring the ecology. The objective of a community-type societal proposal is to re-imagine, and then construct, a society based on human needs (a common direction), community values (a social orientation), and an approach that clarifies understanding through visualization and facilitates greatest certainty (a technical approach).

> *"The purpose of a system is what it does."*
> *- Stafford Beer*

In part, the Real World Community Model is held together by the central idea that a society may exist to fulfill a commonly agreed upon and intentional purpose (i.e., a "community of purpose"). This is the reason for the purpose domain's all-encompassing position in the Real World Community Model. Central to this idea is the experience that self-direction [as will or volition] is a characteristic of all forms of conscious expression in the real world. In a "community of purpose", the community exists to support the fulfillment of a commonly agreed upon and formalized direction of intention (i.e., a "purpose"). In a community-type society, that purpose is [in part] to, "continuously and consciously evolve toward a higher potential state of expressed existence while remaining adaptively resilient" -- a common intention of all consciously embodied beings.

Everyone in a community-type society, at the deepest level of their being, is interconnected by a common desire to develop and evolve toward a higher potential state of existence; herein, they recognize mutual (or "common") self-interest -- they see the relationship of the whole to its parts as well as the relationship of the parts to a whole. Therefore, community exists to maintain organizational structures and systems whose identities and relationships (including material objects and services) fulfill common human needs and facilitate directional progress toward the betterment of oneself and of all humankind.

Through the definition of a purpose humanity can come to more greatly understand its highest motivating

factors. Living purposefully is a fundamental orientation that applies to every aspect of human existence. It means that humans live and act by intention. It is a distinguishing characteristic of those who enjoy a high level of control over their life. The idea of "living purposefully" involves the self-initiative to discover the functional purpose of the [socio-economic] structure one is either living under or continuously creating. Together, humanity may live purposefully in taking care of its needs and re-designing its structures to more effectively and efficiently fulfill those needs.

An intentionally oriented society needs to be clear of what is wanted, as well as what is not wanted. Therein, purpose is the highest-level perspective someone can

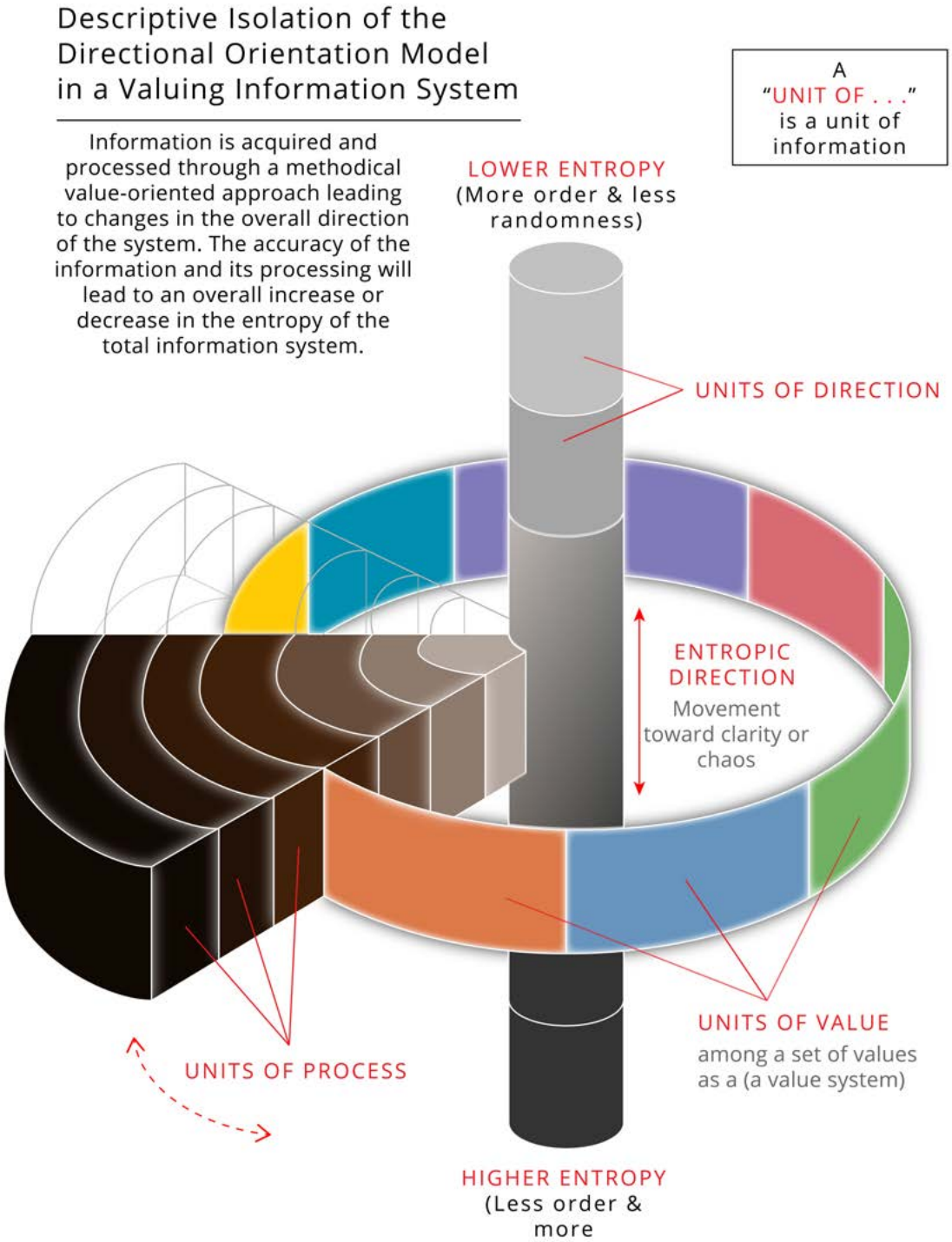


Figure 8. *Directional-orientation model for a valuing information system.*

have in their life and it is manifest in everything one does. If “you” don’t clearly identify what “you” want, what “your” focus is, and what “your” highest level intentional attractor is, then “you” are more than likely going to get what others want to give “you”. Now that humanity has a shared optimal direction, humanity no longer needs the direction of the “ruling class”.

‘Direction’ is a simple concept, it refers to the idea of movement toward or away from that which is desired or true. A community-type society arrives at and maintains support structures that facilitate a movement toward higher individual and social potentials as a direction for everyone's fulfillment. Herein, ‘goals’ are applied to clarify the society’s purpose and aid in arriving at purposeful decisions and desirable actions.

Once the purpose of a structure is known, then its first functional boundary and the direction it is likely to take become visible. A structure is a function, and a function is a structure (a.k.a., a structure determines function and function determines structures). Without proper structure there isn’t proper function. Herein, intention is translated into function through structure. It is wise to be cautious of people who begin telling “you” what some system is without telling "you" its purpose and fundamental structure.

From a basic engineering perspective, a ‘purpose’ represents a description of the operational performance of a task. It represents a goal-driven approach toward the emergent awareness of a relationship between the “whys” and the “what’s” in a given engineering project.

In the social domain, purpose feeds into a set of values, which become an adaptively corrective approach toward decisioning and learning; the result of which is an integrated city-system embedded within a habitat (and a host of accompanying imperatives). Wherein, production and distribution emerge based upon systematic need, sound scientific discoveries, and integrally engineered design.

In a pursuit (or a project) a purpose acts as a frame-of-reference that facilitates the better focus of “energies” and “intention” on things that serve the need or desire behind the purpose. With a focus of intention, input that would otherwise create a terrible mess in a person’s psyche, can be better filtered and organized. Essentially, a purpose provides a direction for organization and for decisioning. Herein, it motivates, clarifies, focuses, and may even expand options by freeing time and energy that would otherwise be wasted on things that do not serve the desire or conflict with the underlying need.

The Real World Community Model is adaptive and emergent in its design; therefore, there is no “end goal” or “final vision” -- there is no “final purpose”. Hence, the community itself exists in a state of emergence, constantly evolving and adapting to new information in the fulfillment of a purposeful direction shared by all individuals. Fundamentally, static directions (and final visions) in dynamic environments are likely to limit the fullest expression of a community’s potential; they become tyrannical.

The Social Direction of a Community-Type Society

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Abstract

It is possible to engineer a society that orients toward an intentional direction. The possibility of having a direction conveys opportunity [for continued life and potential growth] within an uncertain environment. Specifying a direction allows for the evaluation of action. A direction is a description of something that can be pointed out (to another human), point towards (prior to motion), or achieved (by means of action). Therein, a direction could be viewed as an achievable place or state that requires motion on the part of an entity (or entities). For consciousness, a direction is a desire to move toward an object or state of being, doing, and/or having. Direction is determined[/-able] by knowledge and decisioning; wherein, direction is a choice. The direction of a community-type society is a direction commensurate to humanity's current potential.

Humanity has the knowledge and ability to meet the requirements of mutual, global human fulfillment. The human living system can be categorized according to those elements that may be prioritized according to their requirement. The highest level of requirements is that which humans need. Individual humans have well-being, or some degree thereof. The criteria for well-being and life's access potential must be explicated in order for global human fulfillment to be executed. Global human flourishing is possible when well-being is accounted for at the global level of society.

Graphical Abstract

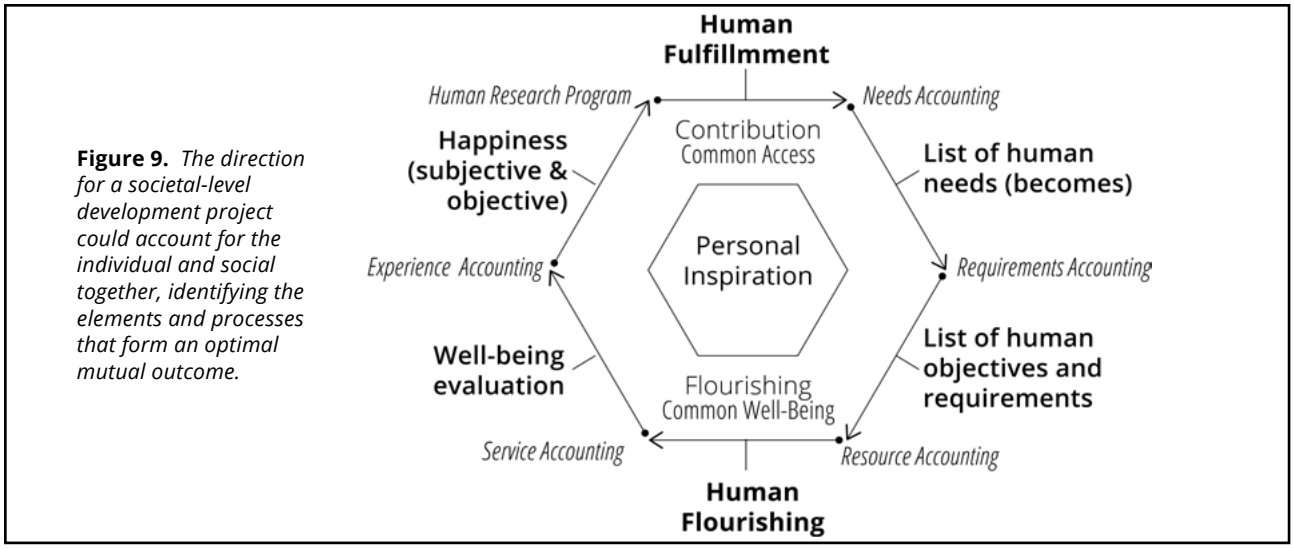

Figure 9. *The direction for a societal-level development project could account for the individual and social together, identifying the elements and processes that form an optimal mutual outcome.*

1 Social project direction

APHORISM: *To move without direction(s) is folly. When the self moves intentionally in a direction, then there is self-direction.*

The possibility of having a direction conveys opportunity [for continued life and potential growth] within an uncertain environment. Specifying a direction allows for the evaluation of action. A direction is a description of something that can be pointed out (to another human), point towards (prior to motion), or achieved (by means of action). Therein, a direction could be viewed as an achievable place or state that requires motion on the part of an entity (or entities). For consciousness, a direction is a desire to move toward an object or state of being, doing, and/or having. Direction is determined[/-able] by knowledge and decisioning; wherein, direction is a choice. A direction points an entity (e.g., human, population, vehicle) toward one spatial or informational orientation versus all others (i.e., versus all other possible directions). Often, a direction is described in the form a result or a gap. In order to get to the result or overcome the gap, decisions (determinations) and actions (motions) are required. A direction is a description of a preferred future state for an organization (or population).

When there is motion, there is always direction. When there is facing (non-uniform positioning), there is always direction. A direction is always relative to another directions. Hence, fulfillment can either be moved toward as the direction, or it can be moved away from as the direction. In geometry, this is known as direction's relative angle. In geometry, a direction is a vector where length is irrelevant (i.e., a direction is a vector of unit length, or of length '1' unit).

A direction can be sensed (i.e., pointed out) and signified (i.e., reasoned why). If that which is being moved toward cannot be sensed or signified, then it is not a direction. In mathematics, motion toward a direction is often called a vector. A vector is a value and direction. To an observer, direction becomes visible through motion, explained through visualization. Motions can be coordinated through tasks. Tasks can be coordinated through decisions. And, decisions can be coordinated through a unified information organization.

We all share a desire for individual human fulfillment. And, we (the population) require information about ourselves and our environment in order to design and to actualize our highest potential fulfillment. The life conception of humans is that of a commonly identifiable set of life needs that become complete by means of contextual requirements. The most sensorily comprehensive of which is "well-being".

In community, "we" contribute our work in service to facilitate in the recognition of our common selves and the fulfillment of our commonly greatest potentials, given our embodied human consciousness. We all share a desire for individual human fulfillment. The highest level of human [habitat] fulfillment-oriented sharing becomes known as the InterSystem [Habitat Service System] Team, which operates the Habitat Service System. The habitat service system coordinates the fulfillment of "our" embodied individual-human, conscious selves.

The population ("we") needs information about itself ("we") in order to design and to actualize our highest potential of fulfillment. Without design, the probability of our actualization being of the highest potential will be less certain. The life conception of humans having a commonly identifiable set of life needs that become complete by means of contextual requirements. The most sensationally comprehensive of which [to consciousness] is well-being. The direction is largely summarized in the overview section. The direction in executed by a decision the direction is one of decisioning of taking decisions. The direction is, in part, the approach to life as a decision (or series of decisions) that produce, more or less, of what is meaningful in life. What is meaningful is the direction, and to get to the result decisions are required. Thus, the direction is of accounting not only for what humans are surveyed to require, but also the configurations that swerve the requirements.

Humans can decide for well-being at the objective societal level, as a direction in their lives. All humans all share a desire for individual human fulfillment. And, all humans (the population) require information about themselves and their environment in order to design and to actualize their highest potential fulfillment and self-actualization. The life conception of humans is that of a commonly identifiable set of life needs that become complete by means of contextual requirements and effort to resolve, informationally and physically, those requirements. The most sensorily comprehensive of which is well-being, at the social scale there is flourishing, and at the individual scale their is happiness and flow. Flourishing means something living to its highest potential.

A humans desire to flourish. A necessary condition for large scale flourishing is the development of a real-world model for structuring and coordinating well-being enhancing designs that scales up globally. Societal engineering is uniquely positioned for assisting populations with their flourishing in a way that is effective, efficient, and scalable. Societal engineering involves the study and development of information and spatial (technology) systems that is consciously (intentionally) designed to support (servicing) people's psychological and physiological flourishing in a way that enables individual preference without disabling the fulfillment of all human need. There is a common baseline of technical efficiency and human need fulfillment underlying a society with wherein individual have freedom of preference on top of (i.e., after in priority) fulfillment of need. Note here that to some extent there is a category error visible when comparing needs and preferences. Needs are categories relevant to the life of all humans, whereas preference are relevant to the contextual life of any given individual human. Preferences are not life requirements, although the structure that allows for

their expression may.

For this project, the direction is largely summarized in the overview section of this document. The following sections provide a detailed view of the direction. The project's direction takes form through an approach (methods). The direction in executed by teams. The direction is informed by knowledge. The direction is resolved into action by means of decisions, that is discovered and integrated by working groups. The direction is resolved into action by means of an algorithmic decisioning structure.

The direction of this project is, in part, an approach to life that involves a series of decisions that produce more of what is meaningful in life. What is meaningful in life is described as a direction. Thus, the direction is of accounting not only for what all humans are surveyed to commonly require, but also the informational and spatial configurations that serve the requirements. Humans can decide for well-being at the objective societal level, as a direction in their lives.

One of the first objects for understanding the concept of spatial direction is a 'compass'. A compass is an instrument used for navigation and orientation that shows direction relative to the geographic/spatial cardinal directions (or points). A compass rose is a design on a chart (i.e., a direction) that shows direction. In other words, a diagram called a compass rose shows the directions north, south, east, and west on a compass face or chart. A compass 'bearing' tells an observer the direction of travel on Earth. A navigator on Earth should be able to visualize the 360° circle of directions and the [four primary] cardinal points. Ordinal directions refer to the directions found equally between each cardinal direction. These are northeast (NE), southeast (SE), southwest (SW), and northwest (NW).

> **INSIGHT:** *Life has purpose; it does have direction -- there is an arrow in the forward direction called "positive" evolution (Read: lower entropy, more love and flow, more intelligence and sustainability), and one in the opposite direction called "negative" evolution (Read: higher entropy, more trade and power-over-others, more competition and scarcity). Each individual, and all individuals together, as society, can and ought to "positively" evolve. Together we can be a lot more; together there is synergy.*

A document that addresses the human needs for Earth's biospheric occupation humanity, identifying:

1. The requirements needed to support human health. Examples include: medical care, nutrition, sleep, and exercise.
2. The requirements for system design that will maintain human safety and promote performance (i.e., "human factors, habitability and environmental health). Examples for this volume include: a design of the food facilities, bathroom design, a layout of workstations, seating and crew restraint design, lighting requirements, and environmental requirements.

Life doesn't just have to remedial in the case of minimizing suffering; humanity can design for more than not to suffer. Humanity can design for individual well-being and social flourishing. Well-being can be built at the individual and social level. The standard for measuring well-being is flourishing. One of the goals of society is to increase flourishing, to increase well-being among a population. Life-satisfaction operationalizes (is defined by) happiness. Happiness operationalizes life-satisfaction (positive appraisal). Human needs underlie survival and well-being, and well-being underlies happiness (life-satisfaction). Life satisfaction is someone's global stated feeling of one's own life [experience].

The flourishing individual is able to create the flourishing life by building on various components of well-being. The flourishing society is able to create a flourishing population by building on the various components of human need fulfillment (organized by service system for individual fulfillment).

The current goal of well-being, as an intentional direction, is to measure and to build human flourishing through optimal fulfillment of needs, leading to ever greater states of sufficiency, flow, and appreciation. Achieving this goal starts by asking what do humans need and what really makes a human satisfied, happy, well, and flourish? An individual is flourishing and optimal when they're meeting all their needs (at some particular threshold).

Huppert et al., (2013) operationalized (i.e., defined measurably) flourishing to have a set of core "features" (sub-components):

1. Positive emotions.
2. Engagement.
3. Interest.
4. Meaning.
5. Purpose.

And, a set of additional components* ("features"):

1. Self-esteem.
2. Optimism.
3. Resilience.
4. Vitality.
5. Self-determination.
6. Positive relationships.

> **Note that this categorization is similar to the Diagnostic Statistical Manual of Mental Disorders, DSM).*

The following are the ten sub-operationalizable components of 'flourishing'; [how is] Flourishing is to be increased in one's own life and on the planet (Huppert

et al., 2013):

Table 1. *Indicators of the operationalizable components of the conception of flourishing.*

Useful (Positive features)	Item used as indicator
Competence	Most days I feel a sense of accomplishment from what I do.
Emotional stability	(In the past week) I felt calm and peaceful.
Engagement	I love learning [new things].
Meaning	I generally feel that what I do in my life is valuable and worthwhile.
Optimism	I am always optimistic about my future.
Positive emotion	Taking all things together, how happy would you say you are?
Positive relationships	There are people in my life who really care about me
Resilience	When things go wrong in my life it generally takes me a long time to get back to normal. (reverse score)
Self-esteem	In general, I feel very positive about myself.
Vitality	(In the past week) I had a lot of energy.

The following criteria allow for the population of a flourishing scale for the individual (Schotanus-Dijkstra, 2016):

1. I lead a purposeful and meaningful life.
2. My social relationships are supporting and rewarding.
3. I am engaged and interested in my daily activities.
4. I actively contribute to the happiness and well-being of others.
5. I am competent and capable in the activities that are important to me.
6. I am a good person and lead a good life.
7. I am optimistic about my future.
8. People respect me, or think I am a good person.

QUESTION: *What is a direction that can be shared by all of humanity for the mutual benefit of all of humanity? The completion of all human requirements for all of humanity is that direction. In other words, a societal system designed to meet all human requirements is a sustainable and mutually beneficial direction. Is society, its present structure and configuration, helping humans flourish? By how much (or, how little) will this structure, object, device, or program increase or decrease flourishing?*

1.1 The direction sub-composition

QUESTIONS: *What contributes to well-being? What vision do we want for ourselves and our planetary human community? Do our thought s and action to a healthy and caring socio-technical environment?*

The direction of a happy and flowy life experience is most well characterized (given what is currently known) in the literature as (the decomposition of the direction of):

1. **Flourishing.**
   A. **Well-being (social cycles).**
      1. Life satisfaction.
         i. Feeling happiness.
         ii. Observing completion of wellness.
2. **Fulfillment.**
   A. **Needs (material cycles).**
      1. Quality of life.
         i. Feeling whole/complete.
         ii. Observing completion of needs.
3. **Flow.**
   A. **Flow triggers (flow cycles).**
      1. Feeling flow.
      2. Observing high performance.

Direction indicates potential. Wherever there is an opportunity, a decision at the fundamental level, there is potential for growth. The elements of a growth potential, happy and flowy, life experience are (at least) resolved through the following inquiries?

1. What are the opportunities? Number and type and availability of desired life enriching and life contributing opportunities.
2. What are the conditions? Qualities
3. What is the functioning of the service (city)?
4. What, how, are, there human needs, demands, and requirements being fulfilled (i.e., completed, met, satisfied)?
5. What, how, is, there human well-being among all individuals in the population (i.e., flourishing)?

In order to have true social growth, there must exist a functional global habitat within a set of constructive human relationships.

The basic elements of functional human habitat design include:

1. **Need** - Humans have (to thrive and survive).
2. **Demand** - Users of habitat service system have (to thrive and survive).
3. **Means** - Habitat service system and its contributors, information systems have methods (to facilitate thriving and surviving).
4. **Geo- and atmos-spherical elements** - spatial material resources for living (may facilitate thriving and surviving).
5. **Info-spherical elements** - informational and computational resources for living (may facilitate thriving and surviving).

The environment changes an individual's life circumstances, and an individual's intention changes the environment:

1. We go into flow when our highest strengths (skills) are deployed to meet the highest challenges we experience in our environment.
2. The way we choose our life course often has to do with maximizing how we feel.
3. The way we choose our highest course in life is to maximize all five elements of well-being.
4. The way choices are made is to estimate how much happiness (or life satisfaction) will occur, and then we take the course that maximizes future happiness. Maximizing the feeling of happiness is a common path of individual choice.

The types of 'constructive' relationship:

1. Fulfillment (social & technical)
   A. Needs, life needs, human needs.
      1. Gaps and goals (in outcome) are measurable
2. Flourishing (individual & exploratory)
   A. Well-being, happiness, life-satisfaction.
      1. Elemental states of feeling are measurable.
3. Surviving (organismal & life)
   A. Material constituents, informational and spatial.
      1. Spatial and informational resources are measurable.
         i. Spatial - an 'object' is anything with shape.
         ii. Informational - a 'concept' is anything with meaning.

Human flourishing is composed of:

1. Internal state of specific conditions involving
   A. Internal Human Feelings (positive, well)
   B. Internal Human Abilities (competent, capable)
2. External
   A. External Human Conditions (availability, sufficient)
   B. External Human Resources (availability, access)

The measurability of wellness:

1. Elements involving subject and objective components are measurable.
2. Fulfillment of elements is well-being for an individual.
3. Well-being among social population is flourishing (thriving).

A flourishing life is a life where environmental resources and personal abilities are cultivated to produce growth, adaptation, appreciation, and inclusion. Humans flourish when they have [need] fulfillment.

NOTE: *Many aspects of human behavior do not change lastingly unless the environment is also changed.*

1.1.1 Engineering a societal direction

NOTE: *Strategic planning is the creation and/or selection of a long-term direction.*

Given the multifaceted nature of the human direction, various measures cannot be assumed to be substitutes for one another. Different measures may provide divergent conclusions about the well-being of individuals among the population. Thus, the choice of measures should be an informed decision.

From an engineering perspective, there are multiple conceptual inquiries that need to be resolved to appropriately engineer a healthy self-directed and need-oriented society:

1. **Structure** - what are the major components of how society is to be well organized and oriented, and how do they relate to one another.
2. **Frequency** and **intensity** - what is the frequency, duration, and intensity of informational and/or spatial composition that compose a well society.
3. **Stability** and **consistency** - is there enough temporal stability and spatial consistency to enable health, safety, contribution, flow and exploration.
4. **Affect** and **cognition** - is there enough recognition, meaning, intrinsic motivation, clarity of thought, and precision of language to enable social cooperation (participation and contribution).
5. **Patience** and **resilience** - is there enough ability to de-prioritize ("sacrifice") entertainment and comfort for other values when appropriate.

1.1.2 Flow cycle integration

APHORISM: *If you want to make a better world, you should alleviate the circumstances that produce bad actions, rather than punishing bad behavior and rewarding good behavior. Science must isolate the conceptions and situations that produce the conditions for suffering, crime, ignorance, and other failures, so that these situations can be corrected. The material isolation tirade of (identify, isolate, and remove) has some relevance here. Whereas conditions that promote suffering are identified, isolated, and removed from the next iteration of society; the conditions that promote well-being are identified, integrated, and actualized in the next iteration of society.*

Flow is fundamental for well-being and overall life satisfaction. People who score off the charts for life satisfaction are those that have the most flow in their lives. The experience of flow can be built and enabled; it can also be reduced and disabled. Flow is optimal

performance, and a healthy flow cycle regenerates and builds greater performance. Experiencing flow regularly is essential in achieving happiness for those who know what flow is and/or have experience flow previously. Society ought to be directed to produce more flow in the lives of individuals, particularly since flow is optimal for the individual and the individual is the source of all structure in society.

Flow triggers facilitate flow. Autonomy facilitates flow; autonomy is a flow trigger. All individuals are an individual self and therefore are self-directed and will pay more attention and perform better at activities that are freely chosen by the self ("autonomy"). Individuals get to choose what they do with their time and energy, and thus, society facilities the individual experiences of flow.

Time for uninterrupted concentration is necessary for flow. People need personal space and access to experience flow. Additional, flow emphasizes real world engagement with an activity, and not artificial mediation (e.g., study-cramming for a test).

1.1.3 The InterSystem Team and the alignment of operationalizing values with human flourishing, fulfillment, and well-being

NOTE: *An 'operationalizing value' is a value that is encoded within decisioning, often in the form of an objective or requirement for the result of an operational decision (i.e., a decision that affects the operation of society).*

The InterSystem Team operationalizes society as an engineered system (i.e., the intersystem team does the work that sustains habitat life). In particular, the societal engineering of community involves aligning design with mutually beneficial values (i.e., mutual success principles) such that InterSystem Teams are operationalizing the best society possible given what is known and available:

1. **Mutual access** [to all of the best designs that humanity has to offer] - InterSystem team/society shall design system that enable all humans to have access to mutually coordinated, global, habitat services.
   A. Note that in the market-State there is also the idea of "human rights". In that type of society, the additional principle of a "right" is necessary because of the integration of the market and the State as extant, reified entities. Market-State services shall be created and operated to respect, promote, and protect inter-nationally recognized human rights. In community, this idea is subsumed by the global access principle.
2. **Flourishing** - InterSystem Team shall adopt increased life flourishing (and related concepts) as a primary success criterion for physical materialization and society.
3. **Well-being** - InterSystem Team shall adopt increased human well-being as a primary success criterion for physical materialization and information interface.
4. **Self-direction** (autonomy) - InterSystem Team shall empower individuals to take self-direction over their lives and potentials.
5. **Effectiveness** (safety) protocol - InterSystem Team (i.e., society) shall provide evidence of the safe and effective operation (or potential operation) of society.
6. **Transparency** - The social objective basis for a particular societal decision shall always be traceable or discoverable.
7. **Accountability** - InterSystem Team shall be created and operated to provide unambiguous rational for all decisions taken.
8. **Awareness of situation** - InterSystem Team shall maintain awareness in memory of current, and relevant past, informational situation, while processing that information in the presence of risks.
9. **Competence** - InterSystem Team shall specify and operator shall adhere to the knowledge and skill required for safe and effective operation.

INSIGHT: *Human flourishing answers the question of what it means to live life well. In other words, the question asks, What does it mean to live life well?*

2 Human need fulfillment

A.k.a., Human flourishing, human thriving, human well-being, human welfare, human happiness, human prosperity, etc.

Through fulfillment comes well-being and flourishing. Human flourishing through sufficient fulfillment could be considered a societal supra-task. Humankind ("we") needs material objects (things) and specific conditions of the real world to survive and thrive. A shared feeling of human individual fulfillment comes from progress toward the achievement of meaningful goals and the experience of necessary conditional states in the real world. Together, individuals can have a common set of meaningful goals for living together in a 'society'. In society, goals are prioritized, with 'needs' (or, human requirements) being of first or top-level priority. Human fulfillment is a possible direction of society, and is the defined direction of a community-type society.

Synonyms for the direction of human [need] fulfillment include:

In the format:
Direction concept *(the contextual application)*

1. Fulfill *(the need requirement).*
2. Meet *(the objective requirement).*
3. Satisfy *(the objective criteria).*
4. Achieve *(the objective goal).*
5. Complete *(the performance, task).*

An organization is aligned ("good") or out of alignment ("bad") relative to the degree to which it enables the comprehensive satisfaction of life-requirements. Human flourishing is the highest alignment, and universal human suffering is the lowest alignment, satisfaction-fulfillment of life requirements. Here, societal [fulfillment] stability is synonymous with the experience of individual satisfaction in life.

Just because something is 'true', that doesn't make it 'good'. Truth is about "what is", and good is about "what ought to be done to have global well-being". The way to ascertain and maintain well-being is via the truth of how human beings are fulfilled and experience wellness.

QUESTIONS: *What is required for living a full human life, a life of fullest human potential? How do we increase our well-being, and more greatly flourish?*

2.1 Shared individual human need fulfillment

NOTE: *Fulfillment, a helpful direction, must be defined to lay the foundations of a well society.*

Human need fulfillment is a common requirement of all human individuals. What is shared is a set of common needs and a desire for individual fulfillment; because, each consciousness is individually embodied, which entails a set of requirements (cause and effect relationships) given the body, mind, and its environment. Individuals are active participants in their own fulfillment, regardless of whether they actively arranged outside conditions to fulfill a need by themselves or another person or system did it for them. In the real-world, needs and their implications, shape decisions and outcomes. Needs are related to the survival and thriving of a base operating system for the human experience, for every common individual.

Humans are synthetically organic-social. To be human is to be a member of a species with [abilities composed of] an organic-psycho and a psycho-social dimensions. Both the human body and social self-consciousness have ongoing natural conditions of existence and development. The natural problem of a persistent human life (i.e., how to survive), becomes the social problem of how to live well, together, with others (given, what is available). In a social system, "fairness" plays a crucial role in the quality/condition of fulfilling multiple basic human needs. In this sense, organizational/distributive justice (or, just efficiency) may become the optimally reasoned logic for fairness.

INSIGHT: *When life isn't about fulfillment, then it can all too easily become about something else.*

What keeps an individual fulfilled throughout their life, in the long-term? Maybe becoming something to be proud of. Maybe something that has been or is being created. Maybe the experience of growth and contribution. Maybe inquiry and the exploration of novelty. Maybe individuals are fulfilled through the feeling of continuous and coherent self-development - a sense of growing relatedness, of autonomy, and of competence in life. Maybe appreciation and consideration for the evolving whole represent a higher potential for fulfillment (also sometimes spelled as fulfilment). Maybe the act of questioning, or of openly inquiring, regenerates a sense of fulfillment. Maybe an environment where technology is applied to free all of humankind from the anxiety of chronic impulsivity and uncertainty, from a state of simple and programmed reactive survival. When individuals see themselves in another and they choose to cooperate and to share, then maybe they can organize a common social approach toward the arrival of decisions and actions that strategically fulfill everyone. Maybe, humanity could apply its resources and understandings toward the highest fulfillment of all - to free all humans for what is meaningful - to have all human needs sufficiently fulfilled (i.e., sated or "met") as all individuals progress toward a higher potential of life experience and self-expression. Fundamentally, fulfillment is the process of meeting needs (i.e., completing the need cycle on some required basis). Thus, a fulfilled society is a society of recognized needs, and not of unrecognized fears. In the real world, there exist commonalities that remove

the illusion of separation between all of humanity. A deficiency of fulfillment is not a state (or, condition) any individual wants.

Fulfillment is experienced in the moment as engagement in something for the joy of doing it (i.e., intrinsic joy, play). It is the experience of presence in something viscerally meaningful without worry or fear. Herein, achievement is secondary to the experience of fulfillment. Achievement brings only a temporary state of fulfillment. The moment something has been achieved it is already in the past. Many people numb themselves in the constant pursuit of achievement, and in doing so, miss out on the joy that comes from actualizing their truest and deepest desires. Achievement "achieves" only a temporary state of pleasure - the pleasure is there, and then it's not. Instead, fulfillment recognizes continuity - the continuous nature of being, of desire and of human needs. Fulfillment involves a continuous interplay of relationships and decisions that regenerate a continuity of well-being, of consistently meaningful progress, and of the coherent selection of ever higher potentials. Essentially, fulfillment is a more accurate description, or metaphor, for that which is truly being sought by all individuals; though it is often disguised as achievement, and other forms of "pseudo-satisfaction".

The second obvious reality is that the human brain is designed to prioritize needs as a mechanism for maintaining the survival of the human organism. The brain anticipates and considers and reduces contradiction [during integration] for its very survival - the survival of the self as a physically material organism. When the basic needs of human beings are not met, then the human organism begins reacting in an instinctually predictive manner to "get" its life-support needs met [through impulse & compulse as basic instinctual reactions]. Impulsive and compulsive behavioral reactions to situations are an indication of the absence of fulfillment and the presence of [at least] fear. When basic needs are sufficiently met and a human is not controlled by its instinctual reactions, then consciousness may begin considering its relationships and its ultimate potential.

Most people in early 21st century society, because their needs are not sufficiently met, find a comfortable and convenient place from which to shelter themselves from opportunities that might challenge them and lead to their growth beyond a state of fearful reaction, beyond the three f 's of: flee, fight, and feed (& mate/reproduce).

The third obvious reality is that human needs are fulfilled through the organization of certain states of the internal (or mental) and external (or material) world. Humans are naturally inclined to act on these inner and outer environments, and they do so [in part] through a system of orientational values that may or may not generate a state of structured organization that fulfills their discoverable, natural, and common human needs. Clearly, some states of the internal and external world objectively meet human needs more greatly than other states of the world. The term 'objective' refers to that which is independent of the opinions or attitudes of a person or persons. Some ways of approaching the world meet needs more greatly than other ways of approach. And, some states of the mind meet needs, and meet them more greatly and joyfully, than other states.

The starting point in the development of a community of flourishing individuals is the human being itself. Human beings have the ability to learn and pass on information via communication concerning the regular[ly verifiable] properties and principles of reality (e.g., scientific knowledge). This capacity for information acquisition, communication and transference allows for the common identification and fulfillment of human needs and desires, and the creation of systems that facilitate the strategic fulfillment of those needs.

If individuals among society seek to experience a continuous state of fulfillment, then they must continuously ask themselves, "What direction are I moving toward and what states of the world do I desire?" If humanity desires a community where individuals are supported in their experience of and exploration toward their highest potential, then humanity requires a system of social organization that in some useful manner fulfills all common human needs.

> **INSIGHT:** *When human fulfillment system's fail, conflict can be one negative outcome.*

2.2 The common interest of humankind

> **NOTE:** *In part, any disturbance at the societal level is a disturbance to individual fulfillment.*

Humans share a common set of interests, those of their evolved nature and the ecological cosmos they are materialized within.

Species with cooperating populations naturally have an interest in:

1. The biophysical world itself and its universal requirements of reproduction [of the species].
2. The quality of experience of the individuated units of consciousness of the species.
3. Production (technical system) of the means whereby societies live, and its organizing principles (e.g., social value system).

History clearly reveals that direct competition with others (i.e., other humans) for the very "stuff" of life (i.e., need satisfiers) is unwise at best, and suicidal at worst. Humans are deeply interconnected, not only non-materially, but also, genetically, but within the same bio-/cosmo-sphere. The rope model mentioned elsewhere provides a visualizable representation of this inter-connection and inter-relationship in object-form.

Within community, the common interest is shared by those sources of information willing to share and work together. The common interest of humankind

is shared by all users of the knowledge and services that humankind can produce and sustain. Thus, the source of information for what is the common interest of humankind is unified by accounting for the human users, who are also the contributors that inform and sustain the system:

1. **The user** - everyone who uses informational and material (habitat) services.
   A. **The contributor (who is also a user)** - everyone who contributes to the design, development, and operation of informational and material (habitat) services.

There are significant benefits to having (and living in) a predictably need-directed society, where need fulfillment is highly certain among the whole population. Neuroscientists Shmuel Lissek and colleagues have found that when an unpleasant or painful experience, such as an electric shock, is predictable, then organisms relax. (Shankman, et al., 2011) The anxiety produced by uncertainty is gone. Hence, it is thoughtful to consider that when humanity's basic needs are met, and human beings are effectively fulfilled, then quite possibly they step into a natural capability of perceiving more of themselves and more of reality because they are no longer focused solely on reflexive fight or flight, or on compulsive pseudo-pleasuring.

2.3 Fulfillment sub-conceptualization

The axiomatic composition of fulfillment involves three inter-related conceptions that connect a [social]organism to its [physicalized/embodied] environment (i.e., what is common and needs to be coordinated between in order to achieve fulfillment?):

1. **Need:** that [system] which is being input to express [internal] capability.
   A. A need is any required input to a mechanism.
2. **Service:** that [system] which is being output to express [external] capability.
   A. A service is any system which functions to complete an intention outside (beyond) its own system's level. A supra-system, by definition, has sub-systems that service (i.e., has service systems).
3. **Resource:** that [system of material organization] which is produced natively or non-natively (by a service - ecological or socio-technical), and is used/consumed by humans to fulfill requirements, and thus, express capability.
   A. A resource is any material (produced naturally or cultivated) that may be used by humans to fulfill a need.

Here, a human ecology is that which accounts for resources and provides for services that humans and other living beings use, or otherwise, require.

When humans co-habitat in the form of cities, they produce services (and therefrom, goods) that humans, and other living beings use. Each city represents a common collection of services, known as a Habitat Service System, which is a socio-technical, ecological environment.

The conception of fulfillment includes the following sub-conceptions:

1. **Need (human being)** - The concept of 'need' carries the meaning that some input(s) are required, despite what someone may subjectively choose, and however hard someone may struggle against the need.
   A. What can be *done* [for the individual]?
2. **Capability (human functioning, doing)** – a potential for [often intentional] choice and action. A capability represents a person's freedom to express or achieve valuable functionings. Developed (or achieved) functionings at any given time are the particular functionings that can be performed, demonstrated, successfully pursued and realized.
   A. What can the individual *do*?

Necessary linguistic clarifications:

1. The 'capability' concepts represents the various combinations of functionings (beings and doings) that the person can develop (achieve). Functionings are the various activities and actions a person may value doing or being. For example, the following functionings are constitutive of a person's "being":
   A. Being nourished > eating, being loved > affection, being significant > contribution, being certain > communication.
   B. Thus, capability is a set of vectors of functionings, reflecting the person's freedom to live one type of life[style] or another (to "be" different), and to choose from all possible living scenarios (societal configurations and their experienced results).
2. 'Basic' capabilities are those capabilities an individual requires to meet basic needs (e.g., a functioning digestive system to process nutrient resources). To be 'disabled' is to lack a basic human capability.

2.3.1 Relationship completeness

In concern to fulfillment, relationship completeness refers to the state when/where services and resources complete the need[ed] (required) relationship. The following terms are used to refer to the state where that which is desiring input is sufficiently complete (via

some indication method) that the need ("desire") wanes for a rest phase of the cycle. When our environment (e.g., food) meets needs on multiple levels it provides a feeling of "completeness" (i.e., satiation), and the behavior to complete the need stops (e.g., the eating behaviour stops) offering a satisfaction that is altogether different than feeling the drive (e.g., hunger), or being stuffed or insatiable.

The expression and enjoyment of "our" human capacities for social self-consciousness and intentional agency together with others requires definite forms of loving and caring interpersonal relationships, information transfer, and life-service spaces in which creative self and social expression can be developed and enjoyed.

2.3.2 Optimizing human fulfillment

To optimize human fulfillment, the following data are required:

1. A knowledgeable design for the coordinated mutual fulfillment of all human need.
2. A definition and identification of [f]actual human requirements?
3. A structure to fulfill those human requirements ("things") that are innate necessary to a social biological population of human organisms, which would otherwise degrade a single individual's fulfillment (as an social organism as part of the population)?

2.4 Societal fulfillment sub-conceptualization

The societal-level sub-conceptual complex (*as sort tags*) of fulfillment includes:

1. **Society (life capacity)** - A societal system ought to enable human life capacity, enabling greater freedom in consciously altering ones environment (as technology advances).
2. **Common heritage (planetary resource-services)** - that which is of common environmental interest and consists of materiality (or material resources).
   A. **Earth-based resources are the common heritage** of all the planets species.
   B. **Human knowledge and social capability** is the common heritage of all of humankind and the reservoir from which all conscious growth and effective adaptation occurs.
   C. **Coordinated and controlled common access** to common heritage resources, in part, through a materializing habitat service system.
   D. **Common heritage design** (a.k.a., open source), where the user decides through collaboration upon a materializing system where information flows from conception (ideation), to decided execution (algorithm), into materialization (production-operations), and back again as the concept, "prototype", as the materialization is measured and its alignment in quantity and quality are assessed.
   E. **In a common heritage environment,** there is probability, and it is possible to develop and operate (produce) a service system with a high probability of fulfilling all population requirements, optimally. In order to accomplish this, the system must be unified (or, as unified as possible), while accounting for all available resources under open source (common heritage) conditions.
   F. **Common heritage survey of global resources** (as in, area and object; position and reference/ standard).
   G. **Common heritage information space** for the open assembly and operation of the operational service system, including its information system.
   H. **Common heritage index of human need**, fulfillment and optimal environmental, solutions.
   I. **Common InterSystem synchronous up-time operation project** of local habitat service system within a global city network.
3. **Freedom (socio-technical extensionality)** - Each healthy human has the ability to reconfigure the environment (given a societal system) in the context of its own requirements for fulfillment. Extensionality (the socio-technical application of the felt conception of 'love') - the freedom "we" get by seeing all things as extensions of one unified information space (one unified self). Freedom is, in part, relative to human beings and their capability to determine their socio-technical environments in accordance with self-chosen end(s).
   A. **Resource accounting (habitat surveying)** - Everything having to do with needed resources (e.g., food), such as its collection, capture, cultivation, preparation and consumption, represents a societal act[ion or behavior], and must be accounted for within a unified societal model.
      1. Everything having to do with needed resources (e.g., food), such as its acquisition, processing, and using represents a societal act[ion or behavior], and must be accounted for within a unified societal model.
4. **Satisfiers (needed resource-service satisfiers)** - Those environmental elements (including all inputs, resources and methods/ways) that complete

a needed relationship are satisfiers. In other words, satisfiers are inputs and methods (ways) of meeting needs. Other names for satisfiers include: nutriments, resources, services (and products), and conditions.

A. **Material satisfiers** - matter onto and through the individual human body (object).
B. **Non-material satisfier** - other consciousness (human and non-human)interrelation with informational meaning (concept).

These "tags" to consciousness are the real bases of self-respect and substantive individual freedom. Every person has something unique to offer, and social organization is only good so far as the life capacities of individual and society, access and contribution, are bonded in mutual progression and not dehumanizing to both.

2.5 Possible high-level survey questions indicating the level of subjective fulfillment

The following are questions that facilitate a greater realization of whether socio-economic needs are met, or not sufficiently met.

1. What is your overall satisfaction (qualia) with your life?
2. What is your overall satisfaction (qualia) with life when compared against others, locally and globally (at a planetary-level)?
3. What is your level of socio-economic access when compared against others, locally and globally (at a planetary-level); what are your opportunities relative to others?
4. Does all feel well with your life and life pursuits (life interests); do you feel like you are pursuing worthwhile activities, beneficial to yourself and others?
5. How many adverse, negative, and traumatic events are you experiencing, and are you suffering in any way; is there conflict somewhere in your life?
6. Are there activities that you have to do because of the structure of the societal system, that you would prefer not to do; would you not do certain life activities if you had the opportunity not to do them?
7. If you had the resources, would you do work other than the work you do now?
8. Do you feel like you are able, and have, the opportunity to pursue worthwhile activities, beneficial to yourself and others?
9. How much did you smile in the last 24 hours? How much joy did you experience? How much unwanted stress?
10. How often do you enter the state of flow?
11. Are your needs and life-requirements fulfilled satisfactorily?
12. Do you feel separated from, and in a dis-coherent relationship with, any other individuals in your life?
13. Do you have a clear purpose in life?
14. Do you feel like you express your values coherently with others; do others in your life express conflicting values?
15. Do you feel like you have individual, conscious control over your life?

NOTE: *The above questions exist as part of the screening and orientation entrance statement on the part of individuals desiring access (entrance) into the community-type (RBE) societal system.*

2.6 Design for flourishing [conditions and behaviors]

A.k.a., Flourishing through design.

To flourish is to grow and develop, to experience life in a healthy and vigorous way. In order to design [a habitat system] for human flourishing, the following procedure is most commonly followed:

1. Identify behaviors that you want to express, and by design, you want people to do, which are also aligned with the fulfillment of human needs/ requirements.
2. Understand the environment as all the stimuli that affects "you", and others, moment to moment.
3. Create an environment to promote specific behaviors, which are aligned with the complete satisfaction-fulfillment of all human needs-requirements.
4. Use monitoring (and experimentation, testing, study) to confirm change of [the state-condition of] behavior is as expected. Arrange configuration of environment to maintain and improve (change) the state of flourishing of all humans, and sentient beings.

All behavior has consequential affect (influence) on a social network in which individuals express behaviors that orient toward or away from life fulfillment (Read: information and action life[-fulfillment] coherency):

It is understand that the human [habitat] environment influences human behavior, and that the society can intentionally design an environment that generates fulfilling conditions and behaviors. And, by understanding and prioritizing human needs, a society can create an optimal state of flourishing. Therein, individuals, together are intrinsically motivated, and have the opportunity, to pursue their highest potentials

(interests, purposes, orientations), and in doing so, facilitate "our" development toward the highest potential of all. By understanding and acting according to the optimization of "our" fulfillment, "we" create (i.e., are together creating) a more desirable environment for everyone.

Behavior may be an expression of the problem; it is not the problem. The behavioral expression of violence is a problem with the psycho-physiology of an individual (i.e., the violent behavior is an expression of an underlying, extant structure based within an individual's psycho-physiological state.

To design for flourishing it is essential to know the elements to life entrainment, and hence, flourishing in harmony with a biosphere,

1. Change the signalling, change the expression.
2. Change the thinking, change the behavior.
3. Change the behavior, change the environment.
4. And, the reverse of the above three.
5. And, all together.
6. When working together, inquire together: What should people do, and not, what can people do?
7. When working together, inquire together: What should people do, together, if they have needs; what if people can "have" needs and also not be aware of their affectual presence?

The question of how society is organized, or how to organize society, is one that has come to many human minds. Answers may fall into several categories:

1. Human theory - individuals' motivations and behaviors are conceived to meet the human needs of individual humans, either by intrinsic signaling and organization or as an extrinsic coercion. Here, intrinsic motivation is the optimal choice.
2. Functional theory - individuals' motivations and behaviors are shaped to meet the functional requirements of society, either by deliberate design or as a latent effect. Here, mutual habitat service is the optimal choice.
3. Conflict theory - individuals' motivations and behaviors are maintained through structures of domination in which relatively high levels of authority and/or affluence, coupled with widespread acceptance of justifying ideologies, help prevent excessive dissent sustain order. Here, transparent decisioning and restorative justice are the optimal choice.

The survival of particular structures in a society is not equivalent to the survival or well-being of the individual members of the societies population. The overriding priority in community is the fulfillment of people and their development to their full potential as human beings; not the maintenance of particular structures as an end in itself.

This point that socially assured sufficiency of life goods does not mean authoritarian government or levelling of individuation and diversity. The goods are universal necessities of a human life, not dictated by central authority or anyone else. People's lives are not levelled, but on the contrary, more diverse, free and individuated by their assured provision.

APHORISM: *Unless you know where you are, you do not know who you are.*

3 The human living system

A.k.a., Human life system, human life-system, human life-system organization.

The human living system could be viewed as the integration of the living systems through which humans express[ly sense] existence:

1. The cosmic system (the universe-al kind).
2. The solar system (the sol-ary kind).
3. The earth system (the planet-ary kind).
4. The human system (humankind, the species-ary kind).
5. The societal system (human population organization kind, societ-ary).

Individual humans [in community] give rise to material requirements at the dwelling, habitat, and societal level. Humans have life-support requirements at every scale of human living. It is possible to assess all of the important and/or priority domains in common human life.

> **QUESTION:** *If humans are part of the earth's life support system. Then, what is humanity's role in working with earth's life support system? How do "we" build "our" life [material-style] systems so that they support earth's life support systems?*

3.1 Human life [system] requirements

What do astronautic engineers require data on (i.e., what do astronauts know)?

1. They know what their life support systems are.
2. They know what their life support systems do.
3. They know how their life support systems work.
4. They know how to monitor their systems.
5. They know how to maintain (and repair) their systems.

What do societal [information] engineers require data on (i.e., what to societal engineers know)?

1. The idea of 'life support systems' that 'enable' (and not disable) 'life capacity' over 'time'.
2. The design of life support systems that enable (and not disable) life capacity over time.
3. The procedural operation of life support systems that enable (and not disable) life capacity over time.

3.2 Living system organizational design

The current human living systems can be designed with various concepts in-mind:

1. Direction and orientation.
2. Human need fulfillment (including preferences / wants).
   A. Everyone has a common set of needs and there are common heritage resources, how can the need fulfillment of all be optimized?
3. Contribution needs and preferences (community-based).
   A. Habitat platforms where humans are fulfilled require work, how can the work be of the highest quality and the workers most intrinsically motivated?
4. Habitat service needs and preferences/wants (community-based).
   A. Habitat service support systems (cities) meet the fulfillment needs of the population in a cooperative, coordinated network for customizable fulfilled lifestyles.
5. Profit needs and wants (market-based).
   A. Businesses have a need for profit, which is gained through sale or donation. Consumers may buy what they want based on their purchasing power and what is made available to them by business (by "capital").
6. Authority needs and wants (State-based).
   A. The market has a need for regulation by an authority figure for safety, which is accomplished through an organizational monopoly on law, force, violence and coercion.

3.2.1 Objective criterion of a life-need support system

An objective criterion can be established for a life-need support system that enables life capacity over time. There exist objective criterion to tell the difference between life [support] systems that enable life capacity over time (in comparison to those which do not), include but are not limited to:

1. **A life-value analysis:** Life-value analysis is based on the establishment of a universal criterion, that of life necessity or need.
2. **A Need (N)** is something that results in a reduction in the capacity of life. This reduction could be the experience of greater suffering and/or a loss of fulfillment. If there is a deprivation of "it", life capacity is reduced. If, for example, someone is deprived of clean water, fresh air, loving relationships, etc.
3. **The N-value** that is reached by a scientifically verifiable life-value allows for endless degrees and choices. Thus the need for food can be satisfied in the form of fish and beans, or by fruits and vegetables, or meat and potatoes as long as the organic need for a complement of nutritional sources is satisfied. Nobody thus "decides for others" using this analysis. At the same time, junk

food can clearly be seen to have no N-value and does, in fact, reduce life capacities through dis-ease.

4. **Some needs are more easily identifiable** than others. Air, water and food are clearly necessary within a short-term time framework, whereas deprivation of communicative culture and life vocation reduces life capacities in the long term.
5. **With the recognition of short-term material and long-term quality**, the human desire to perform work which benefits others becomes a life-value. Thus, when people pose the question about the incentive people will have to work in an society without money (i.e. symbol of value, McMurtry's system responds with the freedom to pursue one's true vocation, which results in life value).

From the life axiom, McMurtry (2011, 2018) identifies seven "rights" (that which should apply to governments and corporations as rule/law) that apply universally across individuals and cultures and that are needed to preserve and/or improve life capacity. These are:

1. The atmospheric goods of unpolluted air, sunlight, climate cycles, and seeing- hearing space;
2. The bodily goods of clean water, nourishing food, fit clothing, and waste disposal;
3. The home good of shelter from the elements and noxious animals/materials with the means to sleep and freely function;
4. The environmental good of natural and constructed elements contributing to a life- supporting whole;
5. The social goods of reliable care through time by supportive love, work-day limits/safety, accessible healthcare, and security of person;
6. The cultural goods of language, the arts, participant civil rights, and play; and
7. The vocational good of enabling and obliging each to contribute to the provision of these universal life goods consistent with the enjoyment of."

By applying the life-value axiom to questions of distribution and contribution, McMurtry also eliminates three faults to the general principle, "from each according to his ability, to each according to his needs":

1. 'Needs' have remained without definition and bound. Thus damaging habits conceived of as 'needs' may qualify as benefits, leading to disabling ("negative") consequences (network effects), and
2. The 'ability' expected (required) from each is not grounded in human life capacities. Thus, de-humanizing use of abilities can be obliged "from each," allowing for distortion of the underlying life capacities they express.
3. There is no principled linkage between 'needs' and 'abilities' to ensure the coherence of their realization. Thus the ancient division between the unequal abilities and needs of people still remains.

4 The life system

A.k.a., The life concept, the 'life' conception, life-concepts, life conceptions, life-conceptions, life imperative concepts.

What is life? Different societies have different conceptions of life. A society's conception of 'life' may, or may not, be grounded in (i.e., linked to) idea that the living (i.e., living systems) have needs that are required to be met [completely] if they are to remain life [and thrive completely]. On Earth, life works with and also competes with other life, for material space.

Possibly, there are (at least) two scientific properties to all living entities:

1. **Alive/living** - a *natural object that moves against the least path of resistance by itself (Read: individual).
2. **Life** - the set of living entities (Read: group of alive individuals, assembly of individuals).

** The word 'natural' does not include "artificial" objects that humankind has made. These objects are not living (to some relative degree); they may, for instance, move against gravity as in the case of vehicle, but they cannot interface with the physics of gravity consciously, as a 'human' organism can.*

In assembly theory, life is the capacity for memory, specifically, chemical memory that is stored in DNA and genes. Memory is needed for self-assembly. Likely, however, this definition of life should state that, it (life) is the capacity for and intelligent use of memory to construct and problem solve [against gravity] that grants life. Regardless, memory grants [life] the ability to repeatedly produce a complexity of objects that would otherwise be statistically impossible to have formed. In assembly theory, the assembly index (ai) is the number of steps to construct some object from sub-components. Anything with an assembly index (ai) at or above 15 steps of problem solving, component formation steps ($ai \geq 15$) is so unlikely that random processes alone could have produced it. This doesn't mean that an object at or above an ai of 15 is life; it just means that life was necessary to create it.

The second law of early 21st century thermodynamics (entropy) states that without "work" a system will gradually decline to randomness or disorder (greater "entropy"). Objects in the universe move from order to disorder, and without work, will increase in randomness over time, gradually losing energy until the ultimate heat death of the universe. Here, the ultimate form of "work" is life, then machines, then sentient machines (a.k.a., synthetic life).

4.1 Scientific life study: Biology

Whereas physics is the study of material reality, biology is the study of material life. Through material reality an [organic] living entity can be defined relative to an environment. An organic entity is defined (relative to) an environment by way of defining its set of [environmental] needs (or, inputs, requirements).

4.2 Societally relevant life-related conceptions

All of the following life-contextual terms are related are and simply different windows into the same unified life fulfillment information system, formed from two principles:

1. **Life-coherency principle** - a principle that gives meaning to life because it allows for life to improve itself by coherently meeting life requirements over generational time.
2. **Life-value principle** - a principle that gives orientation to live because it allows for the fulfillment of the input requirement of a system whose functioning enables (and does not disable) life capacity (life's potential through actualization).

CLARIFICATION: *Concepts associated with 'life', in this context, are generally with a hyphen ("-") connecting the term 'life' and its context, for example: life-coherency, life-value. However, the hyphen is not always used -- either usage of the hyphen or no-usage of the hyphen could be considered correct.*

4.2.1 The life-coherence principle

A.k.a., Life coherency, life meaning life access requirements,

All [life] economic demand is a demand of life [ecological] systems for life [ecological] services and [sociological] resources (i.e., life goods).

Principles of a life coherent society through generational time:

1. Access to means of life (i.e., the materialized habitat service system; life goods).
   A. Converse: scarcity in access to means of life.
2. Service (or enable) life capacities/abilities, not possible without it.
   A. Converse: disable or do not service (enable) life capacities/abilities (enabling/serving that which is not a means of life).
3. List the complete, universal set of "means of life" (i.e., the inventoried matrix of human [life] need through habitat [life] service), which all humans

require to flourish. (Note: see needs list)
   A. Converse: materiality that does not directly or indirectly provide means of life (and could therefore be considered, "uneconomic" or "anti-economic" in that it does not provide means of life, otherwise, human life services).
4. Measure the provision ("abundance") and deprivation of each life need (each means of life).
   A. Converse: willingness or ability to pay prices for services (and commodity objects), thus not measure their life requirement, but increase the opposite (i.e., conspicuous consumption).
5. Evaluate fullness of access by all users ("members") of the services in comparison to a previous[ly composed] state of the society (or economy), or to another socio-economic composition entirely (e.g., greater/lesser nutritional-intake, clean water accessibility/inaccessibility, bio-diverse environment, education, life participation/exclusion, life well-being).
   A. Converse: the growth of abstract entities is made to correspond to the access of its members to life "goods" as defined by that society. For example, in the market, a "good" is anything that is produced, regardless of it facilitates or thwarts life.
6. Resolve a new [design] state using 'capital' as the primary conceptual variable of any given societies economy:
   A. Life capital (LC -> LC1 --> LCn) is access to services that complete life needs (i.e., means of life) producing more cumulative yield, without loss, through time (e.g., species/ecological, social, knowledge...note that these are indicators).
   B. Converse: services are claimed as "capital" that do not directly or indirectly produce means of life through time (e.g., money capital growth by non-defensive weapons manufacture, currency speculation, production of life-disabling consumer commodities). Note: Notice the circularity here, and the lack of iterative evolution. The difference here is life-capital (i.e., the reproduction and growth of life) exists in contrast to money-capital (i.e., the reproduction and growth of money sequences).
7. Determine efficiency, where the efficiency of any service (system, process, tool, etc. in the economy) increases to the extent that:
   A. Ecological Efficiency - inputs and throughputs function to enable the provision of life goods with diminishing waste and externalities (e.g., organic farming methods, industries directed towards 100% recycling).
   B. Physical Input-Output Efficiency - reduced inputs of materials/energy/space/mandatory work time produce same or greater means of life outputs (eg., wheel and pulley structures, cooperative organisation of work/leisure requirements, lower labour/fuel-per unit machines).
   C. Human Development Efficiency - capability development of productive agents enables more life goods, lifetime, and/or life-range choices than before (eg., by education, healthcare, and vocational work). Enabling productive, participative efficiency, like literacy, or mathematics enables greater production ability and creative expression.
   D. These are the types of efficiency they system needs to improve.
   E. Converse: life capital resources are wasted and destroyed by life-incoherent systems. Hence, the life value of anything is always damaged by its commodification, and it does not follow that this damage can be undone.

4.2.2 Life-coherency and efficiency

A system that is more [life-]coherent is more efficient. In society, the efficiency of any system (service, tool, or process) increases, to the extent that:

1. It improves life capacities, and
2. It improves capacities to produce the means of life (e.g., ecosystem services), and
3. If it doesn't do either (i.e., improve life), then it isn't efficient.

Note that there are two principal levels to efficiency here:

1. 1st efficiency: inputs and throughputs function to enable life goods with diminishing waste and externalities. This could be considered ecological efficiency, where 100 percent recycling and 100 percent reuse is optimal
2. 2nd efficiency: physical input and output efficiency, the efficiency of the system itself (reduce inputs required and create more space efficient outputs).

4.2.3 Societal life-coherency

The question of the degree of societal life-coherency is (i.e., the life-coherence inquiry is):

1. What enables human and ecological life together?
2. How aligned with life's requirements is the society?

A life-coherent societal system is a system that accounts for life, its requirements and various potentials of being. In other words, a life coherent societal system "coheres" with life's requirements and the optimal

embodied expression(s) of consciousness.

A life-coherent system is one that:

1. Does account for the life ground, and
2. Does not encode hurtful abstractions (e.g., money sequences and agreements without any reference to the life ground).

Societies are life-coherent to the extent that the value system that regulates and legitimises their major societal organizations:

1. Does not unsustainably use (Read: exploit) the resources of the natural life-support system.
   A. Does the societal system use natural resource for life-support sustainably?
2. Does not damage, through instrumental use (Read: exploitative instrumentalization), the life-requirements and life-capacities of others (particularly, for the sake of system-specific or authority-specific interests).
   A. Does the societal system damage (harm) the fulfillment of life-requirements and life-capacities?

Note that different societal value [system] compositions (i.e., different orientations and objectives) are likely to have differently expressed potentials for societal life-coherence.

4.2.3.1 The life-coherency of cooperative-type and competitive-type societal systems

I.e., The market-State as a type of societal structure with a determinable life-coherency in relation to a community-type society with a designed and determinable life-coherency.

The active value system in a market society is life-incoherent for both life-support sustainability and life-requirement capacity. Market-based values lead to behavior that conflates the production of universal life-value with the production of money-value (for the private appropriation of investors and owners), by not applying the test of life-coherence (i.e., the market's value orientation does not support decisioning, using information on whether an action fulfills life requirements?). A money-value (money-valued) approach cannot recognise as services or goods anything that cannot be priced (or otherwise, owned). This fact means that it is obfuscates ("blind") to intrinsic life-values (intrinsic being synonymous in this context with unpriced), and it drives people toward [scales of] economic activity that are ecologically unsustainable and likely to generate conflict (or just suffering in general).

A market-based structure has no feedback mechanism to determine whether work is undesired, unnecessary, alienating and exploitative, or worsening to the lives of workers. Therein, the market-value system encodes the "good" of work ("labor") as its wages. The market system identifies the "good" (as a direction of orientation) for individuals as maximal private accumulation of money-value, of ownership, without regard to externalities such as ecological life-service, habitat life-support, and self life-development.

The concept of 'exchange' is a market-based term. For every exchange (or transaction) there is a cost (price, externality, debt, credit, etc.).

The life-coherent structuring of cooperative (community) versus competitive (market) societies differs, as follows:

1. A market (ownership access, private access) structured society seeks to maintain money-value. Herein, a lack of life-value is no barrier to commodification and profitable sale, while the presence of life-value is irrelevant beyond consumer-subjective demand.
2. A community (cooperative access, shared access) structured society seeks to maintain life-value. In other words, a community seeks to maintain life by encoding into decisioning (and the information system, in general) values that orient toward a better, more optimal life [experience]. Herein, a lack of life-value (i.e., lacking values that orient toward a better life experience) is a barrier to action using common resources -- if an action doesn't make "us" better off, then that action is not taken, and an action that is likely to make "us" better of, is taken.

In the market, institutions (market-based organizations) are measured by a money-value metric, wherein they are judged "good" when they meet the needs of the money-value system (and thus, the private interests of major economic powers) by:

1. **Providing services** to private economic agents and institutions at lower cost than those private interest could provide those services for themselves,
2. **Producing commodities** for sale with the profits transferring to private market agents,
3. **Training people** for compliant functioning in labour markets, and
4. **Providing justifications** for the ruling value system whose internalization impedes recognition of the life-incoherence of the system.

In community, access to services (of which object-goods are a sub-component) is measured by a life-value metric. When measured by a life-value metric, services are assessed on their effectiveness of:

1. Meeting the needs of life-forms, because the life-forms are [conceived of as] life.

2. Meeting the ability-condition of sustainability over the open-ended future of human life, because life exists in a finite environment where there is also not life.
3. Not requiring or triggering social values and behaviors that cause suffering (by means of exploitation, oppression, or alienation), because in life it is given that there is a choice/decision space (life-requirements can be met through either cooperation, or exploitation and oppression):
   A. **Exploitation** is the state of access without contribution (getting one's own needs met without contributing to the meeting of others' needs).
   B. **Oppression** is the state of access control with subjective power over others (getting one's needs met while actively thwarting others' needs, suffering)
   C. **Alienation** is shaming another member of a social species by attributing behavior entirely to the subjective (as opposed to recognizing it in a societal, structural environment or context).

4.3 The "need" for money

In the market-State, where money is intrinsically used, the production and distribution of vital needs, such as food, water, and shelter, are based on a concept, money. People act to service human needs (through businesses, jobs, and government action) because of a concept; the concept and its reification has consequences. In the early 21st century, the concept of money has become the metaphorical remote control (Read: the driver) that moves humans around. The vital needs for human life support only get produced and distributed because of an abstract[ed from humanity] concept, money. In the market-State, humans are using the concept of "money" (including, debt and property) to produce and distribute resources, needs, and services. In the real world, the concept of "money" doesn't produce the resources, needs, or services; instead, humans and their automated technologies do. Money is a collectively shared reification of the concept of exchange. In this way it could be said to be a universally reified ticket (medium, material) of exchange. In a way, money is the emergent property of a system of private ownership in which production is no longer for direct life, technology or exploratory user service, but for exchange [in a market], and in which individual humans confront each other no longer as people [among community], but as commodities [in the market-State]. The concept of money, then, is the ultimate form of the alienation of contribution, separating the user from the laborer, by representing the labor (real world effort) with a reification, money (abstraction, symbol...of value). It is relevant to note here that over time there has grown in the minds of humanity a belief in a universal medium of exchange (money) as the way to resolve economic decisions – for a single commodity (money) that acts as a real world measurement for production and access.

> **NOTE:** *The reification of money can easily force the production of behaviors among a population that actually lead it away from human need fulfillment.*

If everybody's needs are met, there is no need for money, because money is a way of allocating scarcity and/or power-over-others (in a state of competition). There is no need for exchange, so there is no need to model the mechanism or technology of exchange, and thus, no need for money.

The direction of a community-type society is one where there is:

1. No need for money (to meet fulfillment objectives) and no need for exchange (to have access).
2. Cooperation, because there is no private property and no division of labor (of the operating user).
3. Accounting for the real world, for human requirements, for ecological requirements, for contribution, and for fulfillment service access.

> **INSIGHT:** *Freedom is to be found in positive and fulfilling relationships with others.*

4.4 Life-value

> **INSIGHT:** *The more a society satisfies the necessary requirements of human life, the more individuals therein are empowered to develop (potential) and enjoy (actualize) the capacities that make human life valuable and meaningful.*

Life-value is a supra-category of elements, relating all aspects of objective reality that enable living things to survive and to develop their [distinctive] life-capacities (to develop a potential), and whose realization and enjoyment (to actualize a potential) makes life meaningful and well. More simply, life-value refers to everything that makes up the objective and common experience of well-being through the complete[ly regular] fulfillment of life requirements. There are universal human requirements, because there are a set of needs claims that relate to life-value, which is common to everyone and objectively self-evident. Life value is the most innate form of value possible. A life-value is, what is of value that sustains and enables life [capacity/ability] - the fulfillment of the absolute need(s) without which life [in its capacity to express potential] is reduced, leading to cumulative gain over time without loss.

If something has an orientation (in our lives), then does that orientation sustain and/or enable life capacities? If that with an orientation (i.e., a resource, service, behavior, mental model, mental value, etc.) leads to the sustainment or enabling of the capacities of

life, then it is an optimal ("good") direction for life action (via explicated decisioning).

The three axiomatic fields of life-value (or, fields of value):

1. **Thought**: internal image and concept (understanding).
2. **Felt** side of being: senses, desires, emotions, moods (affection and emotion).
3. **Action**: animate movement and organizations.

The objective standard of measure of life value is decomposed of three logical steps:

1. All value (to a living embodied consciousness) is life-value.
2. Fulfillment (good) versus lack (bad) = the extent to which life is more coherently enabled, by the sufficient regular meeting of requirements (versus disabled); thus, enabling life value (coherency) is "good" and disabling life value (dis-coherency) is "bad", be degree.
3. By the remembered and designed enabling of greater (good) or lesser (bad) ranges or capacities (functions) of thought, felt being, and action (*as the 3 fields of the 3 steps of life*), through time.

This standard of 'life' experience has objective measures that no one individual can coherently disagree with, given what is known and self-evidently experienced. And yet, when life-value is accounted for at the societal level, then no one individual decides. When values become clear, decisioning becomes [more] obvious. When societal values are aligned with humanity's highest potential expression,t then decisioning takes a shared "algorithmic" form. Societal decisions are a complex of internally created tools, procedures, and algorithms, expressing objective environmental life capacities. Gains and losses (over time) of life capacity can be measure (given what is known) objectively, scientifically so. Any change is state is better or worse by the greater or lesser range of life capacities it enables, or disables. A value system (value code, as a set of coordinates) can build mental and physical systems that are operational ("running") in society.

There are [at least] four testable generalizations of [human] life value:

1. Life value is objective, because it is true, independent of any one's perception of it. Existence is testable by embodied sensation; existence is self-evident ("hello"). Life can, and also cannot, be present.
2. Life value has unlimited validity because there is no exception to it, which is testable by searching for one. Life value has unlimited validity, and is thus a source of real world information, as shown by its:
   A. Self-evidence insofar as its denial is nonsensical;
   B. Universality across all domains and issues of value determination insofar as there is no human life to which it does not apply;
   C. Presupposition in value judgments and conflicts across domains;
   D. Objectivity insofar as its value is independent of anyone's recognition;
   E. Impartiality insofar as it does not include ownership;
   F. Completeness insofar as it includes every life form, domain, or change to ill or better in distinct or holistic comprehension;
   G. Sovereignty in that it overrides any other value in cases of conflict;
   H. Measurable in degrees of value insofar as greater/lesser ranges of thought, felt being and action can each/all be decided from any given reference body of value;
   I. Contingent pattern of long-term evolutionary and historical development.
3. Life value is universalizable, because all values derive their worth from life [value].
4. Life value is a priority over any other type(s) of value.

In part, life-value is derived from the following principled structure:

1. Life forms a continuum (of lifeforms) in which each life form depends in specific ways on the natural field of life [service] support.
2. Life forms have wider or narrower ranges of life capacities, but all depend ultimately upon their ability to satisfy their life requirements,
3. Which, at the most basic information level, involves transforming information processes and life activities.
4. Hence, one can say that nature is the most basic form of what McMurtry calls the "life-ground of value". The life ground of value is the connection between living things and the material conditions that sustain them, allow them to grow, and act in their characteristic ways.
5. Human beings depend not only on their metabolism with nature, but also upon specific compositions of social interaction in order to consciously express and enjoy our basic organic capacities to sense, feel, move, think, imagine, and create together, for human life, the life ground of value has multidimensionally composed form.
6. Humans, both in order to persist and in order to live meaningful and valuable lives, must live within natural fields of life support and social fields of life

development that satisfy our natural and social life requirements.

A. Humans, both in order to persist, and in order to live meaningful and valuable lives, must live within natural "law" fields of life support and social fields of life development that satisfy our natural and social life requirements.

7. Where these natural and social life requirements are not met, human beings are harmed, either in their metabolic functioning or in their ability to express and enjoy their human capacities in meaningful and valuable ways.
8. Life requirements, therefore, are natural inputs or social institutions and practices that human beings must satisfy if they are not to be objectively harmed in their natural organism and social being.
9. Life is better or worse for human beings according to the degree to which our lives are able to freely express and enjoy life capabilities in more "inclusively coherent ranges". The qualifier, "inclusively coherent ranges" is necessary so as to avoid the problems of a measure of overall social health like Pareto optimality (which is life blind).
10. The goal of maximally coherent ranges of life-capacity expression and enjoyment is contingent upon the degree to which the natural field of life support and the social field of life development satisfy or do not satisfy fundamental life requirements.
11. For human beings, that which has life value is any resource, institution, or practice that satisfies a life requirement or is an expressed and enjoyed capacity enabled by the satisfaction of a life requirement whose expression and enjoyment contributes positively to the life value of others.
12. Material organization is thus limited to the range of life requirements and the possibilities of life-capacity expression and enjoyment that make an extrapolative contribution to the field of life support and the social field of development.
13. At the same time, though subject to objective limits, life value is not an external standard imposed from on high upon subjective consciousness; instead, it is decided upon together.

NOTE: *When there exists the routinized consumption of status commodities with no link back to the development of human capacities for feeling, thought, imagination, or creation contributes nothing of real life value to human life, since by this compelled behavior, then nothing of life value for self or others is produced.*

In order to understand life-value more fully, it is necessary to examine in more detail how it is anchored in the three dimensions of human life: the biological, sociological, and temporal). The dimensions of the human life space-time continuum can be defined:

1. The biological ("natural") dimension (biological requirements) - The biological dimension of human life is grounded in our biology and gives rise to a set of obvious natural life requirements.
2. The social dimension (sociological requirements) - The social dimension of human life is grounded in the biological nature (humans can only survive through social interaction), expressed through the emergent properties of conscious and intentional action in systematic and symbolic contexts.
   A. A social consciousness maintains (under normal conditions) irreducible social life requirements (a social system) such as extensionality (love and care), especially while young
   B. Education through which the imaginative and cognitive capacities of conscious (a decision system) may be developed,
   C. A contributive system (core habitat system) in which we can participate in the design and operation of the societal and habitat systems,
   D. A participative system (facility habitat system) that preserves and creates natural and artistic beauty, and
   E. A unified, engineered societal system directed toward the goal of sustaining a social space for individuals to develop their own highest state of well-being, and make positive contributions in the development of others.
3. The temporal dimension (lifestyle requirements) - The link of the natural and social through a finite life-time. The lifetime of a human being is finite, and the flourishing in one's life depends upon what the individual is able to accomplish, experience, become, express over the limited course of the human life[time]. Thus, in addition to natural and social life requirements, there is also a temporal life requirement to experience time as matrix of possibilities through which strategically planned iteration provides an abundance of regenerative access. Many beliefs, though not all, represent an attachment to a past iteration, and the belief is the inertia of the past iteration. Time is, in part, iteration (pattern), and actualized patterns ('motion') has inertia.
4. Conversely: The biological, sociological, and temporal patterns become crises in human life, expressed as the loss of life value of natural life-requirement satisfiers, social organization and interaction, and the human experience of time consequent patterns (and in the market, their

subordination to the money-value system that rules human activity in a capitalist society).

4.4.1 Human life standards

What is of greatest life-value to all it having a set of integrated understanding of humanity and its relationships to the larger cosmos. Here, a human-life standards is an acceptable InterSystem Team Operations document for assembly, operations and disassembly. The resulting integration of studies into the phenomena, facilitates knowledge, principles and laws that protect and enable human and ecological life systems (if humans socially, together, intend so).

> **QUESTION:** *What are the societies individual and common 'experience' objectives.*

4.4.2 Life-value and consciousness

> **INSIGHT:** *Without an answer to how humanity best fulfills everyone's potential, what really matters to people's lives and life conditions will remain missing.*

Where consciousness is not alienated from the life ground (Read: life requirements) of [life] value, it is capable on its own, of discovering for itself those forms of capacity expression that have (and those that do not have) [life] value, and deciding, without imposition from a social hierarchy, modes of coordination that are both subjectively satisfying and objectively beneficial to everyone. Consciousness is [at least, in part] a self-integrating, goal-oriented response to an extant environment.

4.4.2.1 A life-valuing information system

A [unified] life-valuing information system:

1. Excludes nothing of what human life requires for existence.
2. Excludes that which destroys life value or contributes nothing to it.

Thus, producing conflict is ultimately life-destructive since its primary use is to threaten, wound, or kill other human beings.

4.4.2.2 Primary axiom of all value

A.k.a., The primary axiom of value.

The axiom of all life value (a.k.a., axiom of all value) has two principles:

1. Life is a good (life existence is desirable), and that conception encompasses everyone living, and is at the same time, encompassed by everyone living. Because there is commonality, life navigation is possible; life has the potential for expressing itself together, cooperatively in existence.
   A. x is a value, if and only if, it is shared by a life population.
2. Life is better (more good, more desirable) the more coherently inclusive its life-fields and ranges in thought, felt being, and action. Because there is a more coherent information space, life has more potential for its expression.
   A. Front: x is value, if and only if, x consists in or enables a more coherently inclusive range of expression (thought, feeling, action) than without it.
   B. Converse: x is dis-value, if and only if, x limits (reduces, disables, destroys) any range of expression (thought, feeling, action).

The primary axioms of value include three principal domains of possible value expression (i.e., axiomatic fields of value that include all that is of value in life):

1. **Thought (T)** - internal image and concept [of sense of self in relationship to world].
2. **Felt side of being (F)** - through senses, desires, emotions, moods, also known as, feelings.
3. **Action (A)** - animate movement across a controlled habitat environment, across species and organizations.

Each field of value is decided by:

1. The [highest potential] intention (i.e., "the good will") - T/F/A as one (unified) to realise the axioms of life value.
2. The true - progressive consistency with the Primary Axiom (a.k.a., P-axiom, or the life coherence principle).

Symbolically expressed (algorithm) which algorithmically expresses an objective value gain or loss for some completed relationship:

- +V (positive value) => LR +
- -V (negative value) =< LR
- where, L = Range of T-F-A and/= and/or.

The primary axiom (of all value) is realised in the real world by a set of universal human life necessities, which can be defined, criteriarized (Read: standardized, ruled, and tested), and measured. The primary axiom is realized in the world by recognizing and societally encoding the complete set of universal human life necessities and their axiomatic criteria/measure of life satisfiers (services, objects, humans, and the larger ecology), and to do so with efficiency and effectiveness.

The unlimited validity of the primary axiom (p-axiom, life coherence principle) across time, place and domains is shown by its:

1. **Self-evidence** insofar as its denial is nonsensical;
2. **Universality** across all domains and issues of value judgment insofar as there is no domain of value to which it does not apply;
3. **Presupposition** in value judgments and conflicts across domains;
4. **Objectivity** insofar as its value is independent of anyone's recognition;
5. **Impartiality** insofar as it cuts against or privileges no common life interest;
6. **Completeness** insofar as it includes every life form, domain, or change to ill or better in distinct or holistic comprehension;
7. **Sovereignty** in that it overrides any other value in cases of conflict;
8. **Measurable** in degrees of value insofar as greater/lesser ranges of thought, felt being and action can each/all be decided from any given reference body of value;
9. **Contingent** pattern of long-term evolutionary and historical development.

4.5 Life-capacity

> **Note:** *In communications, the term 'bandwidth' is frequently used to simplistically represent capacity.*

In system's dynamics, 'capacity' is formally defined as the maximum number of users per cell (times the user spectral efficiency), for a given maximum outage probability. Due to the axiomatic composition of systems, a system's capacity is finite; and, for a living system over-/under-capacity means loss (of life function) by degree, to full loss (destruction) of the system (i.e., death). To engineers of a habitat service system, capacity means some measure of the ability to produce, serve, or use, and to do so within the [carrying] capacity of the larger living system, the ecosystem.

Systems and products can thwart, harm, and reduce, and destroy life-capacity.

Life-capacity refers to the capacity to live, and to live well through [optimally designed] structure and function. At one level of the scale, life-capacity is the capacity of "our" Earth (and humankind) to provide means of life, without loss and cumulative gain, over time. For [life-supporting] ecosystem services, the optimum is cumulative gain over time, without loss.

The concept of life-capacity may be sub-characterized into:

1. Life-capital is the wealth (capital, habitat service systems) of means of life (life goods) that produce more, without loss in cumulative yield, through time.
   A. Life-wealth,
   B. that produces more life-wealth,
   C. without loss, and
   D. with cumulative gain over time.

   Definitional note: 'Life capital' is the means (resource, tools, etc.) of life, to sustain and better life; versus the growth of money sequences in a market-type society, for example.

2. Full life-capacity is optimizing access to means of life (services and resources) that produce more, without loss in cumulative yield, through time.
   A. Optimization of life-capacity,
   B. that produces more life-capacity,
   C. without loss, and
   D. with cumulative gain over time.

How can a society accumulate life-wealth over time, without loss? And, How can a society accumulate life-capacity over time, without loss? Through an openly integrated network of habitat service systems (a network of cities) wherein individuals perceive information and material resource as the common heritage of all, and thus, cooperate in order to coordinated the sustained, stable and cumulative higher-order (HSS) service system for a planetary population.

In life-support (Read: Life-support service system), the term 'resilience' is the capacity for an active system to rebound to normal function after a disturbance, or if need be, to adapt to a modified function should the disturbance prove to be long-lived.

4.5.1 Background extinction rate [indicator]

To sustain life, one of the most essential indicators is background extinction 'variable' and resulting predictive background extinction 'rate'. The rate is a mathematical construction (where statistical modeling is applied) to observe and predict the patterns present in the death/extinction of species in the biospheric environment that the human species inhabits (Read: has habitat [service city systems]). In the real world, background extinction refers to the death of one species, given an dynamic environment. From an observational point-of-view, background ground extinction refers to a measurement of the "normal", now, extinction rate of any or all species. Background extinctions are simply a measure of how often species go extinct, often, because they cannot survive, naturally. In total, this is a measurement of species that go extinct and did not survive, genetically. Background extinction refers to the ongoing extinction of individual species due to environmental or ecological factors at any level (biosphere/habitat/social, such as climate change, disease, loss of habitat, or competitive dis-advantage in relation to other humans and other species).

The term 'species' refer to inter-breeding of genetics to produce a replication. If the animals in question can have fertile offspring naturally (in the wild), they

are of the same species. The amount of time that the two specimens under consideration have been apart is insufficient for their genes to have diverged beyond the ability to procreate healthy litters that can propagate the race.

Intrinsic mechanisms and agents (including humans) are constrained by, at least, the following:

1. Time: The time a given species has been on Earth. This history pertains strictly to the species. Is it the same for a species to have been developing for millions of years as one that has just been spawned by a thousand years ago. How long does a species live? How long does an individual of the species live before dying (i.e., getting old and dying)?
2. Food: The food a species eats, especially toward the end of its existence when it has become exceedingly specialized.
3. Genetic drift - a species suffers a loss of genetic diversity after thousands of years of experiencing population bottlenecks and interbreeding.
4. What are/were the density-dependent birth rates of the species.

Causes of a background extinction, include:

1. Aging.
2. Food.
3. Genetic Diversity.
4. Carrying Capacity.
5. Materials availability.
6. Knowledge availability.
7. Biospheric availability.

4.6 Life-space

A.k.a., Life space, lifespace, living space, societal life-space.

A living space (life-space) is a spatial environment where an organism lives. All organisms need a place to live. Because there is finite space on earth, species (existing [in real-time]) at the planetary scale must cooperate to avoid harm, necessarily.

Generally, the term 'life-space' denotes an individual's external environment, including the extent that, the individual accurately perceives it. Life-space refers to the natural and built environments, and the dynamic array of living relationships therein. Physical existence and action accounts for the life-space.

The fundamental concept of a life-space can take on any complex of the following conditions (italicized with their associated societal-type tag):

1. The life-space can exist free *(community)*.
2. The life-space can be commodified *(market)*.
3. The life-space can be taken *(State)*.
4. The life-space can be designed *(State of System)*.

4.7 Life-systems macro-algorithm calculation

A life system (e.g., a human society, sub-composed of systems) can be designed to be a viable system of earth coordination (management) that enables (rather than disables) life capacity, without loss, and with cumulative gain over generational time. To accomplish this at planetary population scale, a macro algorithm ("life calculation") for life support (in particular, and all services in general) is required to resolve a decision into a state change to the material environment. Algorithms facilitate coordination by automating information processes in order to proceduralize the environment so that intention can be executed more quickly. Algorithms resolve the ability (i.e., it takes algorithms to coordinate) at the system's, planetary-scale population level.

Thus, the proposed solution is, in part, an algorithm. Every algorithm has an input and output, the data goes into the computer, the algorithm does what it designed to do, and outputs (outcomes) the result. In social economics the data sets these algorithms most closely work with are known as "economic input-output tables". In every sense, an algorithm is a vector/purpose-based program of an instructional set, given meaning to by a designing user.

Every sub-system of the total societal system has its own algorithms, its own procedurally-based inputs and outputs. These algorithms process information via some operation in order to resolve some [issued] situation in some [intentional] direction, given an environmental situation of common resource access-ability. The social system has information-type algorithms that process socially accessible information in an optimal manner for their users with whom they are interfaced (Read: socio-technically interfaced).

In a society, the decision system uses information based algorithms that process access-decision information (for all information and material resources). A cyclic way of living one's life could be considered a life algorithm.

The material system is composed of an experienced, actualized, material environment and an experience-able, potential, material environment. The material information environment describes the materializing -encoding of algorithms into the lives of individuals among a population at global scale. The material environment itself is the material encoding of what was previously (recognized or not) a prior cognition of a social information- and decisional-based system. The materialized system is the built and larger universal environment that influences the builder in-kind. Technically, the algorithms present at this level exist in two dimensions (categories): they exist in the minds of individual humans, in their consciousness, and they exist in the built environment as materializations

of some cognition. In either case, it could be said that the algorithm is "encoded", into the mind or the real-time material environment. In the materialized environment, it could be said that there are algorithms present in two categories: universal algorithms as that which would exist regardless of "our" presence (e.g., ecological services and physics), and controlled-encoded algorithms as the intentionally re-configuration of the environment to express a given condition, where the condition[al feedback] is the algorithm. Architecture is the most well-known conception of a materialized algorithmic expression. An as we all know, architecture affects cognition, consciousness, and behavior.

Architecture is a description of a boundary, which has been (or, is to be) designed, around some material (physical, real-time) environment. It is no great leap to understand that changes made to a materializing [environment] due to the design of the new materialized [environment] boundary.

Together, all these algorithms exist, unified or not, at the societal scale of [environmental] operation for human (and other ecological) intentional access fulfillment. These algorithms can be recognized by the experiencing population, or not. These algorithms can be designed by the experiencing population, or not. These algorithms can be open to participatory contribution and modification, or not.

4.8 Life-value analysis

> **NOTE:** *The integrity of a value or societal understanding is only as good as how aligned it is with the lifeground of human need, which is the common ground that all humans share (as the human system).*

A life-value analysis is the documented discovery of all elements relevant to the fulfillment of all common human requirements. A life-value analysis is a tool to produce coherent common understanding of that which is of common life interest, the human and its dynamic relationship with an ecology. In some respects, a life-value analysis seeks to root out hurtful [mental model] abstractions (e.g., "rights" and "privileges") so that the next iteration [output of the society] is more integrated, understood, and optimally aligned with the explicit direction. A life-value analysis accounts for the human experience of environmental inputs and conditions. The output of the life-value analysis tool is data that may be used to:

1. Maintain or improve the ecosystem upon which organic life-depends.
2. Inform the design and operation of the habitat service system that produces and distributes services, goods and resources that satisfy the life-requirements of human beings, while ensuring:
   A. Equity in access.
   B. Health in biology.
   C. Well-being in life.
3. Satisfy the conditions of all higher human development, and do so universally.
4. Facilitate the discovery and expression of life-capacities.

Therein, that which is a necessity is a necessity because it is recognized and understood through a scientifically verifiable criterion of life-value (i.e., the output of life-value analysis), expressed as the discovery, identification, and logical ordering of humankind's:

1. Life services (inputs, needs, and other requirements; life necessities)
2. Life capabilities (life's potential capacity for expression)
3. Life orientations (values for the controlled encoding of decisions)
4. Life approach (methods for the controlled encoding of decisions)

Life-value analysis is a process to fully discover life needs and life's capabilities:

1. What are the human life needs, requirements range? The analysis begins with human [life] needs as its grounded direction, for humans are the potentially fulfilled.
   A. The identification of human [life] needs begins with the [ecological] life ground, for humans exist within relationship to a naturally supportive [ecological] life environment.
2. What are the human life capabilities, functions range? Are life capacities more restricted or reduced in range without the life necessity (or good) than with it?
   A. What capabilities are possible [in humans and the ecology], when fulfillment is optimal?
   B. What capabilities are lost [in humans and the ecology], when fulfillment is sub-optimal?

> **NOTE:** *In a market-State society, a life-value analytical result may be grounded in "rights" and "retributive justice". In community, a life-value analytical result is grounded in human needs and capabilities.*

4.8.1 Life-services *(direction)*

The life-value analysis identifies, and logically orders (prioritizes) humankind's universal life necessities, its required inputs. Therein, life-value is data about the real [world] life [system] requirements of human beings and the larger ecology in which human beings exist in inter-relationship:

1. What are the requirements of human life?
2. What are the requirements of human life support

systems?
3. How are humanity's universal life necessities most optimally fulfilled -- with what categorization, composition, and frequency?
4. What are humanity's necessary life [fulfilling] needs through to services?
5. What do humans require to live full lives (given what is known, knowable, and available)?

4.8.2 Life-values *(orientation)*

The life-value analysis leads [in part] to the explication of a set of values that maintain a strongly aligned relationship with the following attributes [of a common societal value system]:

1. Self-evidence insofar as its denial is nonsensical.
2. Universality across all domains and issues of value judgment insofar as there is no domain of value to which it does not apply.
3. Integration reduces presupposition in value judgments and conflicts across domains (safety).
4. Objectivity insofar as its value is independent of anyone's recognition.
5. Impartiality insofar as it cuts against or privileges no common life interest.
6. Completeness insofar as it includes every life form, domain, or change to ill or better in distinct or holistic comprehension.
7. Sovereignty in that it overrides any other value in cases of conflict.
8. Measurable in degrees of value insofar as greater/lesser ranges of thought, felt being and action can each/all be decided from any given reference body of value.
9. Contingent pattern of long-term evolutionary and historical development.

> **QUESTION:** *What must humans value encoding if they are to optimize and adapt their fulfillment together?*

4.8.3 The life-value test (*method*)

The life-value test (i.e., the life-value method) is a test used to tell whether any claimed value, however powerful it is in the world, is in alignment or not with a stated direction (survival and/or development). The life-value test is a calculation that uses data from scientifically establishable limits of life capacity range and the degrees of its reduction correlating with the degrees of deprivation of it. The parameters apply across need-capacity domains, with very different lines of necessity and loss from deprivation of different universal life necessities.

Insufficient breathable air leads quickly to incapacitation by the degree of deprivation, but deprivation of natural space or sunlight may take far longer to show the loss of ability to function through range. Deprivation of a transportation system, on the other hand, is more complex and less dramatic in its effects, but is still expressed in life capacity loss.

4.8.4 Applying a life-value analysis to society

> **NOTE:** *The ancient formula of justice, survive and thrive together, is understood throughout a community-type society in systematic and objective life-value terms.*

In the context of the larger, unified societal information system the life-value analysis is a component of, and produces information into, the Social System Specification (in specific), and a significant portion of the fundamental structure of the societal project plan is derived from its information set. Through the encoding of human need and expressed capability, as the 'direction', value 'orientation' [decisioning] conditions and resources can be developed to ensure that decisions impacting the material environment (and common heritage resources) orient life in the direction of need fulfillment, and full life-capability expression, of all.

At the level of decisioning, those values that orient toward a specific direction can be encoded as algorithm sets within a larger combining system's level [decision] algorithm representing the decision system itself. Values become decision oriented decision spaces for a society, so it is essential to structure them intentionally [for fulfillment].

Community values (a specific type of orientational decisioning states) orient the resolution of decision spaces such that human need fulfillment is optimized (or adaptive). Life values (for community) are not determined by sovereign individual judgements about what is desirable. Instead, that which is of actual life value is that which enables life to survive, reproduce, develop, and freely express and enjoy its life-capacities. For finite living beings, consistently judging states (and circumstances) as valuable when their consequences for life-activity and life-potential are deleterious is self-undermining and ultimately materially irrational and harmful.

4.9 The life-ground

The life-ground is everything that is required to keep living, fully. The life-ground is the conditions of all life and substantive value to each and everyone. The life-ground [of value] is the connection (relationship; need) between living things and the material conditions that sustain them, allow them to grow, and act in their intentionally fulfilling (characteristic) ways. Here, the objective "ground" is that of an informational-material landscape upon which there are resources (information and material) that can be mobilized (configured) into services for regularly completing human access fulfillment requirements.

Most simply expressed, all the conditions required

to take your next breath. Axiologically understood, all the life support systems required for human life to reproduce or develop. The life-ground is to be distinguished from the concept of "the life-world" which refers to background beliefs.

The life-ground is the base of all terrestrial value. It explains the validity of any and all positions by its relationship to life, seeking beyond competing partialities to coherence with life requirements without whose satisfaction life capacities are always despoiled. Human values and rules must cohere with the common life support systems that enable the fulfillment of all, or else disaster follows.

> **APHORISM:** *Beyond the trauma, it is possible to communicate with, and to trust, Earth. The earth grows things that allow you to understand her in greater detail.*

Note here that the idea of cultural relativism (solipsism) is the negation of a common life-ground. The moral (orientational) consequence of encoding the disconnection of values from the "ground" (cultural relativism - where values are relative and not "grounded") is the higher and unnecessary potential for acceptance of whatever goals a social group proclaims, irrespective of their network effects or their implications for others (other groups), now or in the future. Solipsism cannot provide a universalizable direction (morality) of well-being, because it disconnects social decisioning from the life-ground of what humans universally, commonly require to live an optimally well life.

> **NOTE:** *Life systems are self-organizing sets of sub-systems that perform separate and complementary functions for the generation of higher organismal functioning.*

Societies can be "grounded" in the life of the planet, in the [f]actual requirements of ecological and habitat services, or not. In fact, humanity shares one common life-ground composed of one primary, ecological service system, and a secondary, controlled habitat service system:

1. The life-ground is the ecology, for which the living complex is the biosphere.
2. The life-ground is the habitat, for which the living complex is the habitat service system.

The life-ground conception is composed of:

1. Earth life support systems - That which is common to all planetary life as a life-ground.
2. Human life support systems - That which is common to all planetary humankind as a life-ground.

The common life support system(s) of the planet are the first layer of the life-ground, which stretch out from the cosmos through each individual human organism as a set of common human needs. The life-ground is that which resides in nature and extends into human population density's in the form of a controlled habitat service system. The life-ground is another term for the life support systems (natural and human-made systems), without which human beings cannot live, or are unlikely to live well. The life-ground includes those systems and relationships that have value, so far as humans (and other sympathetic life) cannot exist or flourish without them.

> **NOTE:** *It could be said that human needs clarify the composition of the life-ground.*

For humankind, life needs (or necessities) are that without which life capacities are lost. Therein are life resources and necessities that are required for human flourishing; these form the life-ground. The term 'life-ground' refers to the presence of a common materiality (and relationships therein) in the fulfillment of the life-existence of humans, who are [at least] material. The life-ground is the real and experienced base of all fulfilling (i.e., "legitimate") societal structures - what they must account for and cohere with to be morally valid. The life-ground [of humanity] is (described as):

- A vital platform of [life] support systems upon which all real-world beings exist. Therein, it could be viewed as a set of service-fulfillment relationships, both explicit (e.g. the habitat service system) and implicit (e.g. eating, dwelling, and seeking medical assistance).

The life-ground [of humanity] is (sub-composed of):

1. **Environmental outputs/signals:** These are signals produced outside the boundary of the individual human with a set of needs.
   A. **Ecosystem [habitat] services** - Production of specific, native composition and frequency of environmental signals.
      1. **Controlled [habitat] services** - Production of controlled environmental signals to provide *certainty* of fulfillment of human needs.
2. **System inputs/signals:** These are signal-response connections that excite (allow for) continued and/or greater capacity.
   A. **Human needs** - Necessity for [reception of] specific composition and frequency of environmental signal to develop and maintain capacity. Humans must maintain a frequency and composition of connection to the outputs of the life-ground (a set of specific environmental signals).

An adaptive, sustainable society encodes (operates through) fulfillment-oriented structures that consistently

enable individual human fulfillment commensurate with the reproduction of terrestrial life support systems through generational time.

4.9.1 Ecological theory

A.k.a., Bronfenbrenner's ecological systems theory.

Ecological systems theory (also called development in context or human ecology theory) offers a framework through which individuals exist in relationship within communities and the wider society. Humans will necessarily encounter ecological systems composed of different environments/dimensions throughout their lifespans, and these exposures may influence their behavior to varying degrees. These systems include the micro system, the MesoSystem, the ExoSystem, the Macro System, the Micro System, and the ChronoSystem. Then there is the InfoSystem (information), AlgoSystem (algorithm), HabSystem (habitat), and TeamSystem (contribution). In a living ecology, there is also a biosphere where ecological theory applied in kind, reducing it to a series of understandably inter-related and inter-dependent systems that produce a parameter of conditions for life.

Life needs ecosystems:

1. Basic needs - Ecosystems provide most of the material needs of humans.
2. Economic needs - Efficiency by which ecosystem services are converted into the fulfillment of human needs [for service].
   - Examples of direct interaction of ecosystem condition and services and economic well-being include renewable and non-renewable natural resources, tourism, fisheries, and agriculture, tourism, recreation, fisheries, and agriculture; beauty parks; park-city life-work environments.

It can be easy to confuse 'ecosystem services' with the 'environmental needs' associated with human 'well-being'. Ecosystem services are the services actually provided by the ecosystems in question; for example, alterations in nitrogen concentration in water, alterations in carbon concentrations in the air. Environmental needs are equivalent to Maslow's hierarchy at multiple levels (e.g., physiological, safety, and aesthetic needs) and would relate to an individual's or population's demand/desire to have clean water and air, minimal exposure to toxic contaminants, minimal light and noise pollution, acceptable levels of biodiversity, acceptable levels of safety, acceptable level so of activities, acceptable levels of environmental conditions that are significantly distant from ecological tipping points.

4.9.2 Ecosystem life-ground analysis

A.k.a., Ecosystem service limits, ecosystem value-analysis, ecosystem capacity-limit determination

There exists a repository of information relation the persistence of organisms on/in a landscape, and wherein, there are natural and human behaviors. The Encyclopedia of Life Support Systems (EOLSS) describes ecological limits, given what is known. Ecosystem services have limits; they have capacities.
Earth's ecosystem services include:

1. Water purification.
2. Air purification.
3. Radiation protection.
4. Soil formation/fertility.
5. Climate control.
6. Food/fiber production.
7. Nutrient cycling.
8. Thermal control.
9. Waste decomposition.
10. Disease/pest control.

4.9.3 Ecosystem services

NOTE: *The overexploitation of an ecosystem (any eco-system) may temporarily increase material well-being and alienate immediate poverty, yet prove to be unsustainable, and in the end, severely reduce material well-being and increase levels of poverty.*

Ecosystem services are the benefits that society receives from ecosystems. It is possible to measure how changes in ecosystem structure, functions, and processes influence the quantities and qualities of human fulfillment (as ecosystem service flows). The presence, design, and functioning of ecosystem services will influence the freedoms and choices available to a population (because ecosystem service produce resources). Ecosystem services can play a role, sometimes a significant role, in the basic needs associated with human well-being, ranging from a somewhat minor role in InterSystem tasking, to a major role in childhood development.

Ecosystem services are material systems. Material systems have needs that must be met in order to remain in material existence. Ecosystems have needs in order to maintain the existence of the ecosystem (as a living system). Humans have needs which depend on ecosystem services. In order for humans to continue to have their human needs (human requirements) met, ecosystems must have their ecosystem needs met. The following ecosystem "needs" are viewed from the human perspective:

1. Caretaken maintenance of the ecosystem by humans - humans can take care of the ecological environment of the planet by maintaining ecosystem services that provide for the continued

availability of life. It is possible for humans to improve the wild natural "landscape" for life.

2. Protection of the ecosystem by humans - warning and protection systems against planetary environmental degradation and natural and man-made disasters. It is possible for humans to protect the wild natural "landscape" for life.

An ecosystem is a dynamic complex of macro and micro organismal systems and the non-living environment, interacting as a functional unit. As the apex planetary species, humans are an integral part of the planetary ecosystem. Ecosystems provide a variety of benefits to organisms therein, and for humans, these include: supporting, provisioning, regulating, cultural, and supporting services.

Ecosystem dynamics form ecosystem services that fulfill the needs of organisms (or not) in the ecology, including human well-being. Natural ecosystems perform fundamental life-supporting services (functions) upon which human organisms depend, and which can facilitate or hinder human well-being. These services are the result of natural principles, and do not cost the world's population in an abstraction (e.g., currency is not encoded, and neither profit, nor the behavior consequences therefrom, some of them result from a negation of reasoning to root, system-level conception). Life itself, as well as the entire human system (and the economy in particular), depends on goods and services provided by Earth's natural systems. Human pressures on the environment can profoundly influence the functioning of natural systems, optimizing or reducing the quality, quantity, and delivery of these services. It is important to note here that the flow and delivery of these services depends on the presence and application of a unified societal information system and biophysical processes.

Climate change, bio-diversity change, resource degradation, ozone depletion, global elemental cycles, biodiversity change, chemical contamination of food, air and water, alien/invasive species have all been shown to have negative effects on physical well-being at localized and global scales. Positive impact through engagement with the natural environment and its services has been documented on psychological well-being individually and at the community level. Communal green spaces in urban areas have been linked to higher levels of community cohesion and social interaction among neighbours. (Kuo et al., 2001) Pretty et al., (2007) demonstrated the impact of access to green space on both physiological and psychological well-being.

Ecosystem services (or more accurately, ecosystem-habitat services) are the beneficial usable functions provided by ecosystems to humans. These functions are generally distinguished as provisioning, regulating, cultural, and supporting (services). In society, these services may be co-produced by humans and nature (in the form of a controlled habitat service system). As ecosystem services have direct and indirect impacts on human well-being, they must be accounted for in planning and materializing.

Here, the idea of 'ecological safety' is that there is sufficient data, given what is known, to state that environmental ecological inputs (and conditions) are sufficiently far from ecological tipping points (equating to a loss in local and global access to required inputs, humans reasonably desire to live within environmental safety parameters and protocols when interacting with the larger ecology, in order to ensure continued access abundance (and sufficient encoding of our elevating values with the fulfillment of our needs).

> **NOTE:** *In the market, ecosystem supporting services are known as "externalities", which means they are external to that which is accounted for. Markets and policies (authority-based rules) are often unable to value ecological services.*

4.9.4 Ecosystem services and environmental needs

It can be easy to confuse (interpose) ecosystem services with the environmental needs associated with human well-being. Ecosystem services are the services that are actually provided by the ecosystems in question (e.g., reductions in nitrogen concentration in water, reductions in carbon concentrations in the air), regardless of whether humans are present or not. There is a flow of material and information between the larger ecology, and the human system. At a fundamental planetary level, humans exist because of ecosystem services. The direct influence of ecosystem services on the quality of air and water is obvious, and the desire of individuals to have air and water quality that is as good as possible seems simplistic.

Ecosystem services may be may be modified by the habitat service system (the city systems). For instance, air quality can be improved by air purification services that moderate airborne particulates, air temperature, and humidity. Similarly, the habitat service system could pass some of its water through natural ecosystem services to modify its composition and structure.

Direct and indirect experience with nature has been and may possibly remain a critical component in human physical, emotional, intellectual, and even moral development. Think of ecosystem services as nature, and environmental needs as a sub-category of human needs. Herein, 'biophilia' is the proposition that humans have a fundamental, genetically based human need and propensity to affiliate with nature.

There is a relationship between **biodiversity**, ecosystem services, and humans' operational service fulfillment. Changes in biodiversity, through changes in species traits (and behaviors), can have direct consequences for ecosystem services, and as a result, individual and social activities. Biodiversity and human well-being are linked, and that relationship is well established.

Ecosystem services are a conceptual through to physical device or "vehicle" that can be used to help humans visualize the importance of the flow of all elements through nature, themselves an integral part of the functioning of nature. One of the greatest problems inherent with today's decisioning is the production of unintended consequences that often create a situation worse than originally existed. Consideration of nature, of ecosystem services, will minimize risk to human existence.

4.9.5 The ecosystem services

Ecosystems provide well-recognized provisioning services (goods), including water, timber, forage, fuels, medicines, and precursors to industrial products that are harvested from ecosystems. Ecosystems also provide regulatory services such as recycling of water and chemicals, mitigation of floods, pollination of crops, and cleansing of the atmosphere, as well as cultural services that meet recreational, aesthetic, and spiritual needs (Figure 4; Daily 1997; MEA 2005). All of these services depend on ecosystem processes that are sometimes known as supporting services. These processes include bio-geo-chemical cycles, diversity maintenance, and disturbance cycles.

Basic ecosystem services are a clear and vital requirement for human well-being. All of the ecosystem services (#2-4 below) depend on ecosystem processes (#1 below) that are sometimes known as supporting services. The following categories represent the human-usage of ecosystem services:

4.9.5.1 The primary ecosystem processes

An ecosystem is composed of objects and processes:

- **Ecosystem processes (a.k.a., ecosystem cycles; supporting ecosystem services)** - These are the fundamental/axiomatic ecosystem services make it possible for the ecosystems to provide services such as food supply, flood regulation, and water purification. The so-called "supporting" services are regarded as the basis for the services of the other three categories of benefit. Supporting services are functions that foundation all of the other services.

Examples of ecosystem processes include,

1. Bio-geo-chemical cycles.
2. Soil formation.
3. Primary production (intra- and inter-species).
4. Nutrient cycling.
5. Water cycling.
6. Biodiversity.

Unless these underlying ecosystem properties (processes/cycles) are maintained, other services that are more directly recognized and valued by society (#2-4 below) cannot be sustained.

4.9.5.2 The ecosystem services (human need satisfiers)

Ecosystem maintain the following types of service:

1. **Provisioning services** - These are products of ecosystems that humans use as raw materials.
   A. Water supply.
   B. Food production (and medicinal resources).
   C. Raw materials/resources (e.g., minerals, biogenic materials, wood, etc.).
   D. Energy and power production.
   E. Genetic resources (genetic diversity).
   F. Aesthetic ("ornamental" or visual) resources.
2. **Regulating services** - These are the control processes that maintain an equilibrium for the persistence of life.
   A. Soil quality (soil regulation).
   B. Air quality (air regulation, air condition[ing] regulation).
   C. Climate regulation.
   D. Water regulation (hydrology, water purification).
   E. Terrain regulation (e.g., flood regulation).
   F. Disease regulation (disease and pest control).
   G. Waste decomposition and de-toxification.
   H. Pollination.
3. **Socializing services (a.k.a., aspirational services, social services, "cultural" services) -** These are the human generated benefits (material and non-material) that result from human interaction with a social environment.
   A. Discovery (including use of nature for scientific discovery).
   B. Learning (including use of nature for education activities).
   C. Location.
      1. Spiritual (including use of nature for spiritual events).
      2. Historic (including use of nature for heritage events).
      3. Including: Solastalgia [neologism] - describes a form of separation distress caused by environmental change.
      4. Including: Topophilia [neologism] - the feeling of affection of which individuals have for particular places.
   D. Recreational experiences (including direct, such as walking and climbing through nature; or, indirect, such as a racetrack through nature).
   E. Aesthetic (for healthy consciousness and psycho-physiology) In order to maintain healthy psychological functioning we need natural beauty, biomimetic-aesthetics, and in order to sustain beautiful environments, we design

in accordance with these natural biophilic-aesthetic patterns.

F. Therapeutic (for recovery and optimization; and including (e.g., physiotherapy and animal assisted therapy).

G. Digitization/recording (including use of nature as motif in books, film, painting, symbols, and architecture).

4.9.6 Ecosystem services and human well-being

In order for humans to maintain well-being, the larger ecosystem of which they are a part (within which their controlled ecosystems (habitat service systems, or "cities") exist. The larger ecological system has its own requirements that must be sustained for continued existence on the planet in a state of well-being.

The dynamic relationship between ecosystem change and human well-being has both current and future dimensions, and short-term impacts to the ecosystem may not have the same direction as longer-term impacts. For example, the overexploitation of an ecosystem may temporarily increase material well-being and curb immediate poverty, yet prove to be unsustainable, and in the end severely reduce material well-being and increase levels of poverty.

There are a multiplicity of interactions that influence the dynamics of ecosystem functioning. These influences vary from negligible to major. Biological through to planetary processes, by definition, are integral to ecosystem functioning.

Relationships between ecosystem services and enhanced physical or mental health indicate a direct influence on human well-being. Furthermore, influences of these services on human/childhood development and cognitive learning represent a linkage between ecosystem services and well-being. Many studies have described effects of ecosystem services on physical health and exposure to disease. Reduced recovery times from surgery and reduced pain have been associated with the simple service of trees and functioning ecosystems being in view of the recovering organism.

The well-being of the human population may be understood within an ecological and ecosystem services framework, as an expression of the life-supporting capacity of the environment (a cosmic service).

The connections between ecosystem services and psycho-social health have been well documented, and are easily experienced. The restorative benefits of nature suggest an integrative framework that accounts for the larger context of human–to-environmental relationships.

Natural environments are particularly rich in the characteristics necessary for restorative experiences. The following incomplete set of [interaction] characteristics are indicative of natural experiences: natural forms, shapes and textures; sunlight and its absence ("darkness" or "shadow"); dynamism, growth and its absence ("decay"); molecular motion and its absence (aromatics and surfaces); motion and its absence ("stillness" or "silence"); thoughtfulness and its absence ("thoughtlessness" - as "zen", "mindfulness", or "careless").

The interactions of natural settings and childhood development are not completely understood but the absence of this interaction has been dubbed as "nature-deficit disorder" by those who see the benefits of nature from within a society where nature is significantly absent.

The desire by individuals and society to minimize exposure to toxic contaminants clearly relates to desires for good physical health. Toxicants can affect ecosystem services in numerous ways, with many of them ultimately relating to human health. Ecosystems can provide filtering and sequestering services to reduce human exposure although these processes may endanger health indirectly through food consumption. Light pollution or night sky pollution directly affects an ecosystem service (darkness) that has been shown to impact sleep and potentially human health (Chepesiuk, 2009) as well as causing deaths of migratory birds and sea turtle hatchlings (Longcore and Rich, 2004). Even light can become a toxicant at night to other species under certain conditions.

4.10 Symbiosis

The word symbiosis literally means living together (from Ancient Greek σύν, syn- "together" and βίωσις, bios- "life"). The word "symbiosis" conveys the meaning that (one) lives together (with another). In a strictly biological sense it refers to organisms that live in close approximation; often one cannot live without the other -- there are interconnecting and life-supporting relationships that are necessary for continued biological survival. Symbiosis can occur between organisms of the same species as well as between two or more different species.

There exist 4 types of biological symbiosis:

1. **Parasitism -** parasite benefits, host is hurt. The parasite meets its needs at the expense of the fulfillment of the host's needs.
2. **Commensalism -** one species benefits, the other is neither hurt nor helped.
3. **Mutualism -** both species (or organisms) benefit. When two organisms of the same species cooperate toward mutual, common fulfillment then mutualism may be said to occur.
4. **Mimicry -** one species imitates another to gain the benefits enjoyed by that species. For example, a Banded snake eel mimicking a venomous sea snake in order to deter predators.

The very idea of "symbiosis" conveys the understanding that there exists an interrelated nature (or reliance) between all environmental life on Earth.

This understanding is crucial for the emergence of the concept of sustainability. And, without this understanding there is no socially intelligent direction for human ingenuity when utilizing the Earth's resources. It is unrealistic to expect that someone who has been enculturated into a scarcity-driven society will have the ability or understanding to outgrow the desire for resource possession [at another's expense] if they do not fully understand symbiosis, sustainability and the emergent nature of understood thought.

Humans are bio-psycho-social organisms and are affected by their environment in subtle and complexly symbiotic ways. We live in a world community, and it is about embracing that global relationship.

5 Need

A.k.a., Need, demand, requirement, desire, motive, gap, state, measurable life element, satisfier, mandatory, essential, imperative, will (biological).

A need is something that is required [for some things existence and/or function]; it is a type of demand placed on the environment by a system (internal and/or external of boundary). Note here that any given individual having needs doesn't make that individual needy in any pejorative sense (i.e., having needs doesn't make "you" needy in a bad sense. In a purely technical (engineering sense), a need is a gap between current and desired results (not as insufficient levels of resources, means, or methods). Socio-psychologically speaking, a need is typically characterized as an inner motivational state. Observationally and socially, a need is a goal state (safe, healthy, etc.). Human needs are objective, plural, non-substitutable, and satiable (cyclically). It is possible to be unaware of one's own [true, truest potential] needs. Needs generate (cause, create, initiate) [the cycle of life-form] behavior, but are not the totality of the expression of behavior [of the life-form]. Need refers to a particular category of goals which are universal -- needs are related to the survival and flourishing of a base operating system for the human experience. Needs contrast with wants, which are goals that derive from an individual's particular preferences and cultural environment. A need is a gap in results that must be cyclically complete for their to be health through thriving. Humans, like all organisms on Earth, are determined to meet their real-world needs (as best as possible). Needs are empirically existing categories of fulfillment (for humans and ecological services). All organisms seek the completion of their needs on an as required/appropriate basis (cyclical/continuous basis); a cyclical will to complete something or have something completed.

In community, people have empirically existing categories of [human need] fulfillment:

1. Needed resources [given required service fulfillment]. All world conditions are composed of resources (resource compositions). Thus, the user has a requirements for specific configurations of needed resources.
2. Needed states [of service/support fulfillment; conditional support/service states]. Here, the user requires a specific internal and/or external state of the world (set of world conditions) to feel complete.
3. Needed behavior [to fulfill the needs of oneself and others; to fulfill and to be fulfilled]. This behavior exists on both the side of the user as well as the side of the producer. The "producer" in community includes both the global habitat service system as well as the planetary ecological service system.

4. Needed feelings [given human potential for great well-being and flourishing]. To fulfillment of need is felt and experienced as connection.
5. Needed solutions for completing human needs together within society, and on a single planet.

All behavior exists to meet needs, some of which have preferences. There is a lot of psychological research that human behavior is directed to meet needs and is highly routinized ("habituated"), and most of it (in early 21st century society) is coordinated by unconscious brain functions (reflex activities). Therein, the more activities are reflexive, the smaller the decision space (i.e., the smaller the conscious intelligence). Hence, it is essential to construct a societal, and therein, economic system, where the routinized behavior feeds back through the real-world into the [f]actual fulfillment of human need, indicating movement along the direction of flourishing and well-being. Decision spaces and behaviors are conformed by societal structures. In a market-State, the procedures, structures, and the imperative (created by capitalism to maximize profit) are more important than the people. In a community-type configuration of society, the people are user-contributor-users who agree explicitly to community standards, who have needs, and live within the bounds of a limited ecological service system (Read: the plane Earth).

In a broader sense, 'needs' are means, namely shapes, conditions, objects, activities, feelings, opportunities, or services, required for achieving required desirable goals. Need conceives of a motivational (intentional) force (drive) instigated by a state of disequilibrium or tension set up in an organism because of a particular felt lack [of a solution-completion, and that requires conscious attention]. Needs could be considered a particular category of imperative (e.g., human[e] direction or goal) - as that which is experienced as universalizable [to everyone in the species], because they are necessary conditions for flourishing, and for avoidance of suffering and serious harm to individuals in that species. In this sense, it is a 'need', because it is 'needed by everyone' - a [societal] systems-level recognition of an imperative direction. There is resistance (challenge) to the meeting of needs due to the entropic nature of the universe. Resistance forms the space for negative efficiency. All efficiency is negative; there is only the optimal ("best") that can be done up to now.

Note that need-based imperative/directive statements are more exigent that other sorts of statements that make demands [on the environment for resources and services]. A need-based statement asserts that unless the stated condition is met, the goal (a capacity or condition, a destination or resolution), cannot be realized. A need is a gap between what *is* and what *ought* to be [for a capability or condition to be expressed]. Completing a need leads to some measurable, desired (intended, positive) outcome or result[ing shape or condition].

NOTE: *Need is like requiring without yet acquiring -- 'to need' is equivalent to 'to require'. A need, or requirement, may be otherwise called a 'demand for service'.*

The simple systems definition of a need is:

1. A need is that without which a systems capacities/ abilities are always decreased.
2. A need is a relationship that when completed [with spatial or informational content] sustains or improves the state (condition, and/or dynamic) of a conscious entity, who is in embodied relationship.
3. A need is a construction plan, temporarily formed to allow consciousness to develop and experience more greatly the all.
4. A need is a service[able] habitat, temporarily formed to allow the global human population of conscious entities to live, experience and grow together at a global scale.

All needs can be, for any given organism, met in two basic ways (given, an understanding of the real-world complexity of meeting any actual need):

1. Self-met (a.k.a., self-fulfilled, from breathing to eating ad moving).
2. Serviced (a.k.a., met by others, in a societal-habitat configuration).

From an environmental systems perspective,

1. A need is the reason a system requires outside environmental input.
2. A need is the [labelled] state where environmental outputs or conditions co-join with an internally bounded structure to make or evolve a system.
3. A need is the [labelled] reason for the functional existence of some system.
4. A need is the [labelled] input conveying the potential for expressing greater "ability".
5. A need is the [labelled] input that creates or sustains a specified capacity or condition in a particular system.
6. The concept of a 'need' refers [in part] to a relationship between some environmental system and a subject system, wherein some action(s) fulfill the relationship expected by the subject system.
7. A need is a gap between what *is* and what *ought* to be [for a capability or condition to be expressed].
8. A need is a requirement to access a particular environmental composition at a particular time interval.
9. A need refers to a drive or a potential (capability).
10. A need is a requisite for achieving an objective. Thus, the requisite's necessity depends on the status of the objective, and on how essential it is

for reaching that objective.
11. Needs give goals their psychological potency and influence which regulatory processes direct people's goal pursuits.

From an entropic (Read: information coherency) perspective,

- A need is anything that when deprived of results in harm or lost potential [ability]; the loss of a greater decision space to embodied consciousness; the loss of overall information coherency and integration available to embodied consciousness, less well-being or greater suffering.

From a scientific perspective,

1. A need is some "thing" required for existence or function.
2. There is knowledge available about what humans need; methods available to acquire more information about what humans need.

From an engineering perspective,

1. A need is a gap between the current and desired.
2. A needs is a desired state, an end goal.
3. A need is a requirements.
4. A need is a representation of a problem or constraint, with potential value to a system.
5. A need is some relationship with the potential to orient ("deliver value to") a system by solving a problem or conforming to a constraint.

> **NOTE:** *In engineering, needs must be principally logically (linguistically, conceptually) linked to measurable abilities to ensure the coherence of their realization. Linguistically, an analysis is a search for description and/or explanation given [some set of] data. Synthesis is creative construction into materiality from a set of data consisting of self-awareness and greater technological capability. Humanity presently has the ability to build million individual garden-like circular walking cities in a grid-like manner spanning some current market-State jurisdiction that has the self-awareness to facilitate the design and execution of a model that accounts for the common heritage and all of human need, among a population of individuals who are open to understanding that a common model for human need fulfillment is attainable and sustainable, and is at both the planetary, and many lesser, scales.*

From a genetic perspective, the purpose of a genetic [human] life is (in part) maintaining the genetic [human] species. This purpose derives into three tasks that involve:

1. Staying alive and surviving.
   A. These are basic needs, given 'life' organization.
2. Fecundity (the ability to produce an abundance of healthy offspring) and upbringing.
   A. These are basic needs, given 'genetic' organization.
3. Exploration, self-development, and coordination.
   A. These are basic needs, given an 'uncertain' environment (i.e., it is better to learn about, share, improve, and coordinate together if the genetics are to be passed on in an uncertain environment, or even better for consciousness, to be improved upon).

In order to embody genetic material with consciousness to become a human life in an uncertain environment (i.e., be human here now in a consequential physical environment), the following is [at least] required:

1. Humans embody [on surface, 'land'].
   A. Humans locomote [land/ship cycling].
2. Humans absorb and expel.
   A. Humans breathe [atmospherics cycling].
   B. Humans eat and drink [materials cycling].
   C. Humans procreate [genetics cycling].
   D. Humans bleed [vehicle/body cycling].
   E. Humans enlight [spirit cycling].
3. Humans shelter.
   A. Humans separate from biospheric elements [architecture/building cycling].
4. Humans tool.
   A. Humans use informational and spatial transformations to improve the ability to express intention [power cycling].
5. Humans coordinate.
   A. Humans communicate useful information, activities, and outputs to improve the ability to integrate intention [information cycling].

Simplistically speaking, "we" all do on this level is running around, trying to eat, trying to have sex, and get some sleep. That's what we do. Breaking these tasks down into activities, these are food gathering aka grocery shopping, being socially active aka socializing, aiming at getting a well-paid and ideally inspiring job, and so on. And these activities derive into needs. Needs are for example maintaining a healthy nutrition level or aiming for an adequate social standing. Also, we express these needs. Humans say things like "I really like you, I think you're a really nice person" to build inner-human relationships or "I love this company" when they want to get or maintain a certain job.

> **CLARIFICATION:** *When value is being realized through a service, the service is often called a 'solution'. When value could be increased or realized through a service, the service is often*

called a 'need'.

Other technical terms for a 'human need' include:

1. **Human requirement** is another technical term for a 'human need'. Human needs become human requirements within an engineered societal system.
2. **Common constant constraint** is another more technical term for a 'human need'. Human need categories are common to all humans, and represent a constant constraint to human fulfillment in the real-world environment.

Resources, services, and other environmental signals and conditions "complete" the needed relationship, wherein the environmental object or condition is the satisfier (input) of the need. Needs have to (must, ought to) be satisfied if at all possible. Therein, needs are served by satisfiers.

A habitat service system (city) could be designed as a solution to the problems of human need fulfillment by coordinating access to services as satisfiers. The sub-systems of the habitat manifest themselves in concrete usage patterns. A usage pattern is observed as people being motivated by certain values using services and objects for a specific purpose in a particular environment (e.g., in a city, the service circulars and sectors provide for these functions) at a repetitive interval. It is thus an integrated pattern of thinking and doing that becomes a well-functioning habitat with a flourishing population. Usage patterns can be determined through research and provided for by engineering. This pattern is observable and to some extent understandable independently of a particular model of human needs. It is thus important that usage patterns form the basis of research on the way in which people satisfy their needs by living in a habitat.

It is possible to develop and maintain a plan of service (Read: operational service system plan) that addresses the integration of human physiology, human psychology, human performance, and the interconnected system of the human and habitat in a highly integrated manner.

Needs occur in space and time, and hence, they may be physically and temporally indexed (i.e., need at time, *t*). Together, human needs are best expressed in the form of a spreadsheet or database, although they are often seen visualized within a triangle, square, or circular shape.

Where **needs** describe priority functioning, **satisfiers** describe that which is environmentally necessary for the functioning.

In system's usage, needs are complied into lists, so that categorization, sorting, prioritization, and statistical calculation are possible on the data set:

1. A 'needs list' documents the exigent inputs and/or conditions needed [for a system].
2. A 'human needs list' documents the exigent inputs and/or conditions needed for human survival and flourishing [for the stability and continuation of a human societal system].

CLARIFICATION: *An information need is an individual or group's desire to locate and obtain information to satisfy a conscious or unconscious need (or, motive) for information. Information demand refers to a demand that may be vocal or written and made to a library or to some other information system.*

5.1 The fundamental structuring of 'need'

NOTE: *All living bodies contain and can read instructions in deoxyribonucleic acid (DNA).*

The structured expression of 'need' is described by access to a specifically desired environmental composition using time to complete a system cycle. In other words, the completion (i.e., fulfillment, achievement, etc.) of a need necessitates an environmental structure that includes two variables, composition (formation) and frequency (timing):

1. **Composition:** What is the form/structure of the satisfier? How is the relationship composed? How is the relationship not composed?
   A. Needed composition - that which is optimal or adaptive.
   B. Actual composition.
2. **Frequency:** What is the frequency of the satisfier? How often is the relationship initiated? How often is the relationship concluded? The frequency of a need can be any of the following:
   A. Continuous.
   B. Periodic (cyclical).
   C. One-time, Multi-times.

In their completion, each of the two variable attributes (composition and time) have a performance measure of one of the following (as fulfillment completes):

1. **Optimal** - the frequency and/or composition of the completion of the relationship is the best available to maintain capability.
2. **Adaptive** - the frequency and/or composition of the completion of the relationship is not the best available to maintain capability, but is the best available for adapting/extending capability.
3. **Sub-optimal** - the frequency and/or composition of the completion of the relationship is not the best available to maintain or extend capability.

Every need state [identity] is composed of these three concepts (meanings):

1. **Focus** - what is your attention on? Focus on your desire, on your desired feeling. Feeling is life.

2. **Language** (word construct) - what are you saying to yourself? What is our running commentary in our heads creating meanings and interpreting at every moment? Is the commentary empowering and expansive or limiting? Emotion is life.
3. **Physiology** - is the foundation of all effective focus and change.

In terms of the meaning of a need for service, service states may be designed to meet specific needs (and wants) of people. There is a direct relationship between the need and the output. These outputs can be categorized in three ways:

1. **Desirable** to **undesirable**.
2. **Intended** to **unintended**.
3. **Immediate** to **delayed**.

5.2 The substitutability of 'need'

> **TRUISM:** *There is a common desire for accessing what is needed, when it is needed, at a cycle that is needed.*

Substitutability refers to the ability, or not (non-substitutability), to substitute one capability or object (e.g., a decision, need, resource, case, etc.) with one set of properties for another object with another set of properties. In [economic] decisioning there exists the idea of demand substitutability. A state of substitutability exists if one course of action, can be substituted for another, and obtain roughly equivalent outcomes in terms of their prefer-ability. The question is: Does substitutability exist between two decisions (courses of action), or not? Substitutability is a binary state between two courses of action—it either exists or does not. If it exists, then there is a state in which two courses of action can be substituted for one another "without loss", without a significant change. In the context of society, this "significant change" is the prefer-ability of outcomes expected to follow from deciding between various courses of action. A state of substitutability exists between two sets of decisions (e.g., economic behaviour) if it is possible to swap one for the other, and then, to find no significant change in the prefer-ability of outcomes. If a point of substitutability does not exist, then there isn't a state in which two courses of action can be substituted for one another without a significant change in the prefer-ability of outcomes predicted to obtain from them.

As organisms, humans have two types of [economic] relationship with the environment in concern to demand substitutability:

1. **Non-substitutable needs (threshold needs)** - encompass all needs (fundamental demands) required for well-being (as in, states of being: happiness, consistent flow, consistent health, etc.; e.g., states of having: food, energy, shelter, transportation, contribution, etc.; e.g., states of doing: dwelling with a beautiful versus ugly view, nutrient rich food vs. poor quality food). Threshold needs (e.g., food, water, buildings, etc.) are things someone cannot make oneself endogenously, and must acquire exogenously. If some course of action doesn't satisfy a need, it simply cannot have expected outcomes as preferable as those associated with some course of action which does, and there is therefore no point of substitutability between the two. Herein, non-substitutable needs are met by tangible resources.
2. **Substitutable needs (non-threshold needs, not true needs, preferences)** - all the preferences (want demands) that may be nice to have, but are not necessary for well-being (e.g., using a boat to go fishing now instead of scheduling its use, using a gold toilet, cooking with conduction instead of convection, or eating one apple off a tree in an orchard instead of another apple off another tree in the same orchard).
   A. In community, substitutable needs are decided by the critical selection of methods and "weighing trade-offs", establishing an order of necessity.
   B. In the market-State, substitutable needs are decided by the imposition of a dictatorial hierarchy, establishing an order of necessity.

Substitutability for the individual with the demand could exist between a flat white coffee and a latte (a slightly different white coffee), if the consumer expected roughly equivalent outcomes in terms of prefer-ability to follow from their drinking. To someone with a highly refined, sensitive palette, the difference between the two coffee drinks may not be substitutable; the variety and/or quality of the beans in the coffee or the same for the milk, may not be substitutable.

In community, a state of substitutability is likely to exist between two transport vehicles of the same category in two different cities, because they are built in the same optimized way with optimized locomotion, power efficiency, structural integrity, safety, etc.

> **NOTE:** *Where there is need, self-denial is self-destructive, because self-denial is denial of a signal from the self that something is missing.*

6 Life needs

A.k.a., Life-needs, life necessities, life requirements, life qualities, life attributes, life sciences, life studies.

Organisms require certain environmental conditions (elements) to survive and to thrive. For example, biologically based need conceptions posit that organisms require certain requisite goods for healthy functioning, such as water, air, sleep, etc. These services and goods are requirements. All living organisms must satisfy (i.e., fulfill) their need for external, environmental system input, and stable internal conditions. Here, need are a-cultura/a-preference attributes of embodied conscious human existence together. Living systems are complex adaptive systems. Life needs are a first principle look at oneself and other selves as animals, and coming to the realization that animals have requirements for survival, flourishing, and successful reproduction.

A life need is something that is necessary for a living system (or 'organism') to maintain a healthy and full[y satisfied] life, from survival to flourishing (over generations). Needs are the 'nutriments' (or necessary conditions) that are essential for the ongoing growth, development, integrity, and well-being of all individual human beings regardless of culture. They are a component of the nature of a living organism and lie on a spectral continuum (i.e., a 'spectrum'). Herein, a human need is a state of felt deprivation of some basic, axiomatic form of human satisfaction, which requires energy and integration for the persistence and development of [embodied] consciousness. When deprived of the fulfillment of any need an individual is reduced in their life capacity. Hence, an unsatisfied need is a force of motivation, and by definition it requires some form of thoughtful and decisive action (Read: thought + decision + action). Human action is principally based on needs as a primary motivating fact[or] of behavior, and secondarily based on values. Values exist to orient individuals toward the fulfillment of their needs; they organize and orient toward [dynamic] states of fulfillment. Human need is the foundation from which humans have always operated; however, individual humans and society at large can forget that they have needs, and also, be conditioned to desire circumstances that inhibit need fulfillment.

What an organism (e.g., humans) needs in order to be happy and healthy was honed through its shared phylogenetic development, forming a basic set of inputs for all individual organisms of a species (e.g., for humans-people). Therein, individual's of a given species (e.g., individual plants) may vary to some degree in how much they can tolerate water deprivation, for instance, but this variance is constrained by the para-meter-ization of the need across the species.

Though perhaps not all individual humans, as members of a social species, suffer to precisely the same degree from access exclusion, there are likely few, if any, who fail to feel a loss of fulfillment or increase in suffering. It is not necessary that the need processes are completely invariant for universality to hold; people can develop different dis-positions [onto-genetically] concerning phylo-genetically constant needs.

The best and most simple definition of living (alive) is:

1. 'Living' (or, alive) is a natural object that intentionally moves [primarily] against gravity, against the path of least resistance. A living entity can move against that natural progression of nature.
   A. Living is significantly a self-generating and self-sustaining system. A bird is alive because it can resist gravity by will of its body. An airplane can only do so because it has fuel added to it, and pilot-computation system added to direct its actions. A bird seeks and obtains its own fuel and directs its own flight. Hence, life in this context could be, a "conscious embodied" object that moves against gravity and the path of least resistance under its own self-generated and self-sustaining activity.
   B. Living requires memory (Read: DNA, genetics) and access to it.
2. 'Life' is the collection of all living entities.

The common definition for life is, any atomic system capable of performing specific functions, such as:

1. Moving (physical exercise of will, self-directing) - The cell is the first living entity as that which moves by itself (against gravity); the cell is the first Earth-based entity that moves on its own. In a functional sense, a living entity can move against gravity.
2. Eating - taking in nutrition.
3. Metabolizing - turning nutrition into energy.
4. Breathing - gas exchange.
5. Growing - becoming bigger.
6. Reproducing - creating a copy of itself. For example, the cell can create a copy of itself. This definition is imprecise, because a woman after menopause is obviously still alive, but can no longer produce offspring.
7. Responding to external stimuli.

The simple systems definition of a life need is:

- A 'life need' is that without which life capacities (a.k.a., life abilities-opportunities, life fulfillment, life potential actualization) are always decreased.

A life need enables life in a way not possible without it—the necessity condition of value. Life needs are possible connections or completions of a relationship that without which life capacities are lost. The sufficient fulfillment of need will leave an organism better off,

more capable, in better condition, and more likely to survive and thrive. Life act toward completing required relationships at some internally, or environmentally signalled ("triggered"), frequency. If life needs are not fulfilled at some appropriate frequency and with some appropriate composition, then there will be some waning in the optimization of one's life experience. There is a probabilistic certainty that the fulfillment of some need in some requisite period of time with some environmental composition, sustains [optimal potential] functioning and life capacity. Life need is intuitive self-evident to life (although awareness can be disabled) and commonly testable.

The defining principle of all universal human life necessities and goods is:

1. That without which the life capacity of anyone is reduced,
2. by the degree of the good's necessity,
3. to the extent of its deprivation when,
4. the means are available to provide it.

This is also the exact line and measure of economic in/competence and social in/justice at the same time. Economic and moral rationality are not opposed as they long have been in the ruling disorder. They are re-integrated in life-coherent framework to apply across domains.

The universal goods that are provided or deprived are, in turn, goods which have:

1. Objective value (sometimes called, intrinsic value) so far as they are felt and conscious to human being (e.g., the air, water, etc., are felt as values in themselves).
2. Instrumental or ultimate value without which human life is reduced or destroyed by degrees.
3. Mark injustice or dis-economy to the degree of the systemic life loss without them.
4. Mark social justice and economic advance to the degree access and sustainability is enabled through time.

The defining principle of all universal human life need (i.e., necessities) is:

1. That without which the life capacity of anyone is reduced (or destroyed).
2. 2. By the degree of the input's necessity.
3. To the extent of its deprivation when the means are available to provide it.

Thus, every human need entails a set of principles that form what is commonly called the need axiom (or n-axiom). Every human need necessitates:

1. A universal service (i.e., a system, process, product, or good),
2. **which** is also a universal life necessity, and
3. **holds** across individuals and societal compositions,
4. **if and only if**, and to the extent that, deprivation of the need (N) always results in reduction of life capacity.

Accounting for life need is the threshold, and measure, between societal justice and societal injustice. Herein, the universal satisfiers (i.e., systems, services and objects) are provided or deprived, and thusly,

1. **Have "intrinsic" value** (*existence*) so far as they are felt and conscious to human being (e.g., the air, environment and fellow beings felt as values in themselves).
2. **Have "instrumental" or "ultimate" value** (*usage*) without which human life is reduced or destroyed by degrees. Instrumental life values are defined by the range of life-requirements that a given organism must satisfy if it is to survive, develop, and express its vital capacities. Human beings share with all other life-forms physical-organic requirements of survival, but there are more complex ("richer") cognitive, imaginative, and practical-creative capacities entailed by social and temporal requirements for which humans know of no real analogues in the rest of nature.
3. **Signal systematic injustice** (*suffering*) to the degree of their necessity, deprivation, and life loss without them.
4. **Signal social justice** (*fulfilling*) to the measure of the protection and enabling of their provision through time by society's process of generating and sustaining opportunities (benefits) for flourishing.

Herein, reduction in life capacities is quantifiable (measurable) by loss of life's functional (life-function) range. Although need satisfiers and choices may vary, a reduction of life capacities, without the presence of any satisfier whatsoever, is quantifiable by a loss of [life] function range.

Healthy living organisms have the innate ability to detect that which they need from their environment; possibly a desirable characteristic for survival. This innate ability can be interfered with, and possibly damaged (or at least, reduced in capability), by an aberrant environment during upbringing, and also in the reinforcing structure of a society itself. For example, humans, through aberrant conditions and conditioning, can come to participate with objects, and in actions, that degrade their own, and others, immediate and long-term fulfillment.

NOTE: *Life needs form part of the common life-grounded interest of humanity.*

From a systems perspective, life needs may be defined similarly as,

1. Needs, whose completion (at some frequency and composition) conveys a potential for life capacity (capability) and condition (quality of).
2. Needs involving physical life-processes with quality attributes related to [the experience of] life existence.
3. A need describes a category of bio-physical [life-] process; it is those bio-physical processes that sustain, evolve, or devolve the [potential expression and experience of] a living organisms.
4. A need describes a type of relationship, between a living system and its environment, wherein the relationship is required for the living system's continuation or evolution.

From the perspective of a living system,

1. Needs are impulses that initiate and guide particular actions (behaviors) toward particular states of the internal and external word to convey the development or optimal expression of capability in the world.
2. Needs as universally required conditions and inputs for optimal and adaptive [conscious-organismal] functioning.

From an entropic perspective,

1. Needs are states of dependency (in respect to not being harmed or artificially limited), which involve the having and using of resources, and the experience of environmental conditions.
2. Needs are the experience of an internal pressure [for the input of some physical or non-physical element].

Life has two interrelated, but primary categories of capacity. A life need is a need where the absence of the environmental input will reduce the potential [capabilities] of life to:

1. **Survive (life capacity to exist)** - The emergent presence of living.
2. **Flourish (life capacity to thrive)** - The emergent expansion of capabilities past those associated with survival.

6.1 Life

> **QUESTION:** *What is universally necessary (i.e., required) for bio-spheric life, and human life therein?*

The nature of life is that of a consciously embodied existence in some physicalized system. Therein, life is universally understood to require a source of energy and a mechanism with which to harness it.

Conscious self-questioning about life involves, at least:

1. What does it mean to live (feel)?
2. What does it mean to live well (feel well)?
3. What does it mean to produce materializations that meet the requirements for living well? (i.e., What does it mean for a society to produce materializations that fulfill human and ecological requirements for living well?)

What people need in order to be well in society?

1. What do they need to have?
2. What do they need to do?
3. What do they need to feel?

When the word 'life' is used, it implies that there is another state that isn't 'life', which entails a second set of socially conscious self-questioning:

1. Are "we" (individuated units of consciousness) having the experience of 'life'? If we are having the experience of 'life', then:
2. Can* the experience of 'life' be *better* [for anyone]?
3. Can the experience of 'life' be *worse* [for any individual consciousness]?
4. Can the experience of 'life' be *optimized* [for ourself and/or everyone else]?

> **Can" means "Is it possible".*

Physics is, in part, a set of rules that happen everywhere in this reality. Life does not happen everywhere; it is not a physical constants that happens everywhere. Thus, if life is not defined as an objective value orientation (morality), then it is unlikely that it will be "positively" oriented toward. The existence of need means that there is a moral dimension to human [social] life. If unmet needs mean severe harm and/or an exclusion from social life, then they imply a strong moral decisional orientation to relieve that suffering and meet the needs that enable growth and participation.

> **NOTE:** *Given what is known, every living physical embodiment is going to physically die (and de-attach) the embodiment.*

6.1.1 What is life?

Often, in natural language [to consciousness], the term 'life' alludes to a process, not to any specific entity or composition. Itself, the term 'life' is a linguistic noun (in syntactical grammar, or linguistic logic, which is used for the purposes of formulating syntactically correct[ly meaning] sentences). 'Well-being' is an informational construct, and 'happiness' is an operational state (or,

'feeling'), measured most precisely in the moment as 'life' satisfaction [of naturally conscious living objects]. In its proper context, the term 'life' alludes to an abstract concept as well as a syntactical noun. The Scientific category 'living' exists for figurative (conceptual) 'life' entities. In an abstract, conceptual sense, an entity has 'life', for the sake of scientific precision, an entity is 'living' or 'alive'. The term 'life' is an abstract concept only used in ordinary speech. Biology studies first and foremost, entities; specifically, entities categorized as living. In their proper context, the terms living/alive are dynamic concepts. They allude to a process, an activity, etc. Of course, all entities, whether living or non-living undergo various dynamic processes because they are perpetually moving (in some sort of mass/atom gravitational system).

Living is datum-absolutely intentional motion; a corollary to thinking, sensing, experiencing, behaving, acting, etc. Intentional motion in any environment is sub-characterizable by (i.e., has three needs, that of integration, matter, and information):

1. Motion and reflection (integration of 'now') - The two properties of integration here are that of motion and that of reflection, which go together and cannot precede or follow one another.
   A. Matter (motion of 'matter') - In a material sense, a potential scientific definition of a living object could be: that which moves on its own against gravity (as well as, that which moves on its own, is self-directed, and that which can create a copy of itself).
   B. Information (reflection or experience, motion of 'meaning') - In an informational sense, a potential scientific definition of a living object could be That which can experience itself as a whole sharply distinct from all other objects. That which can both act and be acted upon could be a secondary definition. This last definition leads to the idea and/or feeling that autonomy of thought and action, and non-coercion of choice, becomes optimal and is naturally desirable.

Machines are not living because they are not natural entities. They are artificial in that they are created by a living entity, and for a purpose. Machine purpose and human purpose is not the same thing but it's hyper-related. The machine purpose is based on the human purpose of surviving and to maintaining its species. Understanding that meaning and purpose of the machine essentially is perceiving our own meaning and purpose.

The characteristics of life include, but are not limited to:

1. Life has requirements of its environment.
2. Life grows and dies.
3. Life feeds back information to itself.

What is a sufficiently high-level, material definition for 'life' so to be transparent to all unknown compositions, characteristics and behaviors of any living [material] entity, whether on Earth or anywhere in the Universe?

1. Living entities undergo their own dynamics irrespective of the perpetual influence of gravitational pull from all the other entities in the Universe. Inert entities cannot accomplish such a feat. Inert entities are pulled by other entities without offering any self-directional resistance to them. Living entities necessarily resist the gravitational attraction from all other entities in the Universe.
   A. A living entity moves on its own against gravity.
   B. Before a living entity can breathe, eat or reproduce, it must move against gravity to do so.
   C. Before a living entity can be analyzed to prove it's made of cells, DNA, organic matter (CHNO) or whatever, it must move against gravity, otherwise nobody would study it as a living entity.
   D. Even for a cell, before it can nourish itself or reproduce, it must move against gravity.
   E. It is impossible for any natural entity to be alive unless it is resisting gravity.

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Newtons first law not being able to be violated (there is consciousness, intention to). All living entities violate Newton's Law; because, they move against the pull of gravity. Living is a term that refers to a natural object moving by itself against the gravitational pull from all the other objects. Resistance to gravity is the only dynamic criterion that unambiguously elucidates the observable materializing context of the term 'living'.

Life may or may not be the only self-sustaining process possible; there are biospheric processes, all of which inherently include life, including atmospheric phenomena, self-sustained within the atmosphere. Some of which are more influenced by the sun, such as twirling storms (e.g., hurricanes, tornadoes, typhoons, etc.). Given what is known, 'life' involves a chemical process that self-replicates. Before an entity can even begin to perform this activity (a), it must move against gravity (internally and/or externally). Cells can self-replicate. A robotic machine with sensors is not a natural entity, and thus, is not alive.

Something that is alive, must, move against gravity. The fundamental unit of a living entity is the cell. Cells are the smallest natural entities that can move on their own against gravity. Hence, they are the building blocks of all living entities. DNA is not the smallest life form, nor is it the building block of life. DNA, amino acids are inert molecules. There is also the decision space view of life, where all life has a decision space, prior to thought or action where processing can occur, or not, and decisions are resolved. That life decision space is highly determined by the organism being animated by consciousness. Where creators can consciously become their own creators, there is the likelihood of reflective decision, and the potential for true exploration.

A basic list of characteristics for living things, could be:

1. Bodily motion.
2. Breathing.
3. Organization.
4. Protoplasm.
5. Assimilation.
6. Irritability.
7. Reproduction.
8. Growth.
9. Adaptation.
10. Metabolism.
11. Excretion.
12. Conscious Motion.
13. Affection.
14. Contribution.
15. Empowering.
16. Suffering.
17. Pleasuring.
18. etc.

A sufficiently complete material definition of 'life' may be (i.e., A sufficiently complete definition of life may be what?):

1. Given what is materially observable, before a living entity (whatever it may look like) eats, reproduces, or dies, before it can be comprised of cells, DNA, etc., before it can have any unknown material characteristics, A living entity must be able to move on its own against gravity. The only unambiguous and consistent characteristic that all living entities have in common is that they can move on their own against gravity.
2. A sufficiently complete conceptual definition of 'life': Given what is conceptually understandable, before a living entity embodies an object in physical-matter reality and starts to compute (this reality), before it starts to think for itself and take action to meet its own knowable requirements, before it can have any unknown conceptual characteristics, A living entity must have conscious self-separation of information and materialization [via a sensation interface].

6.1.2 Earth life-forms

On earth there are fundamentally three categories of life forms that operate against the flow of gravity:

1. Single-celled life forms - the cells operate independently of each other.
2. Multi-celled life forms - specialized cells co-join to form an animal.
3. Viruses - rely on implanting themselves into other cells to reproduce (special case of life gravito-transport).

6.1.3 The fundamental structure of life need

Each need by a living system can be sub-classified as follows:

1. **Need** type (*is* description, abstraction).
   - Environmental resource **satisfier** (*has* physical composition, and possibly, frequency, is 'necessities').
2. **Action** (*is* physical process *over* duration, frequency).
3. Internal **drive** (*is* feeling).
4. A **gap** between current constructions and demanded need constructions (is problem).
5. System responding **construction** (is capacity, capability, or condition).
6. System resulting **state** (is computed).

Or,

- Need | resource satisfier > act of satisfying the need > until need is satiated > as need is satisfied,

system responds to new information > satisfaction feedback > satisfaction periodicity.

For example, the human organism has a need for 'nutrition', wherein 'food' may be required several times a day as the environmental resource, and 'eating' as the act of fulfilling the need for nutrition. Therein, 'hunger' is the label given to the organismal feeling that drives 'food-seeking', and 'eating' action (behavior). The optimal or sub-optimal, and very continues existence, of 'the body' is the construction.

A visual sub-classification of nutrition is,

- Need (nutrition) | resource satisfier (food) > act of satisfying the need (eating) > until there is no hunger .

In other words,

1. Need type: Nutrition.
2. Environmental resource satisfier: Food.
3. Action: Eating.
4. Internal drive: feeling of hunger *(complex of inputs).*

6.1.4 Biological needs inventory

A biological needs inventory is an list/database of the needs of a [biological] organism. Biology is a branch of science. What is science? 'Science' is the study of 'reality' using/applying [by consciousness] the scientific method (a process) to spatialized objects in [this dimension of] reality. In other words, science is the study of reality (i.e. existence) for the purposes of accumulating a collection of rational explanations (i.e. theories) for natural [reality-dimensional] phenomena using the Scientific Method. What is Biology? Biology is a specific branch of 'physics' (the knowledge structure of science) that exclusively studies objects categorized as 'living' (alive, etc.). Biology is the study of living objects.

6.1.5 Life-needs are life-requirements, to an engineer

There is a unifying complete set of universal life needs (services, objects, goods, necessities, etc.) without which human beings variously (are likely to) suffer life capacity loss (towards inertia), disease and possibly death. In the unifying life-value framework of life needs, each is a universal life requirement, because no individual across societal compositions can be deprived of it without losing life capacity. And of course, each is a distinct from each other because none can be provided for by any or all of the rest.

When needs are understood in universal terms, applied across time and place, then humanity can plan for and measure progress toward social and environmental goals, both globally and into the future.

The universality of need rests [in part] upon the 'if, then' decision structure:

1. If [human] needs are not satisfied, then
2. serious harm of some objective kind will result, and
3. sub-optimal expression is probable [by degree].

Notice the bracketed words in the structure above, "[human]" and "[by degree]", because this is where a society may be classified by how it expresses its "humanity" (i.e., how much a complete and sufficient human are they, by degree of need fulfillment)? In other words, the question, Is there humanity it that specific societal system? And, the question Is answered by inquiring into (studying) the universal fulfillment of individual human organisms therein.

This [primary] harm implies [unified (mental, emotional, moral, social, physical) societal system] obstacles to successful **social participation** and **adaptation**. All individual action is predicated on prior social interaction; hence, it follows that participation in some form of social life without serious systematic limitations is our most basic human interest. Basic needs are then the universal preconditions for effective participation in any complex form of social life.

To break down this complex meaning, this harm implies societal obstacles to successful social participation, individual expression and development. There are 5 primary ways (categorical information sets) of consciousness experiencing the physical world:

1. Mental (self-cognition).
2. Emotional (self-ignition).
3. Social (whole-relationship).
4. Moral (whole-relationship development).
5. Physical (the existing), which maintains inertia in the mental, thus generating a time, as the iteration of the constant now from a source (to consciousness) point of reference.

Simply, five ways consciousness experiences its unified societal system in a materialized and embodied form are: mental; emotional; moral; social; and physical; which, all become the unified, integrating experience of a conscious physical reality.

Often, this is best explained thusly, "Whenever there is a physical malady, for example, there is also a social disturbance (i.e., a social malady)". Almost invariably, whenever there is a social malady there is a physical (embodied, structural, etc.) disturbance; as well as a social and morally experienced disturbance also. They are a unified experience that generates greater and lesser states of fulfillment and/or suffering. Humankind is a social organism, innately. It is wired into our "nature" (used loosely here). There are [at least] mirror neurons for patterning, and otherwise entraining to that which may facilitate one's own development and help in bettering those who an extension of themselves.

Hence, it is significant to remember that if there is an emotional malady, then there is a social disturbance. The

drama that feeds back against the repetition of mental narration disturbances, probably, throughout one's life experience.

The fabric of a embodied-human life [experience of] existence is a mental, emotional, moral, social, physical matrix, and when there is a "rip" in the fabric there is a statistical spread of disturbances, as signs of a problem in the total matrix of the social organisms' individual lives and social relatedness. In a more technical sense, when there is attachment to the materializing iteration, an inertia can build instability in the unified system generate emergent states of suffering (or fulfillment, i.e., "what may come next for humanity, more suffering by degree, or potentially greater levels of dimensional fulfillment)). A constant conscious inertia through attachment to materialized "conscious" objects (i.e., attachment to possessions at any level of unified experience) possibly, though this is speculation, maintains a conscious dimensional experience? Possibly, these 'constant dimensional patterns of embodied experience' or 'constants' are represented (per dimension) with the logical notation of a physics iteration (or pattern), time (t), and its change delta t or Δt)? These questions deserves further scientific inquiry and the knowledge therein is missing from the model.

> **NOTE:** *Community is the conditions (the 'matrix' of Society sub-composed by its information systems: social, decision, lifestyle, and material; with the materialized habitat service system (ecology (native), decision, life support, technology support, facility support); and conscious embodied domains of experience (mental, emotional, moral, social, physical); and the human needs, goals, and other directives, which together, as a unified information set inform a projected design plan, to generate a the next optimal iteration of the society, a place where people can better thrive, can be [f]actually observed and studied (or designed) to thrive (i.e., flourish, survive and thrive, etc).*

6.1.6 Life's environmental signalling

> **NOTE:** *Is early 21st century society mismatched with human needs (which is a natural system)?*

There are certain environmental signals (across millions of years of hominid evolution) that reliably signal either well-being and evolutionary success, or danger and failure. Recognition and cognition of these environmental signals allows for orienting the human species in the right (most accurate) time, space, and behavior. And, disrupting those signals reliably leads to dis-orientation, and the consequences therefrom. Humans have, to a large degree, become reliant on these signals to calibrate their embodied experience (e.g., training the immune system) optimally or correctly. In essence, there is a relationship between inner motivating states and environmental signals (as conditions).

Life has a need for environmental signals at some periodicity, which trigger beneficial responses.

> **NOTE:** *In a dynamic environment, the response of an adaptive system conveys the potential for a greater or lesser capability through time.*

6.1.7 Pleasure and pain drives [motivation toward need fulfillment]

> **QUESTION:** *What does the relationship signal.*

Pleasure [to consciousness] is the result of need fulfillment, and pain [to consciousness] is the result of need insufficiency. George John Romanes, a prominent biologist and follower of Darwin wrote (Galindo, 2018),

> *"Pleasures and Pains must have been evolved as the subjective accompaniment of process which are respectively beneficial or injurious to the organisms, and so evolved for the purpose or to the end that the organism should seek the one and shun the other]within reason and context]."*
> *-Romanes, 1984*

6.1.8 The conscious mental drives

The human body-mind has biological and sociological drives:

- There are biological and sociological drives for pleasure (met needs) and for the avoidance of pain.

6.1.9 The drive of fear

There are two primary categories of fear:

1. Fear of not being enough (felt insufficiency, social anxiety, shame) - not quick enough, not handsome enough, not good enough, not ... enough. This fear can have harmful consequences, but it can also have a growth potential because it keeps us growing. When you overcome this fear you grow for the sake of contribution and self-actualization/ evolution. This is a socio-logical fear.
2. The fear of harm to the physical body (fear of danger and of monsters). This is a bio-logical fear.

The human mind can feel fear. Fear can be overcome simply by changing the meaning a situation or thing has. Fear may be viewed as a triality force-based model:

1. *Force 1:* **Driving force** - Motive to select a direction. Composed of top 2 needs. The driving force is the target of life, and includes, but is not limited to certainty, variety, significance, connection/love, growth, and contribution.
2. *Force 2:* **Guiding force** - Motive to select an orientation. The guiding force is the orientation, composed of a model (value, belief, or other

system) that processes information for alignment with a direction. For example, a global value or belief system, and rules for information processing. Force 2 results in action on the part of needs.

3. *Force 3:* **Active choice** - Emotions selected, given that which is available. There are empowering and dis-empowering environments.

7 Human needs

A.k.a., Human satisfiers, inelastic demand, human life satisfiers, human requirements, human life requirements, human necessities, human life necessities, human standards, human life standards, human life qualities, human modalities of flourishing/wellness/ well-being, social-psychological theory of motivation, natures socio-economics, nature's economics, natural economics, natural law, human essentials, human life elements, human categories of potential life quality, life conditionals, human life gaps, human life cycles, life self-becoming gaps, human capabilities, human life capabilities, human needs of the system, biological inventory, basic human goals, fundamental human motivations, human vitals, etc.

Human needs are the proposed requirements of human flourishing. Human needs are the universal needs of all humans, universal to all human; all humans seek to meet their [common] needs. What is shared among individual humans is a desire for individual fulfillment therein. Human needs specify the necessary conditions for human growth, human integrity, and well-being. Fundamentally, when human needs are fulfilled, individuals experience improvements in well-being and life-satisfaction. Human needs must be understood as a system; that is, all human needs are interrelated and interactive. People have real needs while embodied in a real-world environment. In other words, to remain well embodied in a physical environment the conscious body has certain elements that must be interacted with and conditions that must be met to live well. Human needs are universal. All living humans have human needs (that can be met more or less optimally). All human needs are aspired to be fulfilled optimally.

> *"Human needs are a powerful source of explanation of human behavior and social interaction. All individuals have needs that they strive to satisfy, either by using the system[,] 'acting on the fringes[,]' or acting as a reformist or revolutionary. Given this condition, social systems must be responsive to individual needs, or be subject to instability ... "*
> *- Coate et al. (1998)*

Human needs are innate and universally common to all humans. In other words, all humans have at the very least a similar set of principal and common needs, which are objective and scientifically discoverable; they are verifiably experienced. Needs exist apart from knowledge of them - they are a priori. Human needs can be physical (or material), such as nutrition, energy, rest, and shelter, or they can be mental (psycho-social), such as the needs for growth, connection, and contribution. In general, needs do not change over time, but the way in which they are satisfied may change with advances in knowledge

and technology, or changes in the environment. Social science (a.k.a., human science) is an umbrella term for a number of disciplines involving human environments and human behavior, and in a fundamental way, it is about human needs (and structures that meet, or do not, those needs). Here, the experimental and applied sciences (a.k.a., hard sciences) can be used improve and optimize the structures that meet all human need. Hard science is applied to engineer the habitat; social science explains the purpose for its engineering, and then whether the engineered habitat result meets individual human expectations.

All of humanity shares a common human experience and a set of common human needs. Humans have objective and discoverable needs. Human needs are distinguishable from the specific culturally conditioned and temporary environmental desires of a particular human being. All of humankind shares a set of common needs, including but not limited to nutritious food, clean water, a healthy and aesthetic living environment, and accurate information to effectively plan a fulfilled life together on a shared planet. Fulfillment is a common pathway. If there is a common lowest denominator, then it is the fulfillment of human needs. And, the Community exists as a primal structure in the facilitation of human fulfillment.

Humans need a number of essentials to physically survive, psychologically thrive, and to maintain well-being in general. These needs are common to all human beings and include both material and social elements (or 'motivating factors') required for human growth, development, and healthy functioning, as well as all those things humans are innately inspired to become and driven to attain. The fulfillment of these needs leads to progressively higher states of potential well-being and flourishing. Herein, to flourish means to live within an optimal range of emergent human functioning, one that connotes well-being, generativity, growth, and resilience. Herein, growth and all forms of development are stinted when fewer [needed] nutrients are available.

Bio-physiological organisms require nutriments from their environment if they are to survive and to flourish. In particular, when the environment does not meet a developing human brain's need for optimal conditions (e.g., nutrition and sensory affection), then the brain does not develop optimally or even properly (qualified by later-in-life neuro-plasticity). When the environment is lacking, development and healthy functioning are by consequence also likely to be distorted or lacking. Human needs explain why only some efficacious behaviors [and values] actually enhance well-being, whereas others do not. Effectively, a hierarchy of prepotent needs structures values, in terms of their relationship to [objective] human fulfillment.

If there is a need, then there is a frequency [of need]. There is a "need frequency". For instance, humans need water every so frequently, they need air of a certain composition among a frequency of breaths, and they need shelter every so frequently. A community is a structural organization that facilitates the frequent fulfillment of needs.

Needs represent the reality of what is occurring to individuals in any given situation. The idea of "needs" is accurate in its description of what is really occurring with individual human beings and their required inputs from, and relationships with, the environment. Wherein, needs allow for the realization of complexity [in relationship and structure] in the real world. Needs are inclusive and their true fulfillment does not innately generate structural states of polarization between people, for they are commonly verifiable. Hence, evaluations of life and behavior based upon needs are "more true" in their accuracy at orienting toward greater states of human fulfillment.

Necessities involve relationships with objects that are indispensable for the full spectrum of human fulfillment. They include but are not limited to: shelter, food; water; habitation; energy; healthy relationships; learning systems and access to society's accumulated knowledge (as opposed to nonsense or error); the "pursuit of happiness" and self-esteem, self-development; the pursuit of a higher and meaningful purpose; leisure time; love and connection; the means to communicate, locomote, and cooperate; and so on.

Human beings have [eco-, socio-, psycho-logical] needs, which drive motivation throughout the life of their human existence. From needs arises the conscious experience of emotion[al drive]. When consciousness is aroused to move toward completion of some need, it will engage in exploratory behaviors directed toward re-configuring the environment to complete the need, and experience the pleasure of that opportunity. When the desire (arousal) is satisfied, the system is restored to something akin to an equilibrium.

Observations and critical integrations create the potential for momentum. This momentum allows an individual to "break free" from the gravity of thoughts and actions that do not serve needs and do not explain the observations. Individuals must first move (behave) if they are to attain their goals and to overcome the inertia of the universe or procrastination within a dogmatic [belief] system. Momentum represents movement toward change, and emotion is the instantiation of that momentum. All levels of action are goal-directed [by consciousness]. But, not all goals are created equal because some goals are more directly satisfying (or sustainably fulfilling) of needs, and some are less satisfying or even thwarting of need fulfillment, and thus, have different effects on total well-being. (Ryan, 1996)

Herein, the conception of emotion and feeling has two related definitions:

1. **Emotion** = "causing movement", from the Latin emot-, past participle stem of emovere ("move through" or "move out") + -ive, *emotive*, meaning "capable of emotion". Emotion as stimulus; energy plus motion (e + motion).

2. **Feeling** = the conscious experience of a signal of the complex of arousal in an interaction (i.e., in an experience).

   CLARIFICATION: "*Emotion" is an initial [felt] response to a specific stimuli; whereas, "feelings" are a complex of factors in response to a stimuli, and may potentially be consciously chosen/ controlled (are controllable based on optimized physiology and self-knowledge). "Mood" is the characterization of the way someone is feeling at the present.*

Behind feelings are needs and desires. Feelings and emotions are internal signals (or indicators) telling someone that one's needs are, or are not, being met. Figuratively speaking, there is a feeling of hunger or longing when needs are insufficiently fulfilled that propels someone to act. For instance, a living organism has a need (e.g., for bio-physical nutrition), which gives rise to a feeling (e.g., hunger), and its sensation by consciousness propels decisive action (e.g., food seeking behavior). This is how human beings function [in part] at a known and scientifically verifiable level. Based on a feeling, such as that of hunger, which arose out of a need for food, "you" move into a state of [food] seeking and acquiring behavior. It should be noted that these internal signals can become confused and perverted under aberrant and otherwise nocuous developmental conditions.

As well as physical needs humans have interpersonal, social needs -- humans are implicitly a social species. Human beings are social organisms, and they have not, and do not, function in complete isolation. Any given human individual exist within a continuum, a chain of social actions that are influenced from other social actions. There is no escaping the social element of the self. For a start, it takes two humans to make another human, and so, there is a requirement for at least two or three to begin with. Also, humanity's primate ancestors relied upon one another for their health and survival (e.g., grooming behavior of primates). (Dunbar, 1998) It is commonly known that humans developed as a species to hold approximately 150–250 unique human relationships (this is known as "Dunbar's number"), thought to be the size of most early human communities. (Hill et al., 2003) For millennia, the qualities and coordination of these interrelationships meant the survival of the individual as well as the entire tribe. Since the dawn of human history humans have lived in groups, and part of living in a group involves the evolved adoption (or adaptation) of interpersonal needs, such as trust, equality, respect, contribution, clarity and communication, and touch. And, these needs also give rise to feelings. This is, in part, the nature of human beings - humans have needs, they give rise to feelings, and then, individuals [have the potential to] act in a way that genuinely resonates with and fulfills their needs.

Human interpersonal needs are likely not as fundamental as persistence needs (a.k.a. primal, basic, and life support needs), such as shelter, water, and food. If someone does not get food and water s/he will die within a verifiably set amount of time. Without the fulfillment of interpersonal needs, an individual isn't going to die, but s/he is likely to feel less alive. When social needs go unmet individuals are likely going to feel lonely and depressed, possibly hurt and threatened; they are likely going to feel separate from themselves, for that is how they are living their lives - they are living separated from their social selves.

In a community-type society, it is understood that individuals can only get their needs met fully if the other people around and are also getting their needs met fully as well. If some individuals are getting their needs met and others around are not, then soon enough the others are going to become unhappy and start causing conflict. And, the whole time the individuals with met needs are going to feel conflicted, and the more that conflict is suppress, the more dis-at-ease everyone becomes. Herein, conflict presents an opportunity to take pause and to recognize [the insufficient fulfillment of] needs. When in a state of conflict one might begin to ask, "What are my needs and what are their needs in the generation and resolution of this conflict?"

When human needs are sufficiently fulfilled, humans experience greater comfort and well-being, and tend toward behaviors and interrelationships that maintain a state of "cooperative flow" and a space of active higher potential.

All human beings are continuously seeking to meet all of their needs. Although humans seek to satisfy all needs [sometimes simultaneously], some needs are clearly more immediately important than other needs—needs have a temporal and spatial nature to them. For example, humans need to eat at somewhat regular time intervals and the food has spatial-physical form. Needs, such as those of nutrition and connection must be sated (Read: satisfied fully) before other desires can be entirely fulfilled. The interaction, the ranking, and the progressive fulfillment of human needs largely determines how an individual lives and makes decisions towards its well-being and the well-being of others in a common environment. Needs are a factorial "determiner" of human behavior (i.e., they are a factor in the appearance of a specifically complex behavior). (Latham, 2005) Fundamentally, needs are a driving force in humans and there is no greater force in life to direct someone's "destiny" then the needs that are valued most and the environmental structure that facilitates or hinders their fulfillment.

Human needs are likely positioned within a "release" hierarchy. Humans have to have their base needs met to imagine (in an fulfillment-educated way) a better way to live. When people have fulfilled their basic needs, another higher level of need awakens in them, and they try and fulfill that higher aspiring need. Simplistically speaking, people may fulfill the first need of hunger, the next as comfort and warmth, until they get to a level where they have all these base needs fulfilled, and then,

higher aspirations start filtering into their awareness and motivations. As these higher aspiring needs are me, they may begin to acclimatize themselves to the whole set of available higher aspirations.

Human needs vary with respect to their *urgency*, *intensity*, and *priority*. This is known as the 'prepotency' of a need(s). Hence, the motives for learning behaviour are built into the biological constitution of the human organism as a 'hierarchy of needs', which can be described in terms of varying degrees of prepotency. One need is more prepotent than another if it is more urgent and inhibits other needs. The order of their succession is dictated by the fact that some motives are simply more physio-biologically urgent than others. For example, when physically threatened, or when survival is at stake, many people are likely to become more aggressive as a natural reflex to protect the needs of their physical form and to maintain the acquisition of nutriments. Hence, human motives are structured, and their arrangement within the structure is defined by their respective levels of urgency, intensity, and priority.

The fulfillment of needs is healthy, while preventing the fulfillment of needs or threatening their unfulfillment leads to dis-ease, illness, and behaviors that cause harm and suffering in oneself and others. Hence, the sufficient fulfillment of human needs represents the most rational[ly reasoned] self-interest of every human being. Sufficient fulfillment involves the recognition of the strategic requirements of one's life, one's happiness and well-being, and one's whole environment, and hence, acting in integral accordance with values, principles and understandings formed on the basis of such cognition. Herein, rational self-interest is not selfishness [as a fetish, hedonism]; it is a factual life-serving necessity that may become perverted under sufficiently adverse conditions for growth and development.

When conditions exist or events take place that limit someone's ability to meet their needs and to affect their bodily or psychological structure, then the experience of 'trauma' may be said to exist. As a result, in order to cope, individuals may engage defense mechanisms to block out awareness of their needs, or alternatively, they might desperately attempt to sate those unmet needs in a misguided (or hurtful) fashion. This cycle involving unmet needs, trauma and the engagement defense mechanisms is a central one that lies behind many of the most destructive aspects of all cultures.

The failure to fulfill some needs in the temporal short-term may result in death (e.g., "terminal dehydration"). Yet, chronic unfulfillment (e.g., long-term shaming & shunning) is likely to generate a persistent and correspondingly pathological state of insufficient fulfillment, of trauma. Therein, a state of neurotic psychosis (as defense) is [at least] a dis-ease of "arrested fulfillment", and possibly, of persistent deficiency (or insufficiency) in developmental fulfillment. And, it is a state that is widespread among people in early 21st century society, for early 21st century society [to a great extent] does not recognize or account for human needs, and the systems that it creates are not designed to effectively fulfill human needs.

The definition of needs herein may be considered in *organismal* and *functional* terms. The term, 'human needs', assumes the potential for a fundamental human trajectory toward vitality, integration, and health (i.e., that humans are not broken by design), and further assumes that this organismal tendency will be actualized so long as the necessary and appropriate nutriments are attainable, but will give way to the emergence of non-optimal physiological and psychological outcomes, and social arrangements, under conditions of threat or deprivation. In other words, human needs specify the necessary conditions for growth, health, and well-being, and their fulfillment is hypothesized to be associated with the most effective functioning (and potential capacity) of the human organism and the flourishing of a human community. A further claim is that each need plays a necessary part in the optimal functional development of an individual such that no one need can be thwarted or neglected without significant "negative consequences", which reduce the manifested functioning of the organism.

Human needs include not only the obvious physiological needs for survival of the organism and the species, but also the basic psychological needs of a social organism, as well as those higher psychological needs that function to fulfill the full development of consciousness' experience as the organism. In the case of humans, this is sometimes known as "full humanisation".

Human needs are rooted in the instinct for self-preservation and are functional in human motivation evolved for learning and adaptive behavior. This general idea may be stated in two other ways: First, human needs are the intrinsic motivators for adaptive behavior and learning behavior; and second, as intrinsic motives toward adaptive behaviors human needs are the source of motivation for learning (i.e. 'intrinsic motivation').

Intrinsic motivation, unlike extrinsic motivation [as outside reward or punishment] engages personality growth and development; it does not inherently destabilize the personality of an organism [as occurs with extrinsic motivation]. There exist different stages of human growth and personality development wherein an individual's behaviour is dominated by the need that is motivational at the particular socio-cognitive stage that they have reached. These motivations (or "deep meanings") provide the individual with a sense of direction as well as the motive energy and psychological will needed to expend energy and carry out particular life tasks toward the fulfillment of their need(s).

Practically, if there are rules to the human condition, then needs are those regularities in the nature of humanity that when discovered and fulfilled manifest meaningful and empowering states of flow (or "abundant living").

Finally, the conceptualization of human needs may be approached from a larger perspective, that of 'systems thinking'. Systems have needs that require input to

maintain their operation and fulfill the larger purpose of the system. So, if the human organism was perceived as a system, then humans would have certain needs (or 'system objectives') that when fulfilled may reveal a larger and more meaningful view of humankind within a larger reality.

> **NOTE:** *Without identification of one's own feelings and needs it is hard to identify the feelings and needs of others [in common]. In community, the self and other go together.*

Many aspects of behaviour, such as foraging, communication and mate choice, involve information processing, and many of the subdisciplines of behavioural science have considered mechanisms of information processing. For example, one can think of most of the basic processes of psychology (e.g. learning, perception, memory) as mechanisms of information processing. (Mclinn, 2006:1119) Information processing is used in order resolve a requirement (Read: need), and it wanes when the requirement has been fulfilled.

> **INSIGHT:** *When our basic needs are fulfilled, then we have a reservoir from which to further fulfill ourselves, to give back, and to fulfill others [in the community].*

One of the problems with the concept of 'needs 'is that the word itself is used in a variety of different idiomatic usages, both as a verb and as a noun.

Three distinct generic meanings of the noun 'need':

1. **Need as an underlying internal force** that drive or guide our actions. For example, acquiring clothes and a dwelling to protect oneself from the biospheric elements. Failure to satisfy such a need has a detrimental effect on the overall felt state of the individual.
2. **Need as a configuration of environmental resources** upon which the individual interfaces and throughputs at some identifiable cycle. For example, the configuration resources that form clothes during the day and a dwelling every evening.

> **CLARIFICATION:** *A 'need' is an information and/or material gap that occurs cyclically in the conscious life experience of all individual humans, which is temporarily resolved through information and/or materialization satisfiers.*

Simplistically, human conscious embodiment carries with it (i.e., has) needs:

1. **Being in need** - being a conscious physicalized organism (i.e., being in a physical body, at a specific location, understandable by consciousness as spatialized information).
2. **Doing what is needed** - discovering, planning, engineering, and contributing to what is required.
3. **Fulfillment of need** - survival and thriving in an environment where all individuals of the same species have common needs.
4. **Having what is needed** - access, as temporally/cyclically required, to material and informational satisfiers.

It is possible to define several quasi-subcategories of need, including (note: these are not technically needs, but are categories of life that relate to need):

1. **Felt need** - occurs when an individual senses something is missing.
2. **Expressed need** - occurs when the individual is not only aware of the gap, but can verbalize through to visualize it.
3. **Self-determined needs** - are those subjectively identified by an individual.
4. **Assessed needs** - are those objectively identified by a population of individuals.
5. **Normative needs** - refers to an actualized system's capabilities, functions, and qualities in relation to (comparison) a recognized standard (e.g., the Community Specification Standard).
6. **Comparative needs** - refers to an individuals actual capabilities and values in relation (comparison) to that of another individual or group.
7. **Process needs** - refers to some action, activity, or process, and/or constraints on the action.
8. **Tool needs** - refers to what a tool or instrument must do, and/or the condition it needs to create.
9. **Resource needs** - refers to some material surface amount (quantity).

Human needs apply to all humans on the planet. This is a powerful attribute because it enables a degree of comparability and repeatability and avoids some of the problems of relativism, although the ways in which needs are met are context specific. Human needs are also sometimes known as universal lists of well-being criteria, representing a set of basic constitutional principles that should be used to facilitate mutual, global benefit.

> **NOTE:** *The idea of a sustainable form of societal development (i.e., 'sustainable human development') is generally intended to mean that there are a set of requirements for meeting all human need and extending to all the opportunity to fulfill their aspirations of a fulfilling life.*

Human needs provide life's essentials without which the person would incur serious harm of an objective kind. As such, human needs provide a critical minimum threshold of human well-being/welfare for global access decisioning.

Identifying specific characteristics of each need could enable their measurement. Whereas needs are considered universal, the ways in which they are satisfied (i.e., whether people are above or below a level at which the need is met[threshold of harm]) may vary indifferent contexts. For each need therefore, a list of need indicators may be derived by asking humans to describe conditions under which another human is doing well or badly for each need. This was equivalent to a human-needs threshold [of harm], above which a need is met and below which a need is unmet.

> **NOTE:** *One of the key characteristics of something that is alive (and existing) is that it can die. One of the key characteristics of something that is alive and feeling is that it can suffer and flourish (i.e., experience a spectrum of feelings from those that feel "well" to those that feel "unwell").*

Human needs are the physical and non-physical *elements* necessary for human subsistence, growth and development, as well as those things humans are innately driven to attain, which together sustain well-being. Humans, because they are physically embodied in the genetics of a social organism require inputs, including physically objective conditions (e.g., food) as well as socially objective conditions (e.g., touch by another human). More simply, individual humans require objects, and specific configurations and motions of objects, to live and to live well.

Human needs are few, finite, and classifiable. In other words, human needs are knowable, experienced, and finite in count. Human needs (such as those contained in the system proposed) are the same in all cultures and in all historical periods. What changes, both over time and through cultures, is the way or the means by which needs are satisfied human needs are the same in all cultures through all historical periods. In the context of human need, for any given society, the one element that changes is the way the needs are satisfied. The dwellings have transformed from caves to high rise buildings.

There are different methods and strategies for meeting needs. For example, violence and coordination are two different strategies for meeting needs. Violence is an unfortunate strategy to meet needs as it involves the experience of conflict. Conflict can arise from competing strategies (i.e., value diversity, and not value unity) to meet needs.

'Fulfillment' and 'need' are concepts for living together; they are information with useful association to all humans, because all humans have exist with commonality in a common environment.

As a verb (process, action), fulfillment and need represent:

1. 'Fulfillment' represents the process to complete a need (to serve).
2. 'Need' represents a process requiring input, which in a cycling ("living") system generates a drive (to motivation).

As a noun (conditional of the state of the world), fulfillment and need represent:

1. 'Fulfillment' represents [the state of the conditional world where there exists the] completion of a need (to be complete or resolved). The term fulfillment refers to the completion of an appropriate systems input.
2. 'Need' represents a cycling system with a boundary condition and system requirement for accepting input. The term fulfillment refers to the existence of a system with requirements in a given environment.

> **INSIGHT:** *It is possible to list [for the current temporal context] every conceivable satisfier related to a need (e.g., shelter>dwelling), given what is known and available.*

The common, universal characteristics of need satisfiers (indicators of need satisfaction, success, performance, progress, pleasure and self-development and growth) include:

1. Adequate **nutritional food and water** (Read: the vitals).
   A. The human organism is "wired" to eat.
2. Adequate **protective housing** for dwelling and work (life-work cities).
   A. Sleep is a universal need of all human beings, and when sleep is abundant minds flourish, and when it is not, they don't.
   B. Activity (work) is a universal need of all human beings. When healthy work conditions and spaces are available, healthy work results are likely to flourish.

1. **Non-hazardous environment**.
   A. An appropriately safe life-work environment is possible for everyone when global coordination occurs.
2. Appropriate **medical care**.
   A. The human body is physical and can vary in healthy functioning.
3. **Connection** in childhood and belonging throughout life.
   A. The human organism is wired to socially connect with others.
4. Global **economic access** to all that humanity has to offer.
   A. The human organism is wired to see socially unequal access to all that humanity and the biosphere have to regeneratively offer as immoral.

5. Mentorship into understandable complexity (**education**).
   A. The human organism is wired to learn and grow, as well as facilitate the learning and growth of others.
6. **Contribution** to society.
   A. The human organism is wired to do work to meet their own and others needs.
7. **Leisure** from society.
   A. The human organism is wired to experience the flow cycle, which necessitates relaxation and flow.

Assumptions in relation to global human access-coordinated fulfillment, include:

1. Humans are wired to be nice to others when their needs are met (friendship).
2. Humans are wired to meet their own and others needs.
3. Humans have categorically known (predictable) requirements. Human needs (human requirements) are not categorically unpredictable.
4. Humans can coordinate the transfer of biospheric resources into optimal human habitation, and back into biospheric resources sustainably. The biosphere is the source of all life on the planet. The sun is the source of all planetary life.

7.1 The simple view of human need

STATEMENT: *Humans have need of a coordinated societal and habitat service system if they are to survive and thrive together in a unified biosphere.*

Human need can be sub-conceptualized through life-persistence concepts:

1. Life.
   A. Life has 'needs' to persist in a material reality.
2. Cycles.
   A. 'Needs' are experienced as cycles to life.
3. Gaps.
   A. In an uncertain environment, life-cycles may have gaps in their completion (Read: the lifecycle gap).
4. Requirements.
   A. Life (consciousness) has requirements for completing gaps in its life cycle if it is to persist and express its potentials.
5. Satisfiers.
   A. Materials (for the physical embodiment) and information (for consciousness) are the two types of satisfiers that complete gaps in a life-cycle.
6. Capabilities.
   A. To meet requirements and complete gaps in a life-cycle, an entity (human) must have some ability (Read: capability) to influence its environment (Read: control, mastery). Note here that capabilities can be expressed at different levels of potential. The highest level of capability known is 'flow'.

7.2 Societal organization and human need

INSIGHT: *The simple insight is that once individual happiness is no longer based upon possessions (but instead, 'human need') everyone gets along better. Most things someone could reasonably want are available, and thus, there is no need for (i.e., no encoding of) laws of violence and coercion to protect property. Community does not encode or structurally materialize the idea of 'property' (defensible personal ownership of materiality).*

Needs represent an axiomatic relationship, a principal organizing structure for human [societal] life together. The optimal condition for a social population would be for individuals of the population to meet their own needs, while facilitating, and not deterring, the fulfillment of others' needs.

Growth like any ongoing function requires adequate input from the environment to meet the needs of the growing individual. Colloquially, needs have been called "experiential vitamins" with the attendant benefits and decrements that nutritive processes generate (i.e., thriving when nutriment present, withering when absent or in excess). In both the conditions of surviving and thriving, there is possible obscurity inasmuch as 'need' is sometimes applied to the objective [shaped-environmental relationships] and sometimes to the implied requisite [feelings], though both can be accounted for.

For example, some needs are psychological "nutriments" that are universally required types of experiences that afford optimal functioning. Under this view, everybody needs to have these "nutriments", but, like each plant in a plot of farmland, the extent to which each person (or plant) is receiving adequate amounts of the required nutriments can vary from person to person, and so, individual customization and satisfaction may vary. Maslow (1954) likened psychological needs to vitamins, and so his famous hierarchy outlines a view of a healthy psychosocial experiential "diet".

The content of needs derive, in part, from the requirements of being:

1. A competent member of one's [physical-organismal] society.
2. Of avoiding fundamental, physical harm [to

functional capability].

Whereupon, the societal structuring of need becomes sub-divided at a high-level into the self-individual scale, ant that of the larger socio-technical scale, of need[ed] recognition:

1. **Commonly individual-human needs (common human requirements)** as the set of needs common to all individual humans.
   A. **Common socio-technical human needs (common socio-technical requirements because a common habitat)** as the engineered Habitat Service System has a set of needs, which are common to all city systems and fulfilled through operational processes, and relate back to their source at individual human needs.

Human needs may be viewed as tendencies to seek out certain basic types of experience, to a somewhat varying extent across individuals, and to feel good and thrive when those basic experiences are obtained, to the same extent across individuals. Most research to date supports the notion that the needs for autonomy, competence, and relatedness are experiential requirements. A lonely person should seek company, an incompetent person should seek greater mastery, and a person who feels controlled should seek greater autonomy. This definition encompasses both ontogenetic imperatives to obtain certain incentives or experiential rewards and phylogenetic tendencies to benefit when those experiential rewards are obtained.

People become dispositionally oriented to pursue certain types of goals and incentives more than others, via early learning and reinforcement.

Some types of goals, even when achieved, may not lead to positive outcomes, whereas other types of goals do produce thriving and growth. Therein, rewards and punishments "sensitize" people to different types of experiences, such that they develop characteristic motive dispositions, which affect the front-end perception of situations and the affordances they may contain.

The pursuit and attainment of culturally congruent aspirations and life values should be associated with well-being only to the degree they provide greater satisfaction of the human needs. Therefore, a distinction is made between intrinsic aspirations (i.e., goals such as affiliation or personal growth) and extrinsic aspirations (i.e., goals such as attaining wealth or fame).

> **APHORISM:** *If you want to change peoples minds, you have to address their needs and wants.*

In the narrow, short-term sense of the term, "needs" are uncontrolled necessities or compulsions; these are conditions, objects, activities, or services. People need air to breath, water to drink, balanced food to eat, and time to sleep. However, the need for balanced food doesn't imply that the food should be tasty. People don't need tasty food for their bare existence; they want to eat tasty food. People need to sleep somewhere from time to time. Yet, they do not need to sleep on a bed under a roof in a closed room; they want it. Still, for many people, eating tasty food and sleeping on a bed under a roof in a closed room are considered as real needs.

> **INSIGHT:** *Humans need sensation. The quality of the sensation affects the quality of the experience. There are fulfilling experiences where the need is met and the quality is high, and there are less than fulfilling experiences, where either the need is not met or the quality is not high.*

What, above all else, do humans strive to avoid losing connection with, and in what order? What categories of experience will they fight most to protect? Now, design a society that doesn't signal that desire to protect by fulfilling what the organism requires to develop, and be, a full expression of themselves (to be fully capable in the world).

> **INSIGHT:** *It is, in part, the sufficient fulfillment of needs (B-values) that lead to peak experiences for individuals.*

All individuals everywhere in the world, at all times present and future, have certain common needs. All humans, everywhere in the universe, at all times present and future, have certain basic needs. These needs must be met in order for people to:

1. Develop fully.
2. Avoid harm.
3. Participate in society.
4. Adapt to (reflect critically upon) the conditions in which they find themselves.

> **IMPORTANT:** *When the basic needs are met, there is more time for play and development. When children's and adult's basic needs are met, then they have plenty of time to play and explore.*

Here, needs are universal terms, applied across time and place, and hence, a population can plan for and measure progress towards social and environmental goals, both globally and into the future.

When needs are understood in these universal terms, applied across time and place, humanity can plan for and measure progress toward [social and environmental] goals, globally.

Human needs are physical and non-physical elements that individuals are innately driven to attain and which are needed for human growth and development. Human needs are the basis for generating a set of indicators for both quality of life (QOL) and subjective well-being (SWB). Human needs are the generic requirements of human beings in order to be healthy and experience fulfillment.

> **INSIGHT:** *The organismal experience, can be understood through conception and measurement. For the individual, sensation is truth, but when individuals come together as society with technology, they use instrumentation and networks to collect and share measurements. Measurement science, collection and sharing can be used to facilitate an individuals sensation of a shared measurement as accurate ("truth").*

The human organism has a set of needs (human requirements) common to its organism. This type of need is generally called: common needs, human needs, human requirements, and human goods. Human needs (requirements) are the necessary conditions for healthy human development and functioning. Human needs are a distinct category of demand, because they have no obsolescence, and are by their nature, necessary and continuous (because they necessary for survival and thriving together as humankind). The fulfillment of human need maintains the conscious, living, physical and social existence of a human organism. Humans have a common set of objectively required inputs, also known as needs. Individual humans experience conscious and unconscious desires, feeling, and yearnings to fulfill these needs, which provide for functioning in a real world. The pull by these needs can be sensed [by consciousness], and can be lessened or made more sensitive [by consciousness training].

Simply, human needs are the particular physical and psycho-social experiences that form the necessary inputs for human survival and thriving. Having those conditions produces optimal growth and development (given what is known), while being deficient in them will hinder growth and ability.

> **NOTE:** *Possibly, humans are a meta-conscious learning system that can not only learn "things", but also to discover how to learn "things", the most salient of which are those "things" most required by humans.*

Consciousness, while embodied in the human organism, is innately driven [encoded informationally] to attain an initiation, integration, and completion of some physical relationships, periodically (and possibly after if beliefs are maintained?).

> **NOTE:** *In concern to human needs, a "satisfier" is any element (material or non-material) whose use, consumption, or sensation determines the fulfillment or satisfaction of a need, desire or aspiration.*

Human need is central to a human organism's identity and interface with the world. The drive toward required fulfillment is innate and instinctive, because the body and mind exist together as an organic experience. Therein, however, cognition and behavior can be aligned or misaligned (by degree) with that which is fulfilling and/or required for fulfillment. In other words, human recognition and cognition (i.e., embodied interface operation) can be aligned with its own fulfillment, or not (i.e., can be taking decisions and actions that cause suffering and inhibit fulfillment). Human needs are the preconditions to achieve well-being.

> **NOTE:** *That an organism requires certain elements to thrive is both a long-standing and innate; though, its sensation and very recognition can be diminished, bodily and conceptually.*

There are a set of universal human life experiences (frequency states of composition with temporal and physical relationships) without which human beings variously suffer life capacity loss towards inertia, higher entropy, disease and death. In other words, a human need is a type of environmental relationship or condition that involves the human organism and requires periodic fulfillment (in the form of: connection>integration>release through the human organism), and relates to the fulfillment of the human organism. Fulfillment of human need generates human existence and well-being therein, as well as performance toward goals; whereas, thwarting need leads to ill-being or performance decrements.

> **INSIGHT:** *Those basic needs that are innate to a cell are also innate to the base existence of the human organism. If not the same needs, the type of needs humans and cells experience are, at least, similar. The needs of cells (living system with a boundary) are related to need of a human (e.g., nutrient input, waste removal, area for movement, a conducive electromagnetic environment, etc.).*

Not anything that some human may claim to "need" is, after critical inquiry, a human need. The common test for a human life need (necessity) is whether anyone could live without it (under the same habitat as everyone else) and not suffer a loss of life capacity (regardless of whether the capacity is acted upon). Only that without which organic (or other dimensional) capacity is harmed regularly and unequivocally counts in identification as need.

> **NOTE:** *Experientially, there is an order of priority to human functioning. There must be land (a appropriate surface) beneath our feet before there is procreation and nutrition.*

Human needs can be fulfilled (satisfied) in ways that barely meet requirements, subsistence, or in ways that meet and possibly exceed requirements, flourishing. With available information, the external process becomes a matter of optimizing the fulfillment of a specific need, which is not a preference, but a technical physical requirement; the inputs of fulfillment being capable of comparison, and hence, optimal selection.

> **NOTE:** *In any given situation there are things that matter most to us. Sometimes needs are recognized at a personal and social level as being those things that matter most, and other times not.*

The interrelationship between human needs and satisfying services (satisfiers) is:

1. Permanent (i.e., always present).
2. Cyclical (i.e., it has a frequency, cycle, period).
3. Dynamic (i.e. moves within a range).

A human (fundamental) need will (i.e., is highly likely to):

1. Have affective qualities (i.e., engage emotion).
2. Cause direct cognitive processing.
3. Lead to ill effects when thwarted (e.g., addiction, poor health, poor adjustment, etc.).
4. Elicit goal-oriented behavior designed to fulfill (satisfy) the completion of a relationship, and subject to motivational patterns, such as object substitutability and satiation.
5. Be universal, in the sense of applying to all people.
6. Not be derivative of other motives.
7. Affect a broad variety of behaviors.
8. Have implications that go beyond immediate psychological functioning.

7.3 Human motivation

> **QUESTION?:** *Without feeling, why take any action? What in society is actually de-motivating or reduces motivation over time?*

Motivation is an internal state that induces a person to engage in particular behaviors, in a given environment (external state with a particular set of conditions). There are a complex of inputs that form a given state of human motivation, they include but are not limited to needs, goals, values and beliefs, rewards, and punishments. Behavior is lawful to need. Under an aberrant environment, human behavior (lawful to need) will be aberrant; need will be aberrant.

Most simplistically, if humans were compared to the four basic drives of bacteria, then the four evolutionarily pre-determined drives are:

1. Food
2. Reproduction
3. Friendship/family (social connection) and Shelter/ Fire (protection)
4. Fighting (when the other three are scarce, or when sharing is not present)

Here, it is presumed that humans are not "broken" and it is more likely that humans will be nice to others (maintain friendships and not conflicts) when their needs are met, because they are not competing with each other for the fulfillment of their needs.

In concern to fighting, for example, people can be motivated by the degree of inequality (in access to food, reproduction, and friendship opportunity) more than the state of well-being they have. Inequality is a powerful motivator of behavior. Among these are the individual's self-evaluation and one's psycho-social memory-interpretation of behavioral events.

Motivation ("drive") may also be noted in terms of its absence ("lack of drive"). For instance, a satisfied need is (temporarily) not a motivator of behavior. Motives that initiate and guide behavior tend to be salient at the beginning of an action sequence, whereas experiences resulting from the action sequence are salient at the end of the sequence.

Fundamentally, humans can have natural internal drives that they motivate them to act that they have little to no conscious awareness of.

> **TERMINOLOGY:** *Enteroception - ability to recognize the internal [need] state [from different organs of the body]. More precisely, it is the conscious reception of sensory stimulus from internal organs.*

7.3.1 Needs and rewards

> **INSIGHT:** *Relationships have consequences and consequences create a space for growth.*

Reward is a property (value) that an individual assigns to an input (or, incoming) environmental signal intended to satisfy or otherwise fulfill a need. There is a very simple and seductive model (Read: the 21st century addiction model, the "reward hypothesis") when processing the concept of reward, which is wrong; and, if society falls into it, it will have made a logical error from which recovery is very challenging, because it creates its own logically circular paradigm. That error is:

> *If need does in fact have a physical property called [neuro-biochemical] reward, because consciousness is experiencing life through a physical embodiment, which causes individuals to express behaviors that meet needs (e.g., food seeking behavior in the case of hunger and the need to eat). Then, the logical circular paradigm of thought is that if the result of a behavior has too much reward (i.e., it's "hyper-rewarding"), then an individual will overindulge in it and become addicted.*

However, attention should not solely be focused on "reward" (or "palatability" in the case of food). For instance, why do different people like different foods? Billions of people around the world find various foods delicious that others might find unpleasant. Reward is internal to the individual, and hence, has a subjective component to it. And, in its subjectivity, it is also cultural.

The second issue with the reward hypothesis is, "Why do we ever stop seeking the fulfillment of a need?" In the case of eating, the question is, "Why do we ever stop

eating?" At some point an individual human does not want any more (in a single sitting) of a particular food, for example. The environmental signal (termed a 'reward') didn't change, the individual did. Essentially, reward is a subjective property individuals assign to a signal based on their past experience, and their current neuro-body physiological state. And, it underlies all individuals' motivations.

> **APHORISM:** *The sated appetite spurns honey, but to a ravenous appetite even the bitter is sweet.*

7.4 The internal reward signal

> **INSIGHT:** *Everyone needs something beyond life support, something more like meaning, purpose, exploration, restoration, and an environment conducive to supporting their development toward a higher potential.*

What is the internal signal individuals' experience that causes them to seek the fulfillment of their needs? For example, what is hunger? The signaling of a presence of a need is not a single motivation (or "force"). Instead, it is the interaction of several different processes. In the case of hunger, it is the interaction of four different clinically measurable, provably distinct biochemical processes:

1. **Satiety:** The mind-body's *capacitive state*. In the case of hunger it is the body's *nutritional and metabolic state*. It includes both the biochemical response to the absorption of nutrients, and access to stored nutrients.
2. **Satiation:** An estimate of future fulfillment. In the case of hunger it is an estimate of future satiety, based on the sensory and cognitive experience of eating.
3. **Hedonic impact ("likes"):** The pleasure someone experiences from an action. "Palatability" is the hedonic impact of food.
4. **Incentive salience ("wants"):** The actual motivation to obtain something that is "liked". It is largely, but not exclusively, a product of the other three motivations.

Note that it is important to recognize that likes and wants are not limited to food. Any experience someone "likes" - that has hedonic impact - is capable of producing a "want" for more - incentive salience.

It is also very important to point out that what is colloquially called "reward" is a mashing together of hedonic impact and incentive salience. Both vary independently, and both are properties relative to the subject; hence, the term "signal reward" (or "food reward" in the case of food), which implies a singular property of the signal itself, is intrinsically misleading because it creates the cognitive trap of the self-limiting [reward] model. Interestingly, the claim that "wants are infinite" represents a similar cognitive trap.

Satiation and satiety are synonyms in common usage: so, why are they distinguished? The answer lies in material space-time (i.e., needs have a temporal and spatial nature). In the case of food it lies in [at least] the gastrointestinal transit time: it takes hours for the nutrients in food to be digested and absorbed (or "assimilated"), which means that the satiety response is not a useful signal to stop eating.

The idea of pseudo-satisfaction now becomes relevant - it is possible to distinguish two types of satiation: positive and negative. For example, when people eats real food, they are rewarded twice: once by the pleasure of eating, and again by the pleasures of positive satiation and satiety. In contrast, negative satiation is that sick feeling people get when they have eaten too many empty calories. It is the body's way of telling them, "We can't dispose of any more of that." So they receive that quick hit of pleasure, or hedonic impact, from eating tasty but nutritionally empty non-food - but it's over the moment that candy slides down someone's throat, and the individual never receives the hedonic impact of positive satiation and satiety that tells them, "You're done, you can stop eating now." And with each bite of empty calories, people not only receive less and less pleasure - they make it more and more difficult to achieve the pleasures of positive satiation and satiety.

Furthermore, because satiation is the sensory experience of signal processing (e.g., eating), it can be fooled. It's well known that in the case of food:

1. People eat more in specific group configurations than when eating alone. (Lumeng, 2007)
2. People eat more when they're able to eat more quickly.
3. Hidden calorie preloads are never completely compensated for.

It is possible to fool satiation, but not so much food satiety, which modulates reward. And, satiety is the salient factor to understanding the signal-need, because:

1. Satiation is an estimate of future satiety based on the sensory and cognitive experience of eating, in the case of food.
2. Both a subject's likes and wants are very strongly modulated by satiation and satiety.

Three more factors interact with the signal to modulate fulfillment:

1. **Availability:** How difficult it is to get something that is wanted.
2. **Certainty:** How certain it is to get something that is wanted.
3. **Willpower:** The conscious overriding action of the forebrain, known as "executive function".

The problem with popularizing for mass consumption is that it's easy to simplify a concept until it's no longer true. In the process of oversimplification, concepts also become *politicized* - and the naive model, in which reward is a property of need that causes dis-ease (or, want is a property of the individual self that causes infinite wanting), is being used to resurrect a multiple false hypothesis [for a variety of agendas].

QUESTION: *For who does this fail?*

7.5 A commonly evolved nature (human commonality)

Human needs are an independently experiential and conceptually understandable base of commonality among humanity. From that initial base arises the temporal formation of a materialized service system architecture to fulfill humankind, together.

Infants do not have need categories that differ from one another. Their initial goal is to eat, sleep, expel waste, and experience social comfort.

Humans share a common (species) life-requirement boundary, because humans share a commonly evolved organic-psycho-social [material] nature. Humans also share a biosphere (as in, planetary ecology) where each individual human expresses a set of requirements from (i.e., demands on) the environment. Hence, the biosphere is a common interest, and without coordinated organization, the requirements placed on the environment by individual human beings may easily lead to disaster, such as resource depletion and systems that produce harm. Hence, the common interests of human life involve objective life requirements at ecological, individual and social levels. In other words, there are a set of life-interests common to all human beings, and these common life-interests are [at least] the life requirements of humans and their ecology. Said in another way, there are life-interests grounded in life-requirements that are common to all human beings.

STATEMENT: *Human needs are a common interest and concern of all of humankind.*

Within the life requirement boundary, humans express a range of physical and behavioral variance. In some cases that variance is conscious; for example, someone can train themselves to hold their breath for longer durations of time, or train to perform well in extreme temperatures. In other cases, the variance is environmentally determined, such as, when acquiring food from a completely wild landscape. Humans living in a jungle will have access to a specific set foods, whereas humans living in a temperate climate will have access to another set of foods. And further, within each food "landscape" there will exist some degree of access, from scarcity to abundance. Therein, social exposure to the different degrees of access is likely to produce a set of commensurate behaviors adaptive [given what is known] to that environment.

It is significant to understand that individual, psycho-social development (i.e., conscious embodied experience after birth) can change an organism's relationship to the natural world, but natural necessity never disappears from human life, and remains as a constant underlying set of life-requirements.

Although people's stated wants may differ significantly from person to person, what humans truly need in order to be well, happy and healthy was evolved through our shared phylogenetic development, and is the same basic set of inputs for all humans. To extend the example of an organism, individual organisms of a given species may vary to some degree in how much they can tolerate water deprivation, but this variance is constrained by the parameterization of the need across the species.

APHORISM: *We can experience nature in common.*

7.6 Human nature

INSIGHT: *There is a common humanity. Among community, when we see nature, we see the interconnection of consequential information.*

If human nature is a thing of any kind, then it is [at least] the needs of the human organism that have a terminal consequence on its behavior in the context of an environment. Human nature, in this sense, is the manifestation of behavioral traits, psychological characteristics, and emotions under particular environmental and learned conditions that support or thwart the fulfillment of common and persistent human needs. Herein, human nature is characterized within the context of human needs. To claim that human nature is any one behavioral trait, such as stating that "humans are violent and greedy by nature," without identifying the environmental characteristics and existent relationships in which the behavior manifests is scientifically incorrect. To de-contextualize "human nature" from human needs, physiology, and from the totality of the environment is unlikely to facilitate fulfillment, and is likely to spawn forth self-generated illusion and human conflict. Essentially, human needs are a frame of reference for inquiry into human nature. Human behavior is a direct result of the reality in which the behavior exist. Human behavior can be highly predicted based on the environmental context in which the behavior manifests. Fundamentally, environment shapes behavior, and the behavior of organisms can be changed by changing the environment. Of course, humans are genetic beings, and thus, all behavior must necessarily center around the topic of human genes, human needs, and the total environment. Importantly, the basic animal behaviors (on Earth) are: predation, feeding, foraging, mating, and habitation.

INSIGHT: *There is a human instinct to understand, to find meaning, to map oneself and*

one's actions and the world.

Human behavior exists within a vast ecosystem of experience that is always adapting to stressors and incentives. When specific societal structures (Read: social, decision, material and lifestyle) become endemic in an area, it is very likely that we are going to see adaptations of the humans in that environment. Exposure to elements within the environment highly shape behavior, physiology, and overall life experience. When societal structures are out of alignment with human need fulfillment some of those humans living in that environment are likely going to manifest dis-ease, psychological and/or physiological in form.

Humans are at least conscious, bio-psycho-social organisms that react to their environment (physical and mental). Humankind is by its very nature a social organism (i.e., there is a psycho-socio-physical dimension to human life), and by consequence, social-technical organizations (or systems) have evolved. An awareness of one's "human nature" (as self-knowledge common to all) is also an awareness of the self as a social organism beyond (and within) the persona or 'ego'. Social norms as well as individual behavior cannot be taken as a given, uninfluenced by an environment of connection and interrelationship. If human nature is claimed to involve a behavioral trait, then the statement must include qualifications that accurately describe the environment within which the behavior manifests and an evidential rationale of the human need (or common terminal consequence) that the behavior seeks to meet. All behaviors, wants, desires, and preferences are eventually traceable to a terminal human need in a larger systematic environment.

As humanity defines who it is, how its bodies and minds work, how evolutionary pressures shape what humanity has become, then humanity may find that the scope of variables expand through interconnectedness. Humanity may find that it is impossible to define who humanity is without also defining what is in and around it (i.e., in the surroundings): the air that is breathed, the sunlight that bathes the planet; the food taken in; the social connections with others; the shared mental models; the trillions of bacteria that are on everyone, and within, everyone; the shared DNA with all living things. The deeper humanity looks, the more it is likely to see the interconnectedness of all things.

The environment is an essential component part of the variability element of what is commonly referred to as "human nature". The behavior (and personality) of humans is greatly influenced by their environmental conditions and conditioning. In other words, behavior does not occur in a vacuum, it is considerably shaped by environmental variables. Human nature, if granted such a thing exists, is an amalgam of human needs in an environmentally embodied context. In short, what is going on in the environment shapes individual brains and behaviors. And, there exists a discoverable relationship between needs and the surrounding sources of their fulfillment.

Environmental conditions signal, incentivize and compel people to behave in specific ways. The conditions of early 21st century society compelled people to exploit and be exploited. There, everyone was trying to get ahead of their competition, down to the last individual. Such conditions cultivate some the worst qualities of human behavior and normalize them.

Genes are not independent initiators of commands; they rely on environmental triggers to come into effect (i.e., to be 'expressed'). Recent scientific papers show that it is the surrounding environment which is often more important than a "perfect" stem cell. There can exist a near "perfect" cell (i.e., stem cell), but it will still not develop and function optimally if the surrounding environment is diseased (or "off"). If the environment doesn't offer all of the signals necessary for the cells full functioning, then that cell will not have a structure from which to develop toward its fullest potential.

Humans display behavioral propensities under certain environmental conditions (i.e., under particular environmental contexts). It is generally the environment that triggers these propensities. As such, there is not necessarily a fixed human nature, there is human behavior dependent upon an environmental context that to some degree either meets or does not meet needs; there is consciousness dependent upon sensory information, which thwarts or facilitates the fulfillment of human need. Therein, the flourishing of the positive traits of human behavior arises when humans experience the sufficiently free fulfillment of their needs. And, a failure to fulfill that which is desired by fundamental human nature will produce results that are personally and socially destructive (e.g., fearful primitive reactions and the desire to control or manipulate others' lives).

The world is not someone's egoic projection; it is the world as it is, the world in its natural form - nature is the model. Nature is not "out there", every individual is a part of it. Nature does not have to be split from humans or from the social. People project their own values onto others, and that is where they are wrong about others and about human nature.

Any definition of human nature that is not grounded in evidence common to all humans for its claim is likely to establish an ideology of artificial limitation and mar an individual's or culture's perception of their fellow human beings. Some things that are assumed to be human nature are very much cultural, whether this be food choices, leisure activities, work behaviors, discrimination biases, and violent tendencies. The real question is, what is human and what is cultural? And, how is the universal human condition shaped by culture?

Some people believe that human nature is "flawed", and then, they go on to claim that society needs a government made up of humans to do the "right things" and make the "right choices". Some people believe that authority is the fix for the mistake that is humanity.

Some cultures have become rather impoverished in their understanding of human nature and also rather

impoverished in the range of what they consider to be human potential. Many individuals become victims of the culture into which they have been conditioned -- their sense of themselves, of others, and of what is possible is caged by the culture-bound choices of those who have come before them. And at a neurolinguistic level, it is very easy to reinforce one's own prejudices by repeating declarations about what one believes human nature and one's own capabilities are limited to. A slight change in repetitious thought pattern can bring about major effects [over iterative time]. There are real attachment disorders to real[ly unpleasant] experiences of existence.

In each moment, individuals choose from among those possibilities in their awareness, and their lives are expressions of these choices. Perceptions are not always accurate and choices are not always made rationally, and this is largely due to a distorted view of who one is (and the self-limitations that one repeats to oneself).

Nature is not "out there", humanity is an evolving part of nature. Rather than viewing oneself as an isolated individual at odds with the outside world (and sometimes, oneself), and in conflict with others who are essentially similar to oneself, it is wise to view one's self as part of a single unified field of existence. How might that perceptual change influence the way a population interacts? How would individuals treat others if they understood that everything they do to them and how they treat them, that they are ultimately doing to a part of themselves? How might an individual treat oneself if one were to realize that much of what one says and does to oneself, one is also doing to others?

Most inaccurate perceptions of human nature eventually translate into the fallacious assumption that the interests of the individual and those of society are mutually exclusive (i.e., not inclusive). This dichotomous view of social reality perpetuates prejudice, bigotry, oppression, exclusion, and multiple other forms of corrosive ideology. It creates social problems that are in fact unresolvable 'pseudo-problems', which must be approached from a more accurate perception of human nature (and natural systems thinking in general) to adequately resolve.

In early 21st century society, perpetual neglect of human need by other humans in early 21st century society is a societal experiment being carried out right before everyone's very eyes and tested on a daily basis in nearly every form of media you can image. If one's needs are not met then one's behavior and values are more likely to manifest into "negative" human characteristics (i.e., harmful thoughts and behaviors), which are then used for judgment and punishment by "authorities" and other "negatively" confused individuals.

In a very real sense, the only limitation on human potential is nature, the laws of which all of humanity are all a part. In any culture humans have all manner of potentialities for what they may become. What they do become, however, depends largely on which possibilities are cultivated and which are hindered and repressed. The exploration of a higher potential depends greatly on the kind of society an individual lives in, since all humans can only exist as social beings.

It is not scientifically accurate to say that "human nature dictates" ... anything. For is now know that the human system (and all living systems in general) reconfigure themselves through [at least] environmental signaling. Hence, anytime someone says, "Human nature dictates ... ", wait for the ideological statement that follows, to more greatly understand where they (Read: their active belief systems) are originating from. Fundamentally, both heredity and environment interact with each other to influence the development of the individual. Life is, in part, an adaptive response**.**

> **INSIGHT:** *The structure manifests the individual.*

7.6.1 The natural, organic-social nature of human need

> **INSIGHT:** *Needs do not necessarily imply awareness by the needer.*

The social self-consciousness that enables humanity to generate meanings, is not an abstraction, but a development of the specie's organic, genetic nature. Human social (and cultural) evolution arises organically from the adaptability of the species to an environment. Although adaptability is structured into the genes, it is possible for adaptability to operate (at a higher level of organization) through mechanisms in the societal system itself (and, at a lower level, in the central nervous system of individual organisms). In this sense, there are "natural" needs, as needs which are programmed into he organism by nature. They have evolved over generations as mechanisms by which the organism survives and thrives.

> **MATERIAL LIFE SERVICE STATEMENT:** *Humans maintain a requirement for the interface and input of adequate material elements of [at least] air, food, H_2O, and waste-handling [cycling] systems.*

Human nature is [at least] organic-social. To be a human being is to be an individual of a species that can construct its own society, evaluate it according to theoretical, hypothetical, and moral standards, and change it in response to systemic problems and contradictions (given the necessary conditions to do so). The natural ties established between human beings and nature by organic life-requirements are also social ties binding individuals to one another through different forms of "collective" input (contribution or labour), and through which these societies are built, interpreted, and changed.

The total life-ground for human beings is inextricably natural and social. Therein, work, as the most basic social requirement of human life, connects the natural and social sides of the human being within a materialized environment. In society, work occurs through the

structure of an [economic] decision system, understood in its instrumental life-value as the structure and activities through which human beings fulfill human life-requirements. In community, the [economic] decision system is the necessary condition for effecting a change of matter between humankind and nature.

In order to universally fulfill all human need, any materially fulfilling economy must prioritize the system's production and cycling of use-values, which have life-value. Since human life cannot persist without the production of life-values, the first shared socio-cultural requirement of human life is an decision (economic) system that is in fact life-grounded. The material environment, and any economic movement therein, is a space of social interaction within which intrinsically life-valuable cognitive and creative capacities can be developed and expressed.

There are at least three assumptions underlying the claim that needs are present for individuals, and that they can be fulfilled together at the social-/societal-level:

1. Needs relate fundamentally to the life of an organism.
2. The appropriate fulfillment of needs make it more likely for a healthy self-organism and commonly healthy social structure to emerge and be sustained.
3. Needs fulfillment/satisfaction provides a firm basis for forging a common identity between individuality and sociality.

7.6.1.1 Social life-requirements

There are a set of objective, universal social requirements to human life. These requirements of social life are not relative to distinct societies. The comprehensive conditions for well-being are not reducible to the physical-organic requirements of life; there is also, from multiple organically similar and interactive individuals, a social dimension. There is a shared human life-requirement for social organization that enables all individuals to participate as socially self-conscious agents in the ongoing processes of socio-economic development and societal evolution. A social life requirement is the requirement for transparent organization that enables the effective contribution of individuals to sustain and developed evolution of the society. Socially, human life (i.e., individual conscious intention) becomes capable of accessing life's requirements fairly and optimally.

Whether life requirements and personal goals are accomplished depends on the physical availability of resources and knowledge. If there is sufficient resources, the problem is not natural scarcity, but the structures (institutions) and value system(s) that manage the use of those resources. All societies have some organized ("instituted") means of arriving at and taking ("making") commonly ("collectively") binding decisions on the access and usage of resources.

In the market-State societal model, these institutions are commercial and political, and they function to determine how collective life will be governed by force. In community, there is an open source, unified information model that algorithmically resolves a decision space, which materializes change in the physical environment. Some of that change is performed by humans, or else it is performed by a variety of automated services. There are macro decisions, such as how access is determined (as personal, common, etc.), and there are micro decisions, such as group requesting access to a set of resources, or possibly a change request to the materialized habitat service system (i.e., city).

In the Market-State, human life often becomes reduced to a tool or instrument[al form] of exchange. Therein, the harm to which people are liable as socially self-conscious agents is to be reduced to the status of tools or instruments (of systems and/or other human). What is harmed is the human interest in the socio-economic system, as well as the human capacity to effectively participate in the determination of decisions.

7.6.1.2 The first social life-requirement

The first social life-requirement is an organized, higher order 'decision', and lower order 'economic' system that organizes and coordinates contribution ("labor") to produce use-values that have instrumental life-value as well as producing organic life-requirement satisfiers.

- **Instrumental life-value** - resources, structures (institutions), relationships, and practices that maintain life.
- **Intrinsic life-value** - the expression and enjoyment of the capacities that the satisfaction of life-requirements enables.
- **Good** does not express a mere subjective preference, but an objective determination that the object will satisfy a real life-requirement so as to enable higher-level expression and enjoyment of life-capacities.

All human values are at the root life-values: they are a conceptual object which satisfies a life-requirement and that in human experience and activity which is enjoyed as an expression of human capacities to feel, sense, think, imagine, and create.

7.6.2 The nature of human need, requirements of a human life

Prior to any social (socio-cultural) shaping of consciousness, consciousness is born with a human body, whose possibilities and capabilities do not belong to any culture. The experience of the body may be socio-culturally influenced, but the body itself, prior to social experiences, provides limits and parameters that ensure a great deal of overlap in what is going to be experienced where hunger, thirst, desire, and the senses

are concerned.

The basic requirements of a human life are not cultural or social constructs. Human biology is not an abstract [mental] construction, and it is not superseded by historical events or socio-cultural creations. If eating is not a material reality, and it is just a social construction, then so too is mass starvation a social construction. If mass starvation is a social construction, then it cannot be criticized on the basis of the life destruction it causes, because there is no material reality to be damaged. Consciousness, in its thinking, can abstract itself from the life-ground that forms the real material conditions that keep the consciousness alive in a physical body. Actual ignorance of the real material conditions of life would kill or cause significant harm to the body. Similarly, actual ignorance of the real social conditions of like would cause suffering to be likely. Fundamentally, there is a difference between a construction and the materials out of which the construction is built.

> **ASSIGNING MEANING:** *It is possible to assign some meaning to some thing in material reality that does not naturally or intrinsically carry that meaning. There is nothing in the thing (standard) that causes it to mean anything more or less than what it expresses, or what it might express under different conditions.*

Humankind, like all organisms, lives (i.e., continues to exist) in some degree of alignment with its evolved biology. When organisms do not live in a sufficient degree of alignment with their biological-organic requirements, then there are biological-organic detriments that are likely to lower the potential [life-capabilities] of the organism.

7.6.2.1 The life requirements

All life exists within (i.e., requires an environment of a specific composition):

1. Requires definite ranges of tolerance.
2. Requires definite ranges of environmental conditions.
3. Requires definite ranges of inputs of natural resources.

Each factor (or, fact-or) is measurable (or potentially measurable) due to its existence within a physical, material environment.

The fulfillment of each required factor (tolerance, condition, and input) is affected by a given society's organized structure and the active value system therein that encodes ("legitimates") that structure. The material requirements of life are not only environmental, but include the active value system that determine the access and usage of environmental resources.

7.6.3 The nature of a set of life requirements, known in part, as human needs

There are at least three dimensions of human nature through 'human need', which are universal:

1. All human beings are **organisms**, and these organisms encodes physical-organic requirements of life.
2. All human beings are **potentially socially** self-conscious agents (Read: social potential, opportunity). The realization of this potential depends on the satisfaction of definite social requirements of human life.
3. The lifetime of all **human beings is finite**, and the **free realization of an individual human capacities depends** on both the quantity and the quality of the environment (and life-time therein). Thus, there is a distinct life-requirement for freedom (free time), without which the free realization of human capacities is not possible. Free-time is time away for open-ended structure activity free from externally imposed deadlines, this time is required for flow "time". (Noonan, 2014)

The above three universal dimensions of human nature become the three high-level categories of human life requirement fulfillment:

1. **Organic ("physical-organic") life requirements** (biologically material requirements) - Physical-organic requirements of biological life. Life happens through a physicalized vessel, and in this reality (dimension), it requires a biological vessel (*given what is known*)There are a set of physical-organic requirements to all living organisms (i.e., to human life), including: air, water, food, shelter, etc. Fulfillment of these requirements leads to the development, sustainment, and optimization of biological life. Access to life support is required.
   A. Wherein, insufficient fulfillment here is likely to cause harm in an organisms biology.
2. **Socio-logic ("socio-cultural") requirements of life** (socially material requirements) - The conditions of self-conscious, socially engaged agency require the satisfaction of definite psycho-sociological requirements of human life, such as the ability to contribute and participate, and access to information. Psycho-sociological requirements are the social conditions required to develop the individual capacity to identify with and care about others—as opposed to encountering them as competitors or potential rivals for access to means of subsistence or other life-requirements. Fulfillment of these requirements leads to the

development, sustainment, and optimization of social life. Access to community services is required.
   A. Wherein, insufficient fulfillment here is likely to cause harm in an organisms humanity.
3. **Temporal ("personal") requirements [of free human life]** - Requirement that the environment afford/allow sufficient free time to develop any capacities or interests, beyond staying alive, that someone intends to develop and express. Time is required if social self-conscious agency is to developed optimally. What are the access opportunity requirements, given a temporal and condition environment, free[ly self-integrating] human life.
   A. Wherein, insufficient fulfillment here is likely to cause harm in an human organism's potential.

7.7 Human emotional intelligence

A.k.a., Human need of emotional intelligence.

Emotional intelligence encompasses the ability to recognize, both in oneself and in others, the emotions that often act as the driving force behind our actions—whether these emotions operate at the forefront of our consciousness (macro- and micro-expressions) or linger in the depths of our subconscious minds. Being emotionally literate, or having the skill to give an appropriate name to what is felt, becomes a cornerstone of effective communication and self-awareness.

Moreover, this emotional intelligence extends beyond mere recognition. It involves the understanding of how to control and direct emotions in a manner that channels their energies constructively, preventing people from falling to the potentially destructive influence of specific (harmful) emotions. This understanding applies not only to individual's personal lives, but also to the broader global societal issues. Emotional intelligence is a skill in thoughtful, empathetic, and impactful self-recognition and other-recognition as connected a common humanity with common human needs while existing on a common planetary surface.

The top-level words and concepts related to the provided information on emotional awareness, expression, and influence include, but may not be limited to:

1. Emotional intelligence: This overarching concept encompasses the ability to recognize, understand, and use emotions effectively in oneself and others. It includes emotional state awareness and self-regulation of one's own emotional state.
2. Emotional literacy: This refers to the ability to recognize and name one's own, as well as others, emotions accurately and understand their sources (to human need).
3. Emotional regulation: The capacity to change/control one's emotions, ensuring they are constructive and do not negatively impact behavior.
4. Emotional communication: The skill of effectively talking about emotions, including those related to complex topics.
5. Influence through emotions: Understanding how emotions can be used to influence or sensitize others to specific topics, to bring awareness and influence action and/or inaction (a.k.a., persuasion, rhetoric).
6. Empathy: The ability to understand and share the feelings of others, which is closely related to emotional awareness and communication.
7. Human need awareness: Knowledge and understanding of human needs as axiomatic societal issues/directives, including the emotional aspects associated with human need completion and scarcity.
8. Behavioral impact: Recognizing that emotions often drive behavior, emotions have sources, emotions can be conscious or unconscious, and understanding emotions and how to change emotions to create better outcomes.

Emotions are an integral part of the human experience, and they can become classified as "high" in two contrasting scenarios, both contextualized by human need:

1. when fundamental needs are not met, and
2. when fundamental needs are fulfilled, leading to moments of celebration.

In situations where needs are unmet or threatened, such as the need for security, belonging, or recognition, emotions like fear, anxiety, frustration, and anger can surge. These emotions serve as powerful signals that something essential requires attention or action. They mobilize our resources and drive someone to address the challenges at hand, prompting problem-solving and adaptive responses.

Conversely, when needs are genuinely met or exceeded, it often leads to a surge of positive emotions like happiness, celebration, joy, and gratitude. Celebratory moments, whether big or small, mark the culmination of efforts and the fulfillment of desires. These emotions not only provide a profound sense of fulfillment, but also strengthen social bonds as we come together to celebrate achievements, milestones, and shared successes.

Emotions, in both scenarios, serve as a parametrized and expressive aspect of human nature, guiding responses to life's [human need] challenges, and potentially, when engaged with intelligently, expressing more joy and love in life. Recognizing and understanding emotional responses can empower people to navigate

experiences with greater self-awareness and enhance their ability to connect with others in moments of both adversity and celebration.

7.8 'Human need' universality, and thus, society

Universal needs provide an common grounding for the planning, design, and living development of society. Because life, and its optimization, has requirements, there are (intuitive and testable) requirements placed on society. A society can select to fulfill these requirements, or not, and by degree.

The method is to propose the satisfaction of 'basic' (Read: global, universal) human needs. There are different views on the complete overall view of the whole human system. One of those sets includes the recognized needs of: identity, security, and recognition, as the underlying organising principle for designing social structures, and to apply that conceptual framework to the task of creating functional institutions designed by working groups and members of the habitat service system team, working together. In other words, at the global level, the fundamental characteristic of all common, human categorical 'need', is [what do "you" propose; working together as an integrated and unified unite within a larger environmental system in which there is the potential of intentionally embodied movement.

This type of reasoning is sometimes called the 'needs-based approach'. The needs-base approach accounts for the sufficient fulfillment (i.e., sufficiency or enough) of needs through an access service system, transparent to everyone (so that that which exists can be accounted for commonly by everyone).

Here are the categories of experience as related to a common human experience:

1. **Nature (ecology/natural):** Natural services are the renewable and non-renewable goods and services provided by ecosystems.
2. **Information (memory and processing):** The information system consisting of human memory and externally accessible information repositories. An accurately aware` information system is required for optimal operation of a resource using system.
3. **Coordination (social):** Time and place networks and norms that facilitate cooperative action. Cooperative action is required for optimal usage of resources and a the functional operation of habitat services (in the form of a city).
4. **Operation (built):** The habitat service system is a localizable set of [nature re-configuring] operations that use resources to produce goods and services that regenerate global fulfillment.

There are two general categories of need, given material conditions (materiality - the ability to think and act in a physicalized environment):

1. Material needs are those needs that cannot be satisfied without some level of material throughput in the economic system (i.e., the materialized habitat service system, material satisfiers).
2. Non-material needs can conceivably be satisfied without any extra material throughput beyond the [sharing of the] human relationship (i.e., internal and social conditional quality satisfiers; e.g., social connection, self-direction, and safety).

7.9 Human needs assessment

> *A.k.a., Human research program, human systems design standard, human systems engineering and integration, human factors (human factors integration), human integration, controlled environment systems research.*

The output of a human research program is a set of working-group human system design standards. These are standards to be applied in human systems engineering (a.k.a., societal systems integration). Here, the idea is that the human organism is an integrated factor in the system's design.

7.10 Principal characteristics of the 'human needs' list

As with all systems, the system that composes that which humans require, described at the level of commonality (human need), has the following principal characteristic:

> *As in many systems, the full satisfaction of a level [in the supra-system] is not necessary so that a human seeks and gets satisfaction of higher level needs.*

What is the acceptable level, the decisional selection, of need satisfaction? This necessitates the evaluation method of specifying a target level and then measuring the shortfall or error between observed levels and this target. Thus, a given indicator (e.g., 'health') shortfall or new dis-ease indices a measurable the health gap, which is a societal gap. The question then arises: how is the target level set?

1. **Basic need threshold** (for life support)
   A. **Basic needs maintain a moral threshold (life support and some technical)** - the only morally relevant threshold for basic need satisfaction is the optimum level. In principle, [need] satisfaction is adequate when, using a minimum amount of appropriate resources, it optimises the potential of each individual to sustain their participation in those constitutive activities

important for furthering their critically fulfilling interests. This could be considered 'human dignity', such that everyone has that which they require accounted for as a single system.

2. **Intermediate need threshold** (for exploratory/facility support)
   A. **Intermediate needs maintain a life developmental threshold (facility and some technical)** - Intermediate needs apply to properties of services, products, activities, and relationships that enhance health and fulfillment in society. These are Facility (service system) and some Technical (service system) needs. The threshold is where additional increments of an intermediate need generate decreasing increments of basic need satisfaction, until at a point no additional benefit is derived. This threshold point is called the minimum optimorum (or minopt) threshold: the minimum quantity of any given intermediate need satisfaction required to produce the optimum level of basic need satisfaction. In principle, this defines threshold levels for each intermediate need.
3. **Inequality need threshold** (for decision support)
   A. **Inequality in access threshold** - inequality in access to services from common heritage resources and services.

7.10.1 Common terms related to the information category of 'human need'

There are two common terms related to the category, human need: universal needs and absolute needs.

7.10.1.1 Universal needs

Think about universal concerns. Food, for example, is a universal concern; everybody needs it.

7.10.1.2 Absolute needs

Absolute (or "categorical", "entrenched") is a [human] need, which if unmet during a specified time period, the state of reduce life potential or cause serious harm will result. Absolute [material] need categories are the same (universal) for each individual of the population.

In terms of the "I", absolute needs may be structurally defined as:

1. "I" need [absolutely] to have x,
   • if, and only, if
2. "I" need [instrumentally] to have x if "I" am to avoid being harmed,
   • if, and only, if
3. If "I" avoid being harmed, then I have x.

As a statement [of input]:

> *A person needs [the input of] x absolutely, if and only if, whatever is possible to occur within the relevant time-duration, the person will be harmed if s/he goes without [the input].*

7.10.1.3 Human basic needs (basic human needs)

Simply, a basic need is that which no one can live without and not suffer a loss of life capacity. For example, one cannot do without oxygenated air or potable liquid or caloric intake in any degree, without a proportionate reduction or destruction of life capacity. For all [basic] needs, there are scientifically establishable limits of life capacity range and the degrees of its reduction correlating with the degrees of deprivation of it. For example, one cannot live X number of minutes (average is 6 minutes) without any breathable air, x number of days without water, etc.

Individuals require access to basic human needs to survive. The basic human needs on Earth, in simple terminology, are [at least]: food, water, shelter and clothing, air, energy, and safety. If any one of these basic needs is not met, then humans cannot survive. After these basic needs are met, the community can express a more fulfilling form of human expression involving social life optimization needs (e.g., transportation, information processing, self-actualization, etc.). The essential basic nature of human needs have not changed (for instance, fire may now be necessary for food's relationship to health, but there is still food as a need), and they are universal requirements for personal survival and thriving together.

The ability of humans to satisfy these basic needs arises from the ability of humans to access ecological services (natural resources), construct operational services (habitat service system), and coordinate time & place tasks/activities (coordinated action). The ability of humans to optimally satisfy all human need arises from the ability of humans to cooperate and coordinate.

7.11 Satisfaction, pseudo-satisfaction, and the reality of needs for a stably directed society

INSIGHT: *Community facilitates stability in fulfillment.*

Human systems exist at several levels, not only at the individual level (also social, economic, and ecological). In each system there exist a set of human needs that may or may not be fulfilled by the structural design of the system. Therein, human societies are complex systems embedded within a supra-system, the global ecological environment. Since humans are dependent upon that environment for the necessities of life, and since human activities strongly influence both individual and environmental health, a society needs to be well-informed about the state of each interrelated system if it

is to remain stable. This implies the need to identify and monitor key indicators of the state of human fulfillment, socio-economic sufficiency (i.e., "public health"), and the health of the natural ecological environment. Further, stable societies facilitate open and integrated relationships between individuals such that needs are acknowledged and sought fulfillment synergistically and at a global-community level.

A stable community is one in which human needs are recognized and are sufficiently fulfilled (i.e., a threshold of need sufficiency exists) such that the highest potential direction for each individual is clear to themselves in the moment. When an individual's needs are not sufficiently met, then they are likely to act in an impulsive manner toward "getting their needs met", which often comes at the expense and cost of others. When society recognizes needs, then probabilities turn in favor of socially corrosive values and behaviors being washed out for examination by society. Alternatively, socio-economic systems that do not account for human need are highly likely to generate a systemic form of social instability (e.g., structural violence) and move society in a direction that costs humanity its "humanity", and ultimately, its highest potential. Some societal structures are mental illness producing mechanisms.

Of course, people are manipulative and seek power in an environment that incentivizes and/or requires those attributes in order to get needs met (e.g., in an environment of socio-economic competition). The behaviors that humanity expresses must viewed in the context of the environment; when humans are in an environmental state of artificial scarcity and socio-economic competition, then there is some degree of certainty over the types of behaviors that likely to appear. And, when there is socio-technical cooperation, then there is some degree of certainty over the type of behaviors that are likely to appear as a consequence. Human behavior can be changed [in part] by changing environmental variables, through actions by other humans (subjects) and the natural environment (nature).

In early 21st century society, it is often the case that social instability starts with a lack of recognition that children also have human needs. Children, as common human beings, have needs that require fulfilling, just like adults. At a fundamental level, a more free society is a society that nurtures the fulfillment of even the young ... especially the young.

Recognition of human needs is necessary for social stability for at least two sapient reasons. First, human needs direct human action. This direction, in combination with environmental conditions and opportunities, allows for the fulfillment of needs and sets the course of human development. Secondly, human needs are a key factor in the adoption of new ideas, technologies, and systems; ideas will not be adopted by a society unless a presumed need for them exists. Some ideas, such as that of retribution and of infinite economic growth, are verifiably harmful to the well-being and needed fulfillment of individuals. When human needs go unaccounted for, then it is highly likely that ideas which promote suffering will continuously re-manifest.

A social system for fulfilling human needs cannot be designed to provoke behaviors that lead to social corrosion and instability if it is to remain a viable long-term system. The basis of any society or "civilization" ought to be a socio-economic organization that is systematically designed to reduce and or eliminate violence between individuals, to improve the alignment of conceptual understandings with nature, and to improve individuals' access to common resources - these are the characteristics of a truly civil civilization. Societies that systematically regenerate states of harm are not civilized.

Further, without an emergently formalized social system based upon human needs, how is any economy supposed to function sustainably and without violence. Instead, economies will continue to function via competitive gaming, authoritarian, and other structural forms of violence until they account for and are informed by the common lifeground of which all of humankind is a part.

A socio-economic system that maintains or exacerbates an imbalance in the fulfillment of needs is one of the most caustic organizations a society can have. This is in part explained by humanity's deep psychological need for connection, sharing, and a social communication. The human organism is a social organism with a social neurophysiological makeup that allows for empathic connection within its own species and with others. Humans are hard-wired for social connection, empathy, and support. In a community, an individual's well-being is often dependent upon the group's well-being. Fundamentally, the human brain is geared for socialization. At a functional level, the fulfillment of 'basic needs' and 'social needs' triggers the same reward centers in the human brain. An individual's psyche does not live in a solitary vacuum away from everyone and everything. Invariably people interact and influence each other's fulfillment, their emotional states, their needs, and their overall well-being. There exists an ongoing and identifiable relationship between human needs and the ambient cultural/socio-economic context that either supports the fulfillment or frustration of those needs. And, the way in which people orient themselves toward their social environment affects the environment's potential for providing them further fulfillment. Needs are commonplace in the real world. Needs are commonplace"among humanity. And, a recognition of one's own fundamental needs provides the opportunity to recognize the same needs in others.

Humans are capable of experiencing both personal distress as well as distress for others (i.e., 'empathic distress'). When humans are distressed they behave compulsively and impulsively with causal regularity. Hence, a community-type society involves individuals who are aware of their human needs. It involves individuals who have awoken to their nature and to

the realization of why they behave in the patterned manners in which they behave, with recognition that some patterns are detrimental and others beneficial to the health and happiness of all individuals in society. For a society to remain stable, patterned behaviors that lead away from human fulfillment must be made visible. To ignore these behaviors or expect different results is a recipe for delusion and disorientation. It is commonly said that repeating the same behaviors and expecting different results is the definition of insanity. Those who are unsane are essentially stuck in their developmental understanding of what it means to experience the condition of human fulfillment; they are stuck in the true evolutionary progression of human consciousness toward greater levels of awareness, complexity, and morality.

Individuals have choices and have needs, and they can choose to fulfill their needs in ways that are meaningful and common to everyone, or in ways that are meaningful to their pleasure center in the moment and create suffering for oneself and others in the long-term. In a community-type society, individuals seek pleasures that are strategically life enriching, not vices that keep them in a static stagnant grip.

Under certain cultural and economic conditions manufactured, artificial needs (i.e., pseudo-satisfiers) become confused with objective, real needs. Needs are objective and exist apart from culture and economic [market] conditioning. In early 21st society, children are often used as pseudo-satisfaction for the[ir] adults' unfulfilled desires. Some people [for discoverable reasons] seek to meet their needs in the short-term, destroying everything else around them in the long-term. They do not identify their needs nor do they recognize ways of meeting needs that lead to strategic fulfillment as opposed to short-term pleasure and pseudo-satisfaction. They often sink down into regions of the brain that support instinctual survival and the rapid and obsessive short-term satisfaction (or, pseudo-satisfaction) of needs (i.e., compulsion). Compulsions overrule conscious thought (i.e., they over-rule thoughts and behaviors that have long-term and life-potential extending benefits. Early 21st century society maintains a dis-ease continuum that starts with a lack of fulfillment and the pseudo-satisfaction of real human needs and ends in warfare, scarcity, and ecological devastation. Pseudo-satisfaction represents the opposite of a higher potential adaptation and optimization. Pseudo-satisfied behaviors are often compulsive and irrational, and not oriented toward long-term fulfilment. And therein, people act most irrational right before they are about to acquire something they have a compulsion for.

When needs are truly fulfilled (or "sated") and not pseudo-satisfied, then impulsivity and compulsivity have the potential of being replaced with reasoned rationality and social intelligence. A single intense energy expenditure (that of reactive impulsivity) is replaced by a self-regenerating state of inquiry and fulfilling action that takes the form of rationality (as spectral ratio), reason (as coordinated relationship), and intelligence (as integrated connection). Wherein, repetitive behaviors that are deeply unsatisfying transform into behavioral actions that align with that which has a naturally higher potential for being more fulfilling and more meaningful.

There exist things in this world that people perceive as needs, but are in actuality impermanent substitutes for real and deeply meaningful needs - there exist 'pseudo-satisfiers' (or 'pseudo-fulfillers'). Some of these modern substitutes among many other personal and socially stagnant and corrosive behaviors [and material objects] include, but are in no way limited to: lounging in front of the television; artificial flavoring and flavor enhancers, the rewards of "winning", commanding and controlling the lives of others, living through one's children, pigging out on ice cream, and gossip (or social drama). In order for a healthy individual to overcome the expression of pseudo-needs the real need must be identified and met.

Pseudo satisfiers are detrimental because they provide the sensation of need satisfaction when a real need is not actually being fulfilled. When real needs continue to go unrecognized, then individuals begin to consume more and more of what they don't need in futile compensation for what they do need - homes become cluttered, minds become confused, and people become fat and lonely [with over 7 billion people on the planet]. Nowhere is this maybe more apparent than in the context of modern [modified and nutritionally deficient] foods. Therein, individuals consume ever more quantities of food as their taste sensation is slowly changed with artificially loud and intense flavors. Also, industrial food stuff is nutritionally vacant and may be biologically incompatible; hence, it causes the body to feel ever more lost in hunger for real nutrition. The factual desire is for true hydration and biophysical nourishment, not industrially designed products marketed as food.

Deficiencies in [effective] fulfillment create cravings that are extremely difficult to deny. Commercial entities, in general, desire to engage a state of craving in their customers such that they have a deep desire to return to and re-purchase their products. They want (if not financially need) to engage a consumer's cravings and emotions, for that will cause them to continue the consumption of their products. For the purpose of "market share" commercial entities manufacture cravings and addictive behaviors that are very difficult to control once they have been engaged. Food manufacturing businesses, for example, are fighting for what they refer to as "stomach share" - the portion of your stomach that they can control and fill with their products (e.g., the bliss point and formulaic food "optimization"). (Moss, 2013) In other words, they are competing for control of the market share of "your" stomach. That is [in part] why they market their products using emotional appeal, and they manufacture their products with ingredients that maintain a high likelihood of creating a customer's desire to return to the food product over and over again. They want "your" cravings and your emotions engaged; they want "you" pseudo-satisfied.

Many real needs go tragically unmet within profoundly sick societies, some of whom begin declaring wars on natural desires, spawning forth states of individual and social instability. When societies begin declaring wars on various desires, such as "the war on drugs" or "the war on sex" the real needs become lost in the fight and frequently the war turns toward fighting the very expression of the real need. The war on drugs, for example, battles a sovereign individual's desire to experience different states of consciousness (i.e., consciousness exploration) and of plant/fungi "medicine" healing. The initiation of war against what is perceived as a social problem is not ever a rational decision; it is a decision from the State of greed and protectionism. Treating a problem as if one were at war with it will not solve the problem and will branch out new problems in the process. Has "your" society been declaring war on health symptoms? What if wars were distractions that serve business and the few, rather than the interests of human beings. There is a relevant maxim here: The first casualty of war is the truth.

What is not being said here is that there is never a time to fight or to struggle, or to apply willpower toward others immediate cessation of harm. These "warrior" defense instincts are part of each individual also, and they are important aspects of human nature and a humane desire to survive and live free, fulfilled lives. And, perhaps there are times when someone needs to trust his/her desire to fight or to struggle. But, what has happened in early 21st century society is that this particular response to problems, the response of fighting, struggling, and overcoming has become habitual to situations where it is not applicable; where its engagement doesn't cease harm, gut re-generates a state of suffering.

When more people make more rational and meaningful choices, then healthy social interaction toward resolving systemic problems becomes probable. When reason and knowledge [and self-esteem] exist, then the idea of a deep purpose, and its unwavering pursuit, may enter awareness. When the state of need sufficiency exists, then progress toward a higher potential is more likely to regenerate itself in someone's perceptual field of awareness. When all psychological barriers to self-growth are dropped, then an individual has the possibility of entering into a state of constructive and creative flow, instead of re-generating states of self-limiting illusion. And, at a social level, *constructive flow* becomes *cooperative flow* wherein a more stable social state enters into the realm of probability.

Regardless of how human needs are fulfilled, if they are not fulfilled, then an individual's highest potential will always remain elusive and social cooperation toward a stable higher-potential for all will appear utopian (i.e., fantastically impractical; a fantasy).

There is no known greater force in life to direct destiny then the needs and the states of being that someone values most, for humans are highly likely to violate their values (and principles) to meet their needs [in environments that do not facilitate the real meeting of needs]. Thus, if needs are not sufficiently fulfilled, then values are unlikely to coordinate optimal decisions as there is a high possibility that they will be overridden by the organism's instinctual impulse or compulse to meet an unsatisfied need, which has likely generated a persistent state of suffering.

If human needs are not capable of being fulfilled given a finitely regenerative system and transparent ecological conditions, then it would seem that humans may well be a non-viable organism. While the human population exploded, human societies developed in ways that have caused enormous damage to their own bodies and the ecologies in which they inhabit, which maintain their very survival and well-being. If, however, humans are capable of recognizing their needs on an individual level and fulfilling them on a sustainable socio-environmental level, then a stable platform might be persistently created for universal progress and cosmic exploration.

Living systems in all forms "evolve" and "respond to change" in ways that depend upon their internal structure and the characteristics of the environment within which they exists. It is desirable for purposes of the well-being of those who use the systems [in the community] to have the ability to evolve the systems themselves in order keep their re-creations in alignment with their emergent and dynamic intentions and ongoing issues of fulfillment. A preferential social organization would also be capable of responding to the ecological environment within which it exists and upon which it is dependent such that when the environment changes the individuals are capable of changing in-turn with grace and stability.

Fundamentally, when human needs are fulfilled dissimilarly or denied fulfillment due to limitations of societal structures, then how will that affect individuals' social behavior? If a population understands what its needs are and how they may be optimally fulfilled given what is know at the present time, then people can begin to resolve conflict and unify their solutions toward the mutual fulfillment of all of their needs. Needs exist along a continuum; they are not compartmentalized. All of humanity is part of a continuum of the same existence, for life is a continuum of existence (because it is life).

When someone's needs are met, then that individual is much more likely to develop into a fully functioning human being capable of expressing their highest potential, than if their needs were to go unfulfilled. No one goes through life happy while simultaneously going through life unfulfilled. A stress inducing void is generated when there exists insufficiency in the fulfillment of critical needs. Therein, stress can be a motivational and hormetic adaptor, or it can become an overwhelming disintegrator of motivation, personality, and social cohesion.

> *"It's simply a matter of historical fact that the dominant intellectual culture of any particular society reflects the interests of the dominant group in that society. In a slave owning society the beliefs about human beings and human rights and so on will reflect the [pseudo-satisfied]*

needs of the slave owners. In the society which is based on the power of certain people to control and profit from the lives and work of millions of others, the dominant intellectual culture will reflect the [pseudo-satisfied] needs of the dominant group. So, if you look across the board, the ideas that pervade psychology, sociology, history, political economy and political science fundamentally reflect certain elite interests. And, the academics who question that too much tend to get shunted to the side or to be seen as sort of radicals."

- Dr. Gabor Mate

7.12 'Human need' inhibition, thwarting, and deprivation

NOTE: *Natural law brings the consequences of a life of dis-connection from a necessary frequency of fulfillment.*

Understanding the different processes that follow from acute and chronic effects of need inhibition (need thwarting) is important for further understanding need dynamics, as it allows another way of considering how needs and motives can become decoupled.

The absence of the significant [need] satisfiers is likely to cause harm, characterized by degrees of suffering off of the alignment of feeling fulfillment, feeling well. Harm and suffering are "to be" avoided; they are an intrinsic drive of motivation - to be out of suffering (the feeling of being in pain).

QUESTION: *How do we come to know our needs? We, individually, pay attention to our experience over time, integrating our senses and responses.*

Under chronic deprivation, a person's motive to get a particular type of experience may become extinguished because efforts to satisfy that need have traditionally amounted to wasted effort. However, though the motive is extinguished, the requirement is not and will still produce dissatisfaction. Thus, a person may develop a motive that maintains an aim to satisfy the basic missing requirement but, because the person does not perceive readily feasible routes, they pursue compensatory, indirect routes that often fail to satisfy the underlying need.

When conditions exist or events take place that limit our ability to meet our needs and affect our bodily or psychological structure, to some degree, some individuals experience a trauma. As a result, in order to cope, we then may develop defense mechanisms to block out awareness of or desperately attempt to meet those unmet needs, often in a misguided fashion. This process involving unmet needs, trauma and defense mechanisms is a central one that lies behind many of the most destructive aspects of a culture that doesn't account for needs.

When a need isn't sufficiently fulfilled, either in composition or frequency, then there are body [stress] effects. When there isn't enough water to meet needs, then there is the experience of human stress (sometimes called "water stress"). However, there is complexity to the effect. For instance, a human can practice breath holding or reduced breathing and the body adapts by becoming more flexible and resilient (via eustress, hormesis). Conversely, the long-term stress of poor nutritional eating leads to the body experiencing a state of chronic dis-ease (a.k.a., chronic stress, distress). A need scarcity-fulfillment index (e.g., water scarcity index) is a measurement of the ability to meet all resource or condition (e.g., water) requirements for basic human needs.

Fundamentally, stress comes from social (and physical) pressures. Stress can be unnecessary, hormetic & adaptive, chronic, etc. A society that accounts for the presence of social and physical pressure will likely also reduce stress on the individual over all domains of measure.

NOTE: *Some societies acknowledge, account for, and fulfill human needs, and others do not. Sometimes human needs are confused with other conceptions, such as money or belief, and sometimes not. It is possible to not know what is missing.*

Vital signs of life naturally deteriorate when deprived of natural environmental form and stimulus. Insufficient breathable air leads quickly to incapacitation by the degree of deprivation, but deprivation of open space or light take far longer to show the loss of ability to function through range. Generally, it is not possible to be deprived of need fulfillment without losing life capacity towards disease and death. Deprivation of any of these universal life necessities (needs/services), and to the extent of this deprivation across the need categories, generates human suffering and social injustice demonstrably follow.

Human life is harmed, damaged, or reduced in life-potential when:

1. There is a failure of life-requirement fulfillment - the range of expressible activity is reduced because certain essential life-requirements have not been met. A failure of life-requirement satisfaction constricts the actual content of life-activity to a subset of its potential.
   A. A life abundant in capacity expression is better than a life impoverished in this dimension.
2. There is the presence of social coercion - lives may be abundant in expressed capacities, but those capacities are expressed through coercion (e.g., coercive routines those imposed by the demands of the money-value system); versus the intrinsic realization of life-capacities.
   A. A life abundant in capacity expression is better than a life impoverished in this dimension. The

free realization of life-capacities presupposes, in addition to the satisfaction of the first two sets of life-requirements, the experience of time as free.

Insufficient fulfillment produces harm. For instance, an insufficient amount of nutriments results in a failure to thrive (organically, socially, etc.). Some inadequately met needs will lead to death (e.g., lack of the correct atmospheric gas composition). Other inadequately met needs may not lead to premature death, but are likely to cause suffering and lead to the failure to achieve one's potential. Depending upon environmental factors, human senses and capacities may or may not develop, and, may or may not develop fully. Harm lies in the impoverishment of human sensibility and capability caused by a misaligned relationship with nature and other humans. Further harm lies in the emotional internalization of the impoverishment through the experience of suffering.

> **NOTE:** *Among community, whenever any condition, relationship (etc.) harms or hampers the prolonged, secure, universal fulfillment of needs, then dis-value ensues. To dis-value some condition involves a critical study of the condition and its relationship to human harm. Once complete, the newly understood information is integrated into the pre-existing value system, which becomes re-structured, re-orienting society more greatly toward fulfillment, and away from the information set now known/understood to cause harm. The category-level label given to this information set is, 'value'. Some values orient more greatly toward fulfillment, and others orient less greatly toward fulfillment, which means they orient more greatly toward harm [to fulfillment].*

Humans, like all living organisms, have a life-capacity potential that is diminished when life-requirements are not sufficiently or appropriately fulfilled. Accompanying the diminishment of life capacity is the emotional aspect of insufficient embodied fulfillment, the experience of suffering. Deprivation of life requirements (inappropriate frequency and/or composition) will inhibit life capacity and generate suffering. Human lifeforms can be harmed and limited in potential by too lengthy a dis-connection from, or too malformed a composition of, a required input.

Humans are liable to shared forms of harm, because they have shared life-requirements. When value determinations become misaligned from this underlying, common life-ground, actions tend to generate more or less-destructive effects, on individuals, social fields of life-development, and natural fields of life-support.

If human social self-consciousness is to be able to produce meaningful constructions, then consciousness requires access to definite social relationships and organizations (or institutions), without which the highest level human-conscious capacities are less likely, unnecessarily so, to develop. Possibly, these organizations (optimal organizations are as necessary to humans (as social beings) as oxygen and water are to humans as organisms (as organic beings). Where certain groups of people are denied access to these organizing systems of society (e.g., in the market), they are harmed in their humanity, just as those who are deprived of organic life-requirements are harmed in their organism.

In society, harm can not only come to humans, but it can come to the systems that support and sustain human fulfillment also. Humanity's common life interest is understood to begin with the universal life support systems that all human life (i.e., the life-ground), life conditions and fellow life depend on, the ultimate bottom line of terrestrial existence. When a societal system (decisioning, in particular) harms the common life support systems that enable the survival and thriving of all, then some degree of suffering and disaster is likely to follow.

> **NOTE:** *When humans go for a long time without having all of their needs fulfilled, then it is likely to become difficult for them to begin to personally allow for their needs to be met (now that the environment is different). For example, a person who doesn't get enough sleep may insist that they can do without. A person who has grown up without deep connection to others may insist that they prefer to live in relative isolation. Additionally, individuals who have deeply rutted routines will resist change when it is offered to them, making change all the more unlikely. Possibly, humans have a naturally protective process that occurs when a need goes unfulfilled. Therein, they develop beliefs that justify the ignoring of suffering, or if not suffering, then a lowered potential of capability in the world. They are in denial. There are a common set of human needs, for every single person on the planet needs such experiences as food, water, shelter, and sleep on a regular basis.*

Because humans are social animals, they are capable of experiencing not only physical harm to their organic body, but also psycho-social harm from the social aspect of the environment. Without access to socially needed inputs, people are harmed in their humanity, just as those who are deprived of organic life requirements are harmed in their physical organism. Fundamentally, failure to fulfill social life-requirements undermines humans' capacities to be of help to one another, as well as oneself. In other words, failure to satisfy human social life-requirements undermines humans' capacities to work in both instrumentally and intrinsically valuable ways. It inhibits individual's ability:

1. To care about, to relate to, and to interact with other people as unique bearers of life-value.
2. To think openly, analytically, and critically; to imagine and plan for new possibilities of action and social organization.