

Human knowledge is constantly growing as we discover new horizons. New fields emerge as we conceive innovative ideas, improve our scientific methods, invent new technologies, and conquer new worlds. Yet we are eager to see “the whole picture” and the logical relations among the main fields.

10 Pillars of Knowledge is an intellectual journey aimed at mapping human knowledge. Throughout our journey we will map human knowledge, discuss the meanings of basic concepts that underlie science and scholarship, language and art, culture and religion, and look at hundreds of fields that compose contemporary knowledge.

Chaim Zins is a scholar, an educator, and a conceptual artist.



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Knowledge Mapping Research

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Prolog

Dear Friends,
I invite you to join me on an intellectual journey aimed at mapping human knowledge.

Human knowledge is constantly growing as we discover new horizons. New fields emerge as we conceive innovative ideas, improve our scientific methods, invent new technologies, and conquer new worlds. Yet we are eager to see "the whole picture" and the logical relations among the main fields. And we are eager to understand the basic concepts that underlie science and scholarship, language and art, culture and religion, and that facilitate human communication.

Throughout our journey we will map human knowledge, discuss the meanings of key concepts, and look at hundreds of fields that compose contemporary knowledge.

10 Pillars of Knowledge: Principles

10 Pillars of Knowledge is a systematic map of human knowledge, which presents, at a glance, the structure of knowledge and the meaningful relations among the main fields.

10 pillars. Human knowledge comprises 10 pillars: foundations, supernatural, matter and energy, space and earth, non-human organisms, body and mind, society, thought and art, technology, and history. Each pillar focuses on a general common phenomenon:

- Foundations studies human knowledge.
- Supernatural concerns mysticism and religion.
- Matter and energy explores the basics of the physical world.
- Space and earth explores our planet and outer space.
- Non-human organisms explores the non-human living world.
- Body and mind explores the human body and the human mind.
- Society deals with the various aspects of human social life.
- Thought and art studies the products of the human intellect and the arts.
- Technology explores the products of human creativity, which are designed to achieve practical purposes.
- History encompasses human history.

Knowledge–supernatural–universe–humans. The 10 pillars are organized into four groups, which explore four super-phenomena: knowledge (pillar 1), supernatural (pillar 2), universe (pillars 3-4-5), and humans (pillars 6-7-8-9-10).

Living world: scientific vs. religious perspectives. On top of the intersection between the universe and humans a fifth super-phenomenon emerges, the living world (pillars 5-6). The order of the 10 pillars makes it possible to represent the reli-

gious approach, which separates apes and humans, and the scientific approach, which treats both of them as part of the living world.

Humanistic approach. The order of the 10 pillars is based on the five super-phenomena: knowledge, the supernatural, the physical universe, the living world, and human civilization. This order reflects a humanistic approach. It starts with the foundations of knowledge, and ends with human history, which is the culmination of the human experience.

Metaknowledge/subject-based knowledge. Human knowledge follows a metaknowledge/subject-based knowledge structure implemented on the map level, the pillar level, and the field level. Metaknowledge is knowledge about the body of knowledge itself. Subject-based knowledge is knowledge about the explored phenomena. Let us stay on the map level.

The metaknowledge of human knowledge is represented, on the map level, in pillar 1, which is focused on the philosophical, historical, sociological, methodological, and the mediating perspectives of human knowledge.

The subject-based knowledge of human knowledge is represented in pillars 2 through 10, which cover all the phenomena that are subject to human exploration.

Supernatural–universe–[living world]–humans. The grouping of the various phenomena that are subject to human exploration into three super-phenomena (supernatural, universe, and humans) is based on a philosophical tenet – the distinction among God, the world, and man – that goes back to Greek philosophy. The addition of the living world super-phenomenon arises from modern biology; especially the theory of evolution.

Theory–embodiment. Human knowledge follows a theory–embodiment structure. It is implemented on the map level, the pillar level, and the field level.

On the map level, pillar 1 is the “theory” part of human knowledge, and pillars 2 through 10 are the “embodiment” part. Pillar 1 includes the metaknowledge, or rather the “theory,” of human knowledge. Pillars 2 through 10 embody our knowledge of the supernatural, the universe, the living world, and the human phenomena, which are the center of human exploration.

On the pillar level, the first category, theory, is the “theoretical” part of the pillar, which presents fields that focus on general theoretical issues of the explored phenomena; for pillar 6, body and mind, for example, these are philosophy of life, philosophy of mind, and bioethics. The other categories embody our knowledge of the explored phenomena. All the pillars except pillar 8 share the theory–embodiment structure. Pillar 8, thought and art, is divided into three sections: thought, literature, and the arts (non-literary arts), and each has its own theory–embodiment structure.

On the field level, the “theory” section is implemented in the theory of the field; for example, philosophy of medicine is part of the “theory” section of medicine. The other sections embody our knowledge of the relevant phenomena. In the example of medicine, these are internal medicine, pediatrics, surgery, and the like.

Categories vs. fields. Every pillar is composed of relevant categories and sub-categories. Every category presents the relevant fields. For example, pillar 3, matter and energy, is composed of three main categories: theory, principles, and substances. The theory category presents two fields: philosophy of physics and philosophy of space and time. The princi-

ples category presents the field of physics, and the substances category presents the field of chemistry.

The hierarchical structure. The 10 Pillars of Knowledge is a hierarchical knowledge tree. The 10 pillars are the first-level categories of the hierarchical structure (1st level). They are respectively divided into 32 main sub-categories (2nd level). The 32 main sub-categories are respectively divided into 34 sub-categories (3rd level categories). Two of them (7.3.1, and 7.3.2) are further divided into 18 sub-categories, which form the fourth level of the hierarchy (4th level). The four-level structure comprises 94 categories and sub-categories. The 94 categories partly overlap, forming 72 unique subject categories. The 72 categories are mutually exclusive and collectively cover the broad spectrum of human knowledge (see Fields of Knowledge)

Structure vs. content. The fields of knowledge are not part of the hierarchical structure. Physics, for example, is not part of the map. It is mapped in the relevant pillar and the relevant category. The distinction between the categories of the map and the fields of knowledge represents the distinction between the structure of knowledge and the content of knowledge. The 10-pillar knowledge map represents the structure of human knowledge.

Library: bookcases: shelves. To better understand the distinction between categories and fields, imagine that the map mirrors a library. In the Library of Human Knowledge the pillars are bookcases, the categories are bookshelves, and the fields are books. The Library of Human Knowledge has an impressive collection of books (i.e., fields). They are stored in ten bookcases (i.e., pillars), which are divided into relevant shelves (i.e., categories and sub-categories).

Fields of knowledge. Knowledge fields are defined on the basis of the explored phenomenon. I use the term “phenomenon” (plural phenomena), rather than “object,” to emphasize that the explored phenomenon/phenomena can be anything that is subject to human exploration, among them physical objects (e.g., the Earth), abstract entities (e.g., the supernatural), processes (e.g., education, music, and history), and the like.

Multidisciplinary and interdisciplinary fields. Multidisciplinary fields are composed of different fields in the same academic unit, without integrating them (e.g., area studies, see cat. 7.2.2), while interdisciplinary fields integrate different fields to form new fields (e.g., biochemistry). The analogy is to a rainbow and the orange color. A rainbow is “multicolor” – a series of seven distinct colors, while orange is “intercolor” – an integration of red and yellow. The 10-pillar map represents all fields, including multidisciplinary and interdisciplinary, that can be placed in more than one category.

Contemporary fields. Based on an empirical study of contemporary knowledge, which was part of the mapping project, the 10-pillar structure maps 200 core fields (i.e., major disciplines) and emerging fields (i.e., fields at the frontiers of science). The core fields (e.g., medicine) embody more than 600 main fields (e.g., surgery and pediatrics; both are sub-fields of medicine) that embody more than 2000 fields (e.g., neurosurgery and plastic surgery; both are sub-fields of surgery). The 2000 fields were extracted from approximately 10,000 terms that were drawn from diversified resources, among them national academies of sciences, library classification schemes, and encyclopedias.

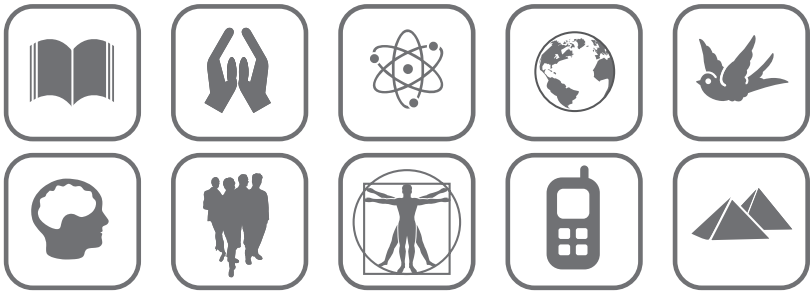
Bookcases vs. books. Library users who enter the 10-pillar library see 10 bookcases full of books. The organization of the entire collection of scientific and academic books in 10 book-

cases is the product of a cooperative effort between two experts: the carpenter (i.e., the knowledge architect) and the librarian (i.e., the cataloger). The carpenter designed and made the 10 bookcases and the librarian placed each of the books on the relevant shelf. 10 Pillars of Knowledge is the 10 bookcases. It is necessary for systematically organizing the books.

The distinction between the map categories and the knowledge fields resolves potential obstacles. Disagreements on the place of specific fields do not jeopardize the validity of the map. People may disagree about the place of specific fields. Still, the map is valid and adequate as long as every field can be placed in at least one category.

To summarize, *10 Pillars of Knowledge* is a systematic and comprehensive map of human knowledge. The 10 pillar building rises above five super phenomena and represents the multiplicity of all fields that establish our cultural and scientific heritage. The map has four main characteristics: the 10-pillar hierarchical structure, the metaknowledge/subject-based knowledge structure, the theory–embodiment structure, and above all, the distinction between the categories of the map and the fields of knowledge. This is a central paradigm shift – “the Copernican Revolution” – of knowledge mapping.

We continue our intellectual journey by zooming in into the ten pillars.





Pillar 1:
Foundations

1. Theory
2. Context
3. Methodology
4. Mediation



Pillar 2:
Supernatural

1. Theory
2. Mysticism
3. Religions
 1. Ancient
 2. Monotheism
 3. Asian
 4. Modern
 5. Ethnic



Pillar 3:
Matter & Energy

1. Theory
2. Principles
3. Substances



Pillar 4:
Space & Earth

1. Theory
2. Space
3. Earth
 1. Surface & Substance
 2. Interrelations



Pillar 5:
Non-human Organisms

1. Theory
2. Basic Sciences
3. Health & Wellbeing



**Pillar 6:
Body & Mind**

1. Theory
2. Basic Sciences
3. Health & Wellbeing
 1. Medical Sciences
2. Paramedical Studies
3. Complementary Medicine



**Pillar 7:
Society**

1. Theory
2. Society at Large
 1. General
 2. Area-Based
3. Domains
 1. Community
 1. Communication
 2. Contract
 3. Codes
 4. Conduct
 2. Needs & Activities
 1. Defense & Security
 2. Health & Wellbeing
 3. Economics
 4. Education
 5. Labor & Employment
 6. Welfare
 7. Transportation
 8. Housing
 9. Urban Planning
 10. Law & Conflict Resolution
 11. Culture
 12. Communication & Media
 13. Recreation
 14. Sports
 3. Management
4. Social Groups
 1. Gender
 2. Age
 3. Ethnicity
 4. Interest



**Pillar 8:
Thought & Art**

1. Thought
 1. Reason
 2. Representation
 3. Relations
2. Literary arts
 1. Theory
 2. Works
3. The Arts
 1. Theory
 2. Forms
 3. Time
 4. Place
 5. Ethnicity
 6. Interest



**Pillar 9:
Technology**

1. Theory
2. Professions
3. Technologies
 1. Sciences
 2. Needs & Activities
 3. Materials
 4. Processes



**Pillar 10:
History**

1. Theory
2. Universal Memory
3. Relations