Unicist Technologies

The Guiding Idea for Conceptual Design

The Unicist Research Institute
Pioneers in Complexity Science Research since 1976

Content

Prologue

Concepts to Deal with Adaptive Environments

Conceptualization is necessary to deal with complex problems in adaptive environments. The level of complexity of a problem depends on the quantity of interdependent autonomous entities that integrate the "unified field" of the solution of the problem.

The larger the number of entities, the wider the unified field is, and the more complex it is.

Concepts are not imagined they are discovered following an action-reflection-action process based on acting in the real world. It has to be clarified that conceptual knowledge implies having the abstract emulation of the concept in mind but also the operational procedures.

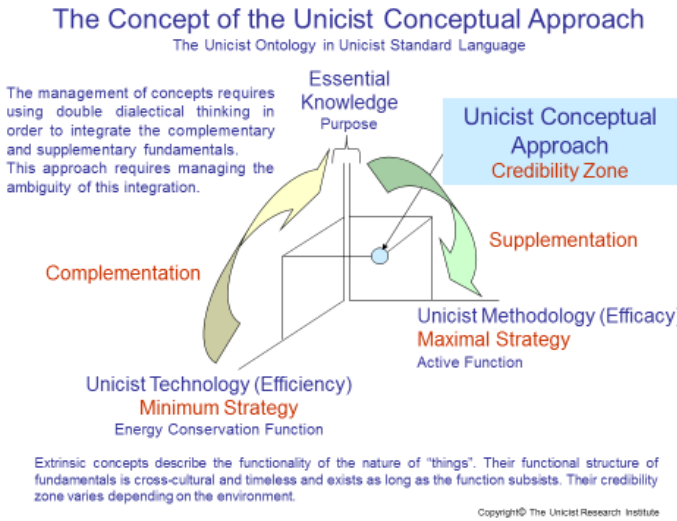
The more complex a problem is, the higher the level of conceptualization that is required.

As complex problems cannot be divided into parts without changing their nature, this is a limit to solve complex problems.

The Unicist Conceptual Approach

The unicist conceptual approach is necessary to deal with complex adaptive environments. It allows defining what is possible to be achieved and how to make it happen.

This approach is based on integrating the essential knowledge of an activity and the environment, the use of a unicist methodology that sustains the efficacy of the business processes and the development of unicist object driven technologies that allow managing efficiency without losing the capacity to adapt.

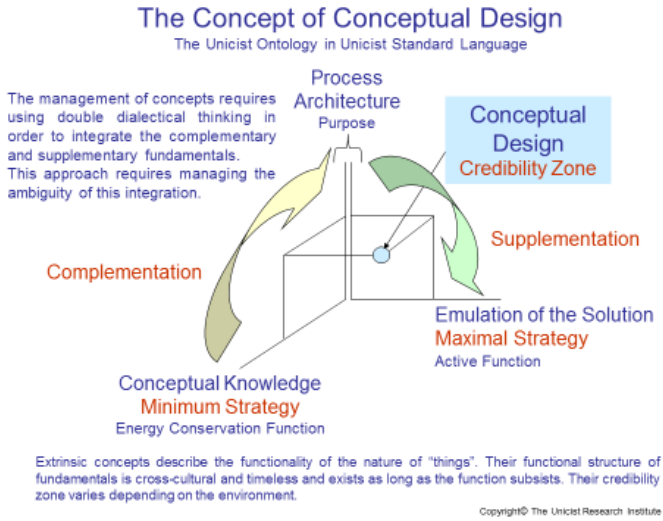


The essential knowledge requires managing the concepts that underlie a business and its environment which allows defining the nature of the business. It requires managing the structure of concepts and being able to transform such concepts into actions.

The Structure of Conceptual Design

The development of solutions in complex adaptive environments requires developing the conceptual design of such solutions. Solutions imply developing systems that are integrated by processes and objects. It has to be recalled that complex systems are necessarily integrated by objects that drive their functionality.

The purpose of conceptual design is to define the process architecture of the solution. To make this solution possible, it is necessary to be able to emulate it in mind. Emulating in mind requires envisioning the final picture of the process and the results that will be achieved. This requires having the knowledge of the fundamentals of the process and a solution thinking approach that allows building the solution.



The emulation of the solution becomes possible if the conceptual knowledge of the solution is available. The conceptual knowledge requires managing the ontogenetic map that defines the functionality of the concept that drives the solution.

Thus conceptual design implies integrating the emulation of the solution and the conceptual knowledge of the process to build the process architecture.

The Ontogenetic Algorithm of Conceptual Design

The Guiding Idea

The driver of conceptual design is the need of a functional solution. The existence of this driver requires having an empathic relationship with the solution. The empathic relationship with the solution is the essential driver of conceptual design while the functional solution is the "functional driver".

When the driver is given, it is necessary to be able to manage the ambiguity of complex systems integrating processes and objects to fulfill the objective of developing a solution.

This requires integrating the triadic structure that is implicit in the operational dualistic approach of building processes and objects. For this purpose, it is necessary to manage ambiguous language to integrate the apparent contradiction between processes and objects.

Evident examples of the need of ambiguous language is the integration of the concept of yin and yang, maximal and minimum strategies, active principles and energy conservation principles, processes and objects.

It has to be considered that ambiguous language is necessary to apprehend the integration of the triadic approach of nature and concepts.

To ensure the functionality of the definitions of the processes and objects it is necessary to define which will be the destructive tests that need to be done.

The Conceptual Design of a Functional Solution

The conceptual design of a functional solution is based on the integration of the emulation of the solution in the mind of the designer that drives the maximal strategy and the conceptual solution that drives the minimum strategy.

It has to be considered that the final purpose of the conceptual design is to build a solution in a complex environment.

This requires defining the processes and objects that will be used, making the necessary destructive tests of the processes to achieve a functional solution, which is used as the input for the design of the complex system.

Complex system building requires necessarily having a strategy to manage the feedback from the environment and the bi-univocal relationship among its components.

Therefore, the context of conceptual design is given by its integration with the purpose, which is the building of a complex system and the strategy that is needed to organize growth.

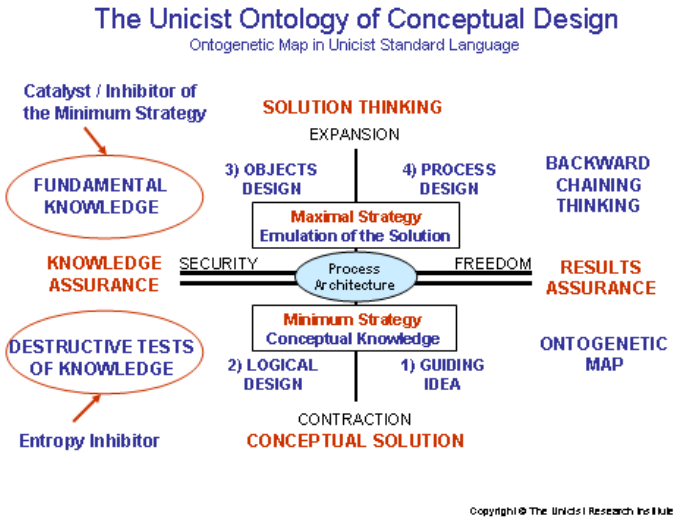
It needs to be clarified that a complex system cannot be transformed into an operational system with univocal cause-effect relationships. It remains complex.

What needs to be done is to develop simple tasks that can be managed by anyone in order to develop the necessary actions to produce results while the complexity is managed at a superior level.

Levels of Conceptual Design

Four levels of conceptual design have been discovered:

- **Level 1 - Guiding Idea:** that has the generic guiding idea of what is being designed.
- **Level 2 - Logical Design:** that has the logical design of the process.
- **Level 3 - Objects Design:** that deals with the design of specific objects.
- **Level 4 - Process Design:** that manages the unified field of the solution.



Level 1: Guiding Idea

This level of conceptual design is based on the rational knowledge of the conceptual solution and the understanding of the ontogenetic map that allows apprehending the metaphors that are used to categorize the design of the solution.

This level of knowledge requires having operational experience in the field of action of the solution without having the knowledge of the unified field that is being managed.

Level 2: Logical Design

This level includes the preceding level and includes the capacity of managing the complete structure of the conceptual knowledge of the unified field of the solution.

It is based on having the capacity to manage the unified field of knowledge based on integrating it in reasonable and understandable terms as a sort of "semantic network" of interrelated concepts that need to produce a predefined result.

This level of design provides conceptual solutions that are controlled making the destructive tests of these solutions. It requires being able to apprehend the triadic structure of concepts.

This implies being able to manage the ambiguity of the conceptual structure, which includes, on the one hand, a maxima strategy and, on the other hand, an operational contradictory minimum strategy.

Level 3: Objects Design

This level includes the preceding level and includes the capacity of emulating in mind some of the objects that integrate the final solution.

On the one hand, Objects design requires having the necessary empathy with the functions that need to be built as objects and with the users of these objects.

On the other hand, the design of objects deals with the functional solutions, which requires emulating the solution in mind and developing a backward-chaining process to define the problem that needs to be solved.

This process has to be recycled until the final solution has been achieved or has been replaced by a solution of a superior level.

The contradictions that will be found in these processes need to be approached by upgrading to a superior level where these contradictions are integrating in a unified field.

The objects design is based on the knowledge of the fundamentals of the objects and the knowledge of the purpose to be achieved by the entire system.

Level 4: Process Design

This level includes the preceding level and requires being able to integrate the interdependent objects that have bi-univocal influence using a double dialectical approach.

This level allows integrating the maximal and minimum strategy of each object in order to ensure the achievement of the results.

The process is based on emulating the dynamics of the solution in mind in order to be able to develop adaptive solutions and manage the influence of the environment.

The process requires being able to manage the unified field of the entire system and its dynamics, which requires developing the necessary destructive tests of the processes in order to ensure the functionality.

The final functional solution needs to have a maximal strategy to expand the boundaries of the system and a minimum strategy to ensure its survival.

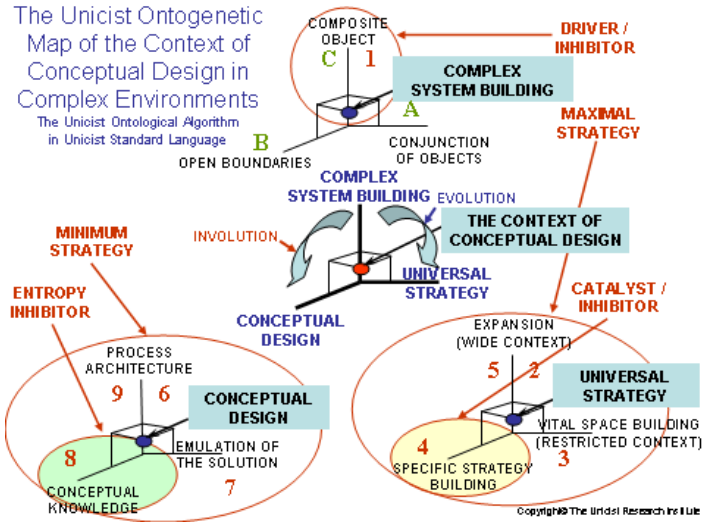
There has to exist an extreme level of empathy and ambiguity management, because a complex system is a composite object itself where all the ambiguous aspects of the objects and processes that integrate it need to be structured as functional conjunctions.

The Context of Conceptual Design

Conceptual design is only necessary where the knowledge of concepts is necessary. This is the case of complex systems and human adaptive systems.

Complex Systems

Complex systems are integrated by elements that are interdependent based on bi-univocal cause-effect relationships and therefore need to be managed as a unified field, which requires knowing the concept that drives the functionality of the system.



It has to be considered that complex systems are necessarily driven by an implicit or explicit strategy that allows expanding, building and sustaining the necessary vital space and that has a maximal strategy and a minimum strategy to grow and survive.

The maximal strategy is the one that allows expanding the boundaries of the system in order to grow.

Conceptual design is the complement needed by any complex system building in order to manage the conjunction of objects, manage the openness of the boundaries of the objects and ensure the results that are being produced.

The conceptual design of a complex system building process ensures the functionality of the system and establishes the functional limits of the strategy that are being used.

A biological entity considered as a system is an example of a complex system.

Human Complex Adaptive Systems

All those systems where the human being is part of their functionality or their user are defined as complex adaptive systems.

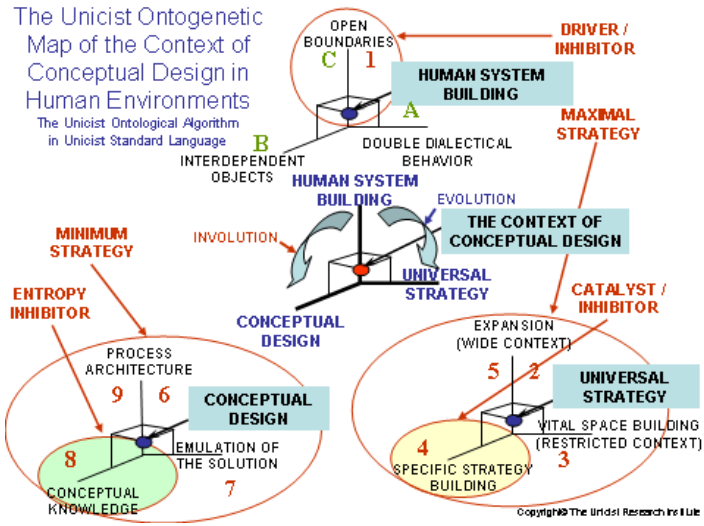
All human systems are complex, by definition, because they are driven by conscious and unconscious stimuli.

This makes human action complex and as such their systems always include complex aspects.

Human systems have open boundaries, are driven by a double dialectical behavior and are integrated by objects, which are functional adaptive systems.

Human adaptive systems' building requires having a strategy that allows expanding the influence of the system and building the necessary vital space to be part of the environment.

The building of a strategy implies the existence of a maximal strategy to expand the boundaries of the system and a minimum strategy to survive.



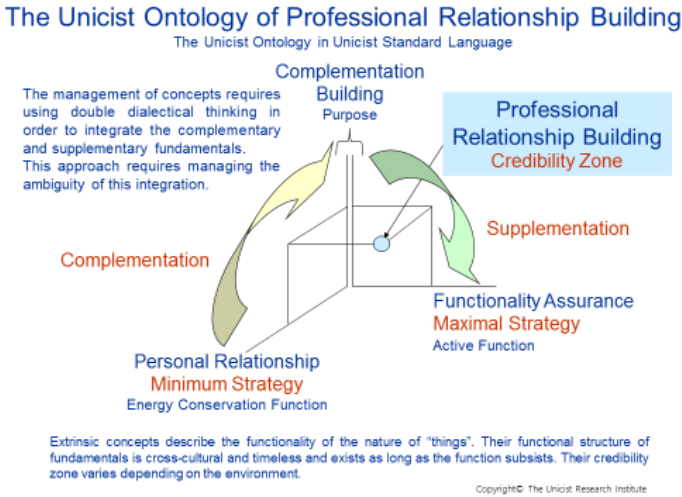
The complement that ensures the building of human complex adaptive systems is given by the conceptual design of their functionality. This provides their process architecture, which includes the emulation of the solution and the knowledge of the concepts involved.

Any information system, considering the integration of software, hardware and peopleware, belongs to this category.

Case:
Conceptual Design of a
Professional Relationship Building Process

Case: The Conceptual Design of Professional Relationship Building

The building of professional relationships requires being able to establish a complementary relationship that is driven by a value generating functionality and establishing a personal relationship that is centrally sustained by having a professional reliability.



There are several operational aspects included in this definition:

1) Professional relationships are established among peers or individuals who have an authoritative role in the environment.
2) Commercial relationships, which are not professional relationships, are built between individuals who seek to establish implicit alliances to profit from an activity.
3) Professional relationships cannot be built to take advantage from them. Advantage taking necessarily transforms professional relationships into commercial relationships.

4) Professional relationships are stable and commercial relationships are conjuncture driven.
5) Professional relationships require building complementary relationships while commercial relationships might be complementary or supplementary.
6) Commercial relationships suffice to do commercial activities but professional relationships are needed to develop business relationships.

The Unicist Ontology of Professional Relationship Building

The driver of professional relationship building is the need for developing synergy between the people who are related.

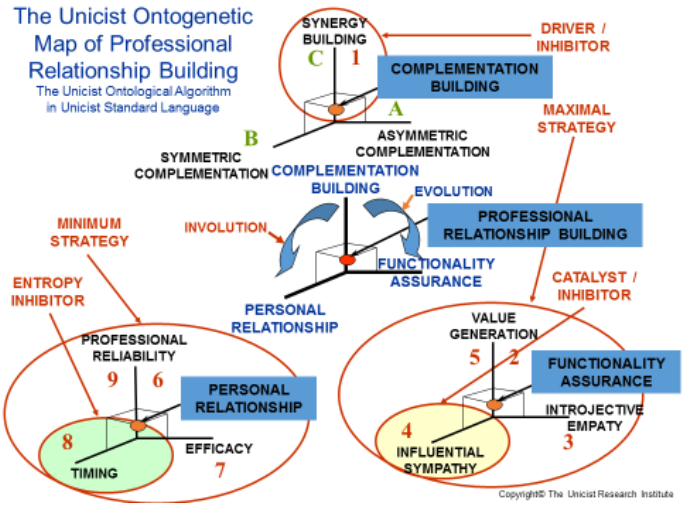
To begin to develop synergy it is necessary to start by having an asymmetric complementation with negative slope with the counterpart.

This requires having an authoritative professional role that allows approaching people with a superior added value in some field. Professional relationships can be built based on any true expertise that provides an asymmetric position.

Asymmetric positions are dysfunctional to build synergy because they drive towards a dominant-dominated relationship.

Therefore, the asymmetric role has to be compensated by a peer relationship, which implies that the asymmetry of the counterpart has to be recognized.

That is why a true professional relationship can only be built among people who have a “professional” role in the environment.



The symmetry of the relationship is based on the respect of each other's activities.

That is why the building of professional relationships requires a true interest in the counterpart and being aware of the value one has.

This value can be given by the subjective value of the person or the functional value of the organization the person represents.

Maximal Strategy

The maximal strategy is given by the responsibility the one who proposes has, to ensure the functionality of the relationship.

This requires being aware of the needs of the counterpart and the characteristics of the environment that allow establishing a functional relationship. In plain language, the person has to be aware of the value the relationship adds.

This functionality requires having the necessary introjective empathy that allows understanding the counterpart in order to build upon real needs and possibilities. This empathy needs to be sustained by a sympathetic relationship that makes the professional relationship possible.

It has to be considered that the capacity to be able to establish a true empathic relationship is extremely powerful, which requires that it be compensated with a sympathetic influence to ensure that the value generation is not a univocal action but the consequence of the relationship.

Minimum Strategy

When the value generation has been ensured, it is necessary to confirm that there exists a professional reliability. Each part will evaluate the reliability of the counterpart, which will be demonstrated by the professional efficacy of the participants.

This efficacy has to be proven through the actions of the individual. The actions of individuals need to be based on the capacity of generating results sustained by the knowledge that is needed to sustain a professional relationship.

These actions are a demonstration that the individual can materialize the value generation in a stable environment.

To do so, it is necessary to have the necessary timing in order to add value when it is necessary.

This timing requires to be synchronic with the personal and functional needs of the counterpart, having the necessary “acceleration” to manage the opportunities to add value and the speed of actions that

requires having sound technical and conceptual knowledge in the professional field.

When this is given, the complementation building process can be achieved.

Levels of Relationships

The person who has the initiative of building a professional relationship needs to be based on the needs the counterpart has, which might work at different levels that need to be identified and covered.

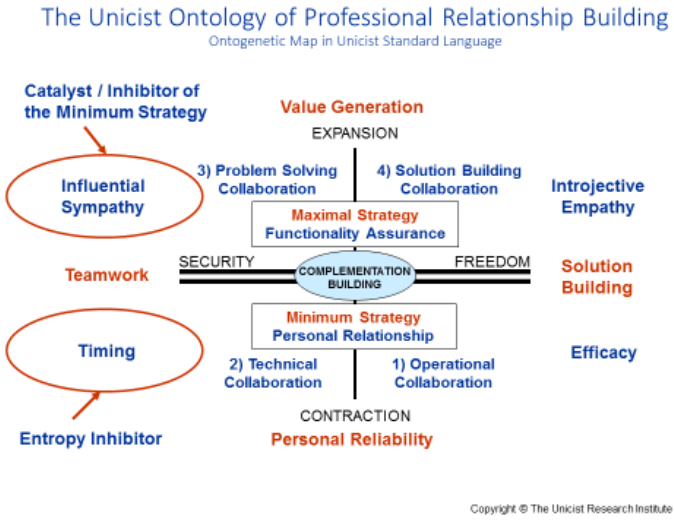
We have identified four levels of structural collaboration:

Level 1) Operational Collaboration

Level 2) Technical Collaboration

Level 3) Problem Solving Collaboration

Level 4) Solution Building Collaboration



Operational Collaboration

This implies that the collaboration is based on the personal reliability of the individual who has the initiative and needs to have the necessary knowledge and skills to solve the operational problems the counterpart has. This activity is driven by the spontaneous synchronicity of actions to solve operational needs, which includes the capacity of providing solutions at this level.

Technical Collaboration

This level includes the preceding level and adds the possibility of having a sound technical expertise to solve problems that require managing the technology that underlies the operational solutions. This activity is driven by the expertise the individual has that is being continuously updated and upgraded by the new findings in this field.

Problem Solving Collaboration

This level includes the preceding level but includes a systemic approach to problem solving, which is based on the influence the individual has to generate value. It requires having the basic operational skills to transform the systemic approach into actions and the expertise to confirm the validity of the solution. It implies managing problems as systemic, non-complex systems.

Solution Building Collaboration

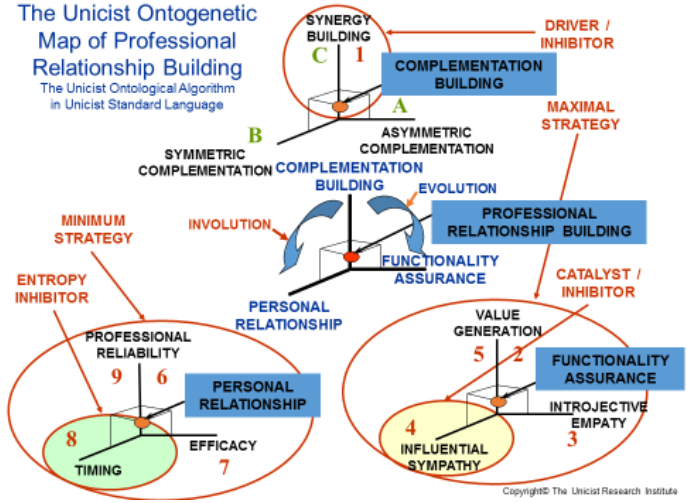
This level includes the preceding level and it is the upper level of collaboration, which requires managing the complexity of the environment with a solution thinking approach.

This level requires using the introjective empathic capacity to apprehend the nature of things in order to develop the necessary solution.

This level of collaboration requires managing the complexity of the problem and its restricted and wide context in order to collaborate in the development of a reliable solution.

Transforming the Ontogenetic Map into a Conceptual Design

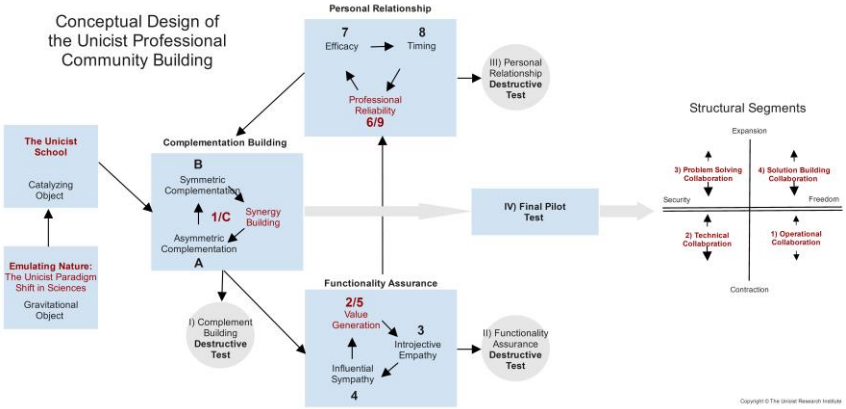
The ontogenetic map allows building the conceptual design, which is basically a mechanical work. It follows the ontogenesis of a process and needs to be developed following the synchrony established in the map.



A conceptual design can only be done by people who are able to emulate the real solution in their mind. It cannot be done based on abstract rational thinking.

The conceptual structures need to be read as if one would be reading a script and the explanation of the conceptual design has to be done in operational language.

The Conceptual Design

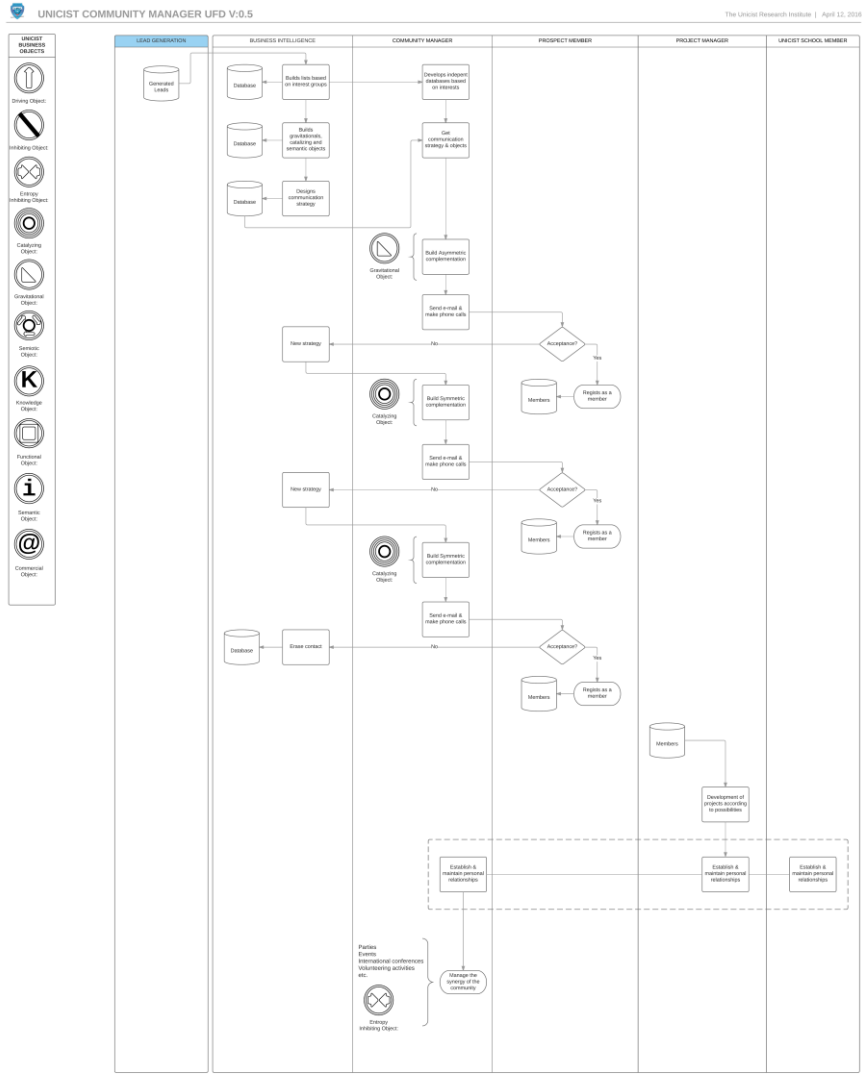


The unicist conceptual design method defines the concepts of what needs to be done and then it is transformed into a Unified Field Diagram that transforms concepts into processes, which include the definition of roles and the design of the objects that are inserted in the processes.

It has to be considered that each object is a complex adaptive system in itself. An object can only be considered to be used in a process when its conceptual design has already been developed.

On the next page you can find the unified field diagram of this process including the definition of the roles and objects that are part of the process.

The Unified Field Diagram



Enlarge: http://www.unicist.org/pdf/unified-field-diagram.png

Annex:
Unicist Business Objects

Some of the companies that use business objects in their organization are: Airbus, Amazon, Apple, BBC, Boeing, Dassault Systemes, Dupont, Ericsson, Facebook, General Electric, Google, Hilton, Honda, Hyundai, LinkedIn, Lufthansa, Mapfre, Mayo Clinic, Michelin, Novartis, Open Text, P&G, Pfizer, SAP, Siemens, Tata Motors, Toyota, Unilever, Walmart, Walt Disney World and Youtube.

Unicist Business Objects

Unicist business objects (UBO) are encapsulated adaptive systems that produce predefined results that can be inserted in work processes to increase productivity and quality and to save energy.

The Unicist Research Institute has developed Business Objects that allow emulating the organization of nature minimizing the energy consumed to generate value.

The Object Driven Organization emulates the organization of nature in institutions. The same way nature is organized by objects, every complex adaptive system is integrated by interdependent objects that make adaptiveness possible.

The human body is an example of this organization by objects. Because of their complexity, objects have, among other characteristics, open boundaries which imply that any "observer" is part of the system.

The use of business objects structures the timing and synchronicity of business processes.

It also provides the necessary acceleration to achieve the needed critical mass and the required speed to adapt to the environment.

Business Objects are adaptive systems that generate added value and save energy within the limits of their concept having a quality assurance system and a methodology to sustain alternative solutions.

The Unicist Objects provided are adapted to the business, the market and the scenario of a client and include patented and not patented processes.

Objects are productive adaptive units that have a concept, an added value, the necessary quality assurance and a methodology to ensure the minimum strategy. To imagine an object please consider an automatic pilot in an airplane. It can be considered a "paradigmatic" object.

Energy Saving and Quality Improvement

Unicist Business Objects are proven solutions based on the use of the unicist ontological algorithms included in the Unicist Standard that can be installed in processes in order to save energy and increase quality to produce results.

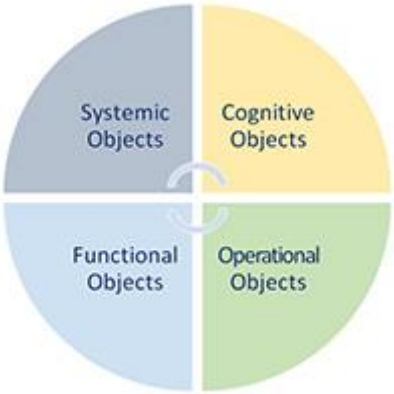
Comparison of the main concepts included in the objects of nature, IT objects and business objects

IT Objects	Unicist Objects	Objects in Nature
Class	Restricted Context	Species
Object	Business Object	Entity
Inheritance	Homologous Inheritance	Inheritance
Method	Method	Functionality
Event	Action	Action
Message	Information System	Nervous System
Attributes	Fundamentals	Morphology
Abstraction	Ontogenetic Map	Genotype
Encapsulation	Unified Field	Phenotype
Polymorphism	Polymorphism	Polymorphism
-	Synchronicity	Synchronicity
-	Critical Mass	Critical Mass

A synthetic presentation of the different categories of objects that were developed follows:

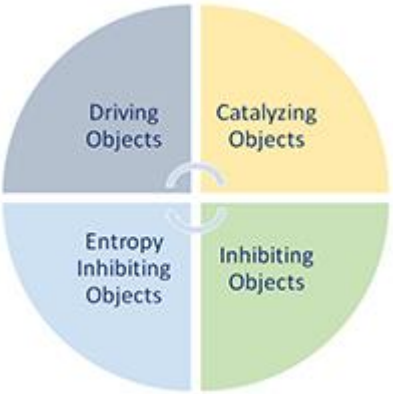
The Nature of Objects

These objects define the basic structure of objects based on their final purpose.



Functional Objects

These objects are defined by their functionality within specific processes and their context.



Behavioral Objects

These objects define the behavior of people and their capacity to adapt to the environment.

Commercial Objects

These objects are designed to foster the acceptance of an idea in the mind of buyers.

Semantic Objects

These objects install a structured knowledge in the mind in order to establish a basic context.

Semiotic Objects

These objects guide the actions of individuals in order to establish a functional pathway.

Institutionalization Objects

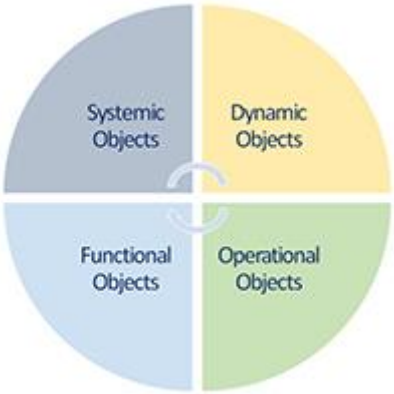
These objects sustain the perception and acceptance of an institution and its rules

Strategy Building Objects

These objects allow sustaining strategic processes minimizing the energy consumed to achieve goals.

Business Architecture Objects

These objects sustain architectural processes and minimize the cost of business architecture building.

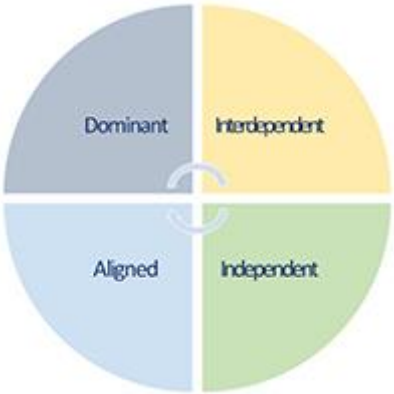


Institutional Roles / Objects

Institutional roles are in fact the objectification of institutions to manage their functionality.

Cultural Roles / Objects

Cultural roles work as objects in their environment and increase the adaptiveness of cultures.



Personal Roles / Objects

Personal roles are the objectification of their functionality in an environment.

Systemic Objects

These objects allow transforming energy and generating added value in a predictable way.

Functional Objects

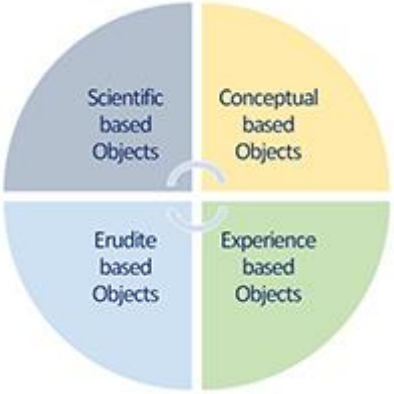
These objects integrate other objects in order to make them work as a systemic process.

Operational Objects

These objects allow earning value for a system based on a human control of their procedures.

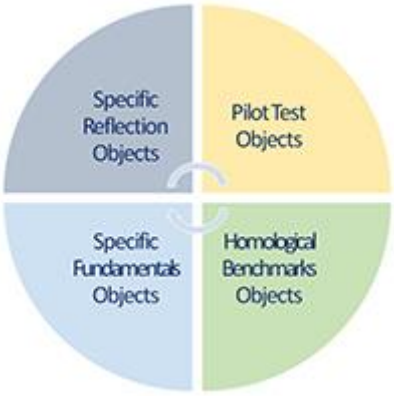
Cognitive Objects

These objects define the knowledge that is stored in the mind, integrating their added value and foundations.



Dynamic Learning Objects

These objects have been built to establish an object driven pathway that simplifies learning processes.



Quality Assurance Objects

These objects allow building systemic objects by ensuring the quality of their processes.

Leadership Roles / Objects

These objects allow sustaining the power of leadership processes without extering it.

Negotiation Roles / Objects

These objects guide negotiation processes and minimize the energy consumed by the implicit conflicts.

Image Building Objects

These objects sustain image building and establish the stages of these processes.

The Unicist Research Institute was the pioneer in complexity science research and became a private global decentralized leading research organization in the field of human adaptive systems.

http://www.unicist.org/turi.pdf