ORGANIZATIONAL COHERENCE AS A MEASUREMENT OF INTELLECTUAL CAPITAL IN CULTURAL NETWORK, THE NEUS METHOD.

[(*)]LEONARDO LAVANDEROS, JOSÉ FRANCISCO ROJAS, EDUARDO FIOL and SERGIO GONZÁLEZ

Center of Studies in Relational Theory and Knowledge Systems. SINTESYS Corporation.
Avenida Holanda 3607 Ñuñoa, Santiago, Chile.
(*) llavanderos@sintesys.cl Phone 569 87630271 562 2236531

BIOS

Leonardo Lavanderos. PhD in Biological Sciences, University of Chile (2000), Professor at the Catholic University of Chile (1996). Director of the Space Studies Center (Ex NASA Chile, 1998). Since 1995, Research Director of the Center for Studies in Relational Theory and Knowledge Systems (SINTESYS), Chile. Currently using the relational theory framework for modeling decision processes. Research Interests: Integrated modeling of relational systems, theory of ecotomo, Decision Models in Complex Systems, Developing techniques for understanding, modeling, and predicting change in ecotomo systems.

Eduardo FIOL. Computer Programmer (1983), Information Systems Engineer (1994), MSc in Information Engineering (2001) and Postitle in Industrial Management (2001), both at Technical University Federico Santa Maria. More than 20 years as University Professor, Manager, Consultant and Applications Developer. Broad experience in Programming, Databases, Strategic Planning and Knowledge Management. Sintesys Corporation Associate Researcher (2006) and Project Management Institute Member (2007).

José Rojas. Finance and Administration Engineer (2007), Technical University Federico Santa Maria. Sintesys Corporation Associate Researcher (2006). Research Interests: complex systems modeling and decision making.

Sergio González. Information Systems Engineer (1992), Technical University Federico Santa Maria. Consultant and Applications Developer in complex social networks.

Abstract:

Purpose – The purpose is to show an alternative way of modelling organizations, which derives from coherence idea. Understood this one as the management of the difference between the narrative of decision-making and the actions properly. From this perspective, the value depends on the process of relacional network configuration in the organization, which is accordingly to the configuration between the etwork structure of the organization and its decision-making process.

Design/methodology/approach – The approach adopted in the paper is to evaluate the configuration between the network structure of the organization and its decision-making process as Intellectual Capital, through the processes that generate differentiation and cohesion inside an organization and that can be located in the scope of cognitive structures, semantics and schemes of action or interactivity among persons. The method evaluates the coherence degree of relationships among the three scopes previously pointed out.

Findings – The exploration of an alternative way of modelling organizations based on a relational optics allows to locate the dynamics of the structure in the coherence that generates the network. Although the cognitive type is the variable that shows the least possibility of change, this does not define the state of the network by itself. In this way the coherence can be improved managing the decisional certainty of the speech and re-configuring the interactivity.
Originality/value – In doing so the paper has profound significance for the conceptualization of Cognitive Sciences and organizations models.

Keywords:

Complexity theory, Group behaviour, Organizations, Systems

Contact information for all authors

Center of Studies in Relational Theory and Knowledge Systems. SINTESYS Corporation.
Avenida Holanda 3607 Ñuñoa, Santiago, Chile.
(*) llavanderos@sintesys.cl Phone 569 87630271 562 2236531

INTRODUCTION

The economy of the XXIst century has been characterized as the economy of knowledge (Mokyr, 2002), understood this not from his prescriptive logic (what is not allowed is prohibited), as it is reflected in the execution/correspondence relationship, a basic analysis factor, but from poscriptive systemic approaches (what is not prohibited is allowed) where coherence is its main feature.

As pointed out by Mantilla (1999) "Then, the center of attention is not the fulfillment, but the coherence (between targets and goals, between actions and programs, the alignment according to). That's why, the starting point at managerial level is strategic planing and, as a consequence of it, how strategies (of long term) are lined up with operations (of short term)".

From previous paragraph, it is possible to venture that it is the coherence process which may explain, in a better degree, the generation of value within the scope of the economy of knowledge. This allows to explain that the difference between the market value (of the companies) and their book value turns out to be insufficient as a definition of Intellectual Capital. This is supported by part of the intangible assets (patents, marks, copyrights, goodwill, etc.) they register in accounting as part of the book value (Petty and Guthrie 2000).

Another aspect linked to the previous, is that the Intellectual Capital characterization has repercussions directly on the concept of productive economic relationships, since these cannot avoid its intangible nature (Marr, 2005). The analysis is complicated when it concludes that such assets have been taken into account using the same approach of the tangible ones, calculating its useful life and depreciation / amortization in such a period. This is, in fact, the basic establishment of the international standard n° 38 about Intangible Assets [IAS 38] (Mantilla op. cit.). If intangible assets are analyzed in an intellectual capital context, the base distinctions lead us to conclude that its useful life is indeterminate (can be very short or very long, it depends on the market) and its value increases with its use; i.e. they cannot be depreciated. It leads to understand that Intellectual Capital as a process instead of an object (Arenas and Lavanderos, 2008, in press), which implies locating its reproduction in the processes that preserve an organization. In this way, a fundamental conservative process is the coherence of the relational dynamics between the structure of the organization and its decisional process.

COHERENCE DEFINITION

Coherence is defined as "the management of the difference between the narrative of decision-making and the actions properly". Therefore, a small difference between them leads to a high coherence degree of the organization. The value emerges in every step of the chain, according to

the control of the difference; in this way, the knowledge process associated to wealth emerges from the recursive process of the differences extracted, exchanged between the actors constituted culturally as a network (Lavanderos 2002, 2005; Lavanderos and Malpartida, 2001; Malpartida and Lavanderos, 1999 and 2000). The knowledge happens to be a process of constant relacional configuration of the network, which expresses itself in its own decisional style (from highly coherent to incoherent).

When an organization is defined as "relational processes, semiotically organized from the culture" (Lavanderos 2001), then the coherence concept is tightly linked to the notions of use of the language as a base operation. This drives to the reconsideration of accounting in a context of value chain, and of audit from a distinction of certainty to one of confidence in uncertainty or complexity.

Upon those concepts, the NEUS (**N**etwork **Ex**ecution for **U**nbalanced **S**ystems) model is developed, which allows to relate the knowledge to the value of the organization, whose support is in the scope of cognitive sciences (Varela, 1992, 1998), specifically in the non-representational schools, particularly in the relational school (Lavanderos, op. cit; Lavanderos and Malpartida, op. cit).

THE NEUS MODEL

NEUS is oriented to explain and evaluate the linking state of the network on the base of configurations exchange (narrative) and the schemes of action or interactivity (behavior) that have meaning for this network context.

When it is stated that the intellectual capital emerges from the coherence of the relational process between the structure of the organization and its decisional process, then the evaluation of the coherence can be sustained in two parallel processes: meaning exchange (semantic configurations) and interactivity.

Semantic configurations exchange is the process that generates equivalence of meaning from the used narrative. The narrative composes of the cognitive type that generates it, joined to the presence of semantic recursive circuits, and the possible meaning inside the process of exchange, named Structural and Syntagmatic Equivalence respectively; these concepts are developed in detail further on.

On the other hand, interactivity is related to the behavioral dynamics of the organization, which is understood as the approach or rejection process between actors, when a decisional process occurs.

Then: $KI = f(CSE, SE, IS)$

Where:

- KI is the Intellectual Capital
- CSE is the Cognitive Structural Equivalence of the network
- SE is the Syntagmatic Equivalence of the network
- IS is the Indicator of the State of the network

Structural Cognitive equivalence in the decisional process (CSE)

Essentially, human activity is based on semiotic operations, particularly the language; thus the base of distinctions as cognitive operation generates connective structures in the reformulation speech with regard to a question. These structures arise from the type and number of connections among the concepts used in an explanatory process. For the structural characterization of the speech, the saussurian approach of syntagmatic and paradigmatic relationship axes (Lahitte 1981) is used. The syntagmatic relationships are to the presence of terms or words in any series as the paradigmatic ones are to the join of terms or words without specifying a particular way. The paradigmatic axis of a speech translates essential, stable, accepted and implicit relationships for a certain network.

From this, an analogy is established among the axes of the speech, the distinctions and the used relationality in the following way:

- Speech Syntagma (the distinctions from a base question)
- Thought Paradigm (the connections network among the distinctions)
- Type of used associations or terminological relationships: associative or causal.

The following are some rules or outlines that allow to connect the syntagmas:

- Attainment: Concepts in which the presence of one affects other, the connection is temporary. The simplest scheme is the causality.
- Association: Concepts that superpose part of his meanings in its relationship.

From the above, it is established that the discursive process, from its base of distinctions, generates a configuration of concepts by means of consecutive and associative connectors. In the case of a network, for every member the type of configuration expresses the affinity degree among them when building the explanations.

The specific methodology for this kind of modeling is based on the Cognitive Map concept (Ackerman et al. 1995), a system that charts the reasoning line of the observer as concepts and connections (Figure Nº 1), where rectangles S_i represent the syntagmatic line, connectors the paradigmatic line; arrow connectors the attainment and simple connectors the association; P_1 is the

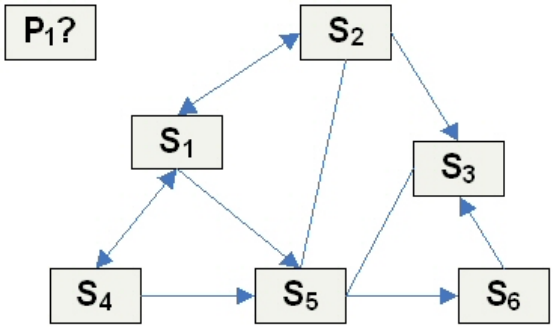

Figure Nº 1. Example of cognitive Map.

question that rules the context and S_5 is the potential attractor. From this structure, it is possible to carry out different types of analysis, like for example: attractors of speech, terminal elements, opening elements, and concept centrality. With this, it is possible to find out that some concepts of the reasoning centralize and rule the connectivity of ideas and concepts, so that they allow to characterize the cognitive type of the speech. The cognitive map accounts for the paradigm from where the observer builds its observation. This technique allows to structure, analyze and generate meaning for different types of problem. Cognitive mapping can be developed directly in an interview, allowing the observer to construct and argue, according to the problem arises.

The narrative structure is generated as a cognitive map, from concepts within the scope of decision-making problems inside the organization, as well as their connections. The maps are compared, trying to establish significant differences among speech structures. The criteria used to evaluate if there are differences among speeches is focused, on one hand, in the conservation of the "attractors" of the generated structures and in the presence of semantic circuits. An attractor is a concept that guides and centralizes the construction of explanatory ways or argumentation; it is obtained from the calculation of centrality of the elements that compose the cognitive map. On the other hand, the comparison of every context discursive structures is focused on the observation of the presence or absence of circuits, specifically the presence of "recursive semantic circuits".

These criteria allow to explicit the explanatory routes (sequences of concepts that generate meaning), from which the generative mechanism of the explanation is shown. Following, there is a detailed list of types of used analysis and their aim:

- **Centrality Analysis**. It prioritizes the connective density around syntagmas and its connectivity domain. The aim is to show the presence of centrality elements that rule the reformulation ways.

- **Circuit Analysis**. It extracts circuits generated by concepts inside the syntagmatic model. If they are recursive, it can be said that the reapplication of an operation is the consequence of its previous application, which predicts the complexity of the structure of the explanation and its way of association with other processes. When a link circle is formed, it generates a complex chain of argumentation.

From this, the Structural Cognitive Equivalence (**CSE**) is a function of the type of narrative generated between the connectivity (attainment and association) and the recursivity degree or number of present circuits when the centralizer is compared with the rest of the network.

With this, the Structural Cognitive Equivalence (CSE) equals to: f **(TCR_j versus TCR_i)**

Where TCR is the connective-recursive type which allows, when the members of the network are compared, with their boss or centralizer to get the structural equivalence degre. TCR is obtained from the predominant Connection Type (CT) and of the presence of circuits or Recursion Degree of (RD) by means of a matrix arrangement of both.

Calculation of the Connective Type (CT)

CT is calculated from the affinity/closeness among the connective type of the centralizer (CT_j) and the rest of the members of the network (CT_i). In this way, CT_j is equivalent to Dominating Connection/Total Connections, whose values are ranked in categories of Dominating Connective type (causal or associative). Values of CT are shown in Table Nº 1.

Once the CT_j is calculated, the connective dominance is calculated for the rest of the nodes of the network (CT_i). If the connective type of a node is inverse to the type of dominance of CT_j then it takes the category of opposite. For all the effects, the subscript j is assigned to the Centralizer and the subscript i to the rest of the network.

Value	**Connective type**
$0.85 < CT \leq 1.00$	Strongly Dominating
$0.65 < CT \leq 0.85$	Intermediate Dominating
$0.50 < CT \leq 0.65$	Weakly Dominating
$0.35 < CT \leq 0.50$	Weakly Opposite
$0.15 < CT \leq 0.35$	Intermediate Opposite
$0.00 < CT \leq 0.15$	Strongly Opposite

Table Nº 1. Class of values taken by the Connective Type (Causal or Associative).

Calculation of the Recursion Level (RL)

RL is calculated from the rate of circuits on a heuristic value of 10. In this way, RL_j (centralizer) corresponds to the Number of circuits of the centralizer divided by 10. This operation iterates for all the members of the network. The values of RL are shown in Table Nº 2.

Value	RL Type
0.66 < RL	High
0.0 ≤ RL ≤ 0.66	Low

Table Nº 2. Class of values for the level of presence of circuits (RL) in a cognitive map.

As mentioned previously, TCR is obtained from the matrix arrangement: TCR_{ji} where j equals to $(CT\text{-}RL)_j$ and i equals to $(CT\text{-}RL)_i$, the values taken by the matrix are qualitatively determined. In this way, when comparing the Centralizer j and the Collaborator i the Cognitive Type on the recursion is prioritized. In the case that CT of both is Associative; the distinction is determined by the recursion.

Once TCR_{ji} is obtained, it is ranked in five categories depending on the closeness obtained after comparing CT-RL of the centralizer to each member of the network, as shown in Table Nº 3.

Two individuals have a high CSE inside the network if their cognitive maps are Close. This means that, facing any question, people who shape the network structure the solution in a similar way;

Category	Value	Description
A	0.8 < TCR ≤ 1.0	Close
B	0.6 < TCR ≤ 0.8	Compatible
C	0.4 < TCR ≤ 0.6	Nearby
D	0.2 < TCR ≤ 0.4	Discordant
E	0.0 < TCR ≤ 0.2	Incompatible

Table Nº 3. Categories of classification of the closeness after the value of Structural Cognitive Equivalence.

therefore, they have close structures or forms, which will allow them a better possibility of coherence, scenario that propitiates the generation of Intellectual Capital.

Calculation of the Cognitive Structural Equivalence (CSE) of the NETWORK

CSE, mentioned first, is the structural cognitive indicator of the network. Equation [1] shows the calculation of CSE from the frequencies of the observed equivalence types. The category that represents the negative end (E) is discarded because the design criterion privileges an indicator of positive connotation. Nevertheless, this one is present in the N^2, which reflects its influence.

$$\text{CSE} = \frac{\left(\sum A + 0{,}7\sum B + 0{,}5\sum C + 0{,}3\sum D\right)*\left(A + B + C + 0{,}5D\right)}{N^2} \quad \textbf{[1]}$$

According to the value of CSE, the network can be classified according to the categories of Table Nº 4.

Value	Category
0.75 < CSE ≤ 1.00	Cognitively Cohesive
0.50 < CSE ≤ 0.75	Cognitively Allied
0.25 < CSE ≤ 0.50	Cognitively Loose
0.00 < CSE ≤ 0.25	Cognitively Dispersed

Table Nº 4. Categories of cognitive equivalence in the scope of the network.

The type of quality associated with the description of the Cognitive Structure of the Network sustains in the idea of constructing an "organizational mesh" from the communication process. For the same reason, an organization is compatible if the cognitive structure (way of establishing the explanation inside a context) is common for its members. In other words, they obey the same paradigmatic type.

Determination of the Semantic Equivalence in the process decisional (SE)

A second step in the development of NEUS is to evaluate the closeness of the speeches, according to its content; i.e. to evaluate the semantics associated to the structure of the Cognitive Maps.

An indicator of this is the speech attractor and, as defined previously, it is the one that centralizes the connections in relation to the universe of concepts that compose the map. According to Bateson (1980), it is an explanatory principle. The attractor can be understood as the concept that rules the meaning of the speech. On this base, the syntagmatic equivalence is calculated, which implies to

establish the closeness between the attractor of the boss and of every member of the network. The semantic equivalence from the attractor is established from certainty and similarity conditions of.

It is named "relata" the relationship established among attractors, forming the following typology:

- Hyperrelata: Context shared by all, is equivalent to the base question.
- Hyporelata: Vertical concepts, different natures, there is no relationship.
- Holorelata: Member-class concepts, coincidence of constituent parts, equal idea.
- Merorelata: Member-class concepts, horizontal, establish inclusion.

When the comparison among the meanings of the attractors is done, there emerge two big categories in which these can inscribe, concepts whose relationship with the attractor of the centralizer are of different nature, for example: "Corporate image" versus "Create internal learning cycles", where the first one comes from a strategic scope and the second one from an operational scope, i.e. in spite of being under the same hyperrelata or context, the explanatory principles that support the centralizer speeches versus its collaborator are in different hierarchical levels, which qualifies as hyporelata.

Another big category refers to the types holo-merorelata, which explains the degree of equivalence in terms of meaning. Of both, the holorelata is where the biggest resemblance is established. As an example, the attractors "Corporate Image" and "Institutional Prestige" correspond to the same relata.

Likewise, the category of merorelata is established when there is a smaller equivalence degree between two concepts from an inclusive relationship (one is part of the other). Example, in the scope of planning "to define roles" is part of "Corporate image".

On the other hand, the concept of certainty is related to the possibilities of interpretation associated to the attractor, in a given context. This means that an attractor which allows a wide scale of meanings is classified as of low certainty, this impacts negatively on the execution of the decision-making process. For example, "Corporate Image" generates a wide scale of meanings, which diversifies and allows high degree of freedom in how it must be understood inside the network.

In the scope of Cognitive Map, the certainty is reflected in the structure of the environment of the attractor. In this way, there exist attractors which concentrate (input connections) and others that dissipate (output connections). Because the connections are causal and associative, they can be classified according to their dominance, forming three categories: Incoming Causal, Outgoing Causal and Stationary (equal number of inputs and outputs or associative dominance). The coherence of the relationship is analyzed between the certainty level of the attractor and its structure. In this way, an outgoing causal low certainty attractor is highly coherent, but not when it

is incoming causal. This is established from that a concept of wide meaning (low certainty) needs to be explained by a big number of concepts (dissipates) to be able to give content.

Then, based on similarity and certainty, a matrix arrangement of the form: Matrix SC_{ji} where j corresponds to $(relatas\text{-}entorno)_j$ and i to $(relatas\text{-}entorno)_i$ is developed, the values taken by the matrix are qualitatively determined. In this way, when comparing the Centralizer j and the Collaborator i, the type of similarity (Relata) is prioritized over certainty. In the specific case of Hiporelatas, it is not possible to compare them, since by definition a relation does not exist. When comparing Merorelatas, the values are determined by the certainty generated by the attraction and dissipation structure.

As soon as the SC_{ji} is obtained the viability of the types of certainty and similarity generated by the crossing between the centralizer and the member of the network compared is analyzed. The typology is classified as shown in Table Nº 5.

Type	Status	Category	Grade of affinity
Hipersintonic	$0.8 < SC \leq 1.0$	A	Entire affinity
Merosintonic	$0.6 < SC \leq 0.8$	B	Partial affinity
Hiposintonic	$0.4 < SC \leq 0.6$	C	Average affinity
Discordant	$0.2 < SC \leq 0.4$	D	Low affinity
Incompatible	$0.0 < SC \leq 0.2$	E	Null affinity

Table Nº 5. Types of affinity after semantic equivalence

Calculation of the Syntagmatic Equivalence of the network (SE)

The equivalence is calculated according to equation Nº 1. The category E is not considered as explained previously in the Structural Equivalence.

According to the value of SE, the network can be classified in the categories shown in Table Nº 6.

From the previous Classification, it is possible to explain the why of the differences, in the scope of the action, between a control structure that designs a scheme of action and the responsible team of implementing the design.

Type	Status	Definition
Syntonized	0.75 < SE ≤ 1.00	Decisional process is completely reproduced by the network
Convergent	0.50 < SE ≤ 0.75	Decisional process is partially reproduced by the network
Divergent	0.25 < SE ≤ 0.50	Decisional process is inadequately reproduced by the network
Discordant	0.00 < SE ≤ 0.25	Decisional process is not reproduced by the network

Table Nº 6. Types of network after the loyalty degree of decisional speech reproduction.

Network Interactivity State Indicator

The intellectual capital is constituted from the success in the narrative reproduction of the management of the company associated to the relational mesh or executing structures.

The relationships are not measurable, since they belong to the scope of information (Bateson 1973, 1980; Von Foerster, 1974). A possibility is to deduce them from the judgments of value made by persons in an organization about their own colleagues. These judgments allow to establish schemes of action that are translated into attraction or repulsion processes inside the network. The schemes of action that determine cohesion or disintegration are named network interactivity and the categories of interactivity are defined in Table Nº 7.

Interactivity	Scheme	Explanation	Simple judgment
Feedback (+)	Repulsion	Symmetrical differentiation (fortress)	Odiousness
Hierarchization	Coercion	Complementary differentiation by submission	Disqualification
Deal (-)	Deal	Complementary differentiation by convenience	Evasion
Inaction	Inaction	No differentiation	Neutrality
Deal (+)	Proaction	Contact	Recognition
Interaction	Interaction	Approach	Praise
Feedback (-)	Attraction	Reciprocity	Admiration

Table N ° 7. Network Interactivity associated to schemes of action.

To establish the organizational network configuration, from interactivity, has as purpose to deduce the type of relationships that allow the organization to be carried out as a process. This network is constructed according to the affective - relative position of every actor inside the organization. Its construction is performed from what every member connotes in relation to other participants, from the daily activity inside the company. Reference center map shown in figure Nº 2 represents graphically the previous idea, showing the possibilities of establishing values judgments among persons in a network of 3 units.

The diagram depicts the type of interactivity of the actor towards the question: how do you evaluate the competence of the actor $\acute{k}$ opposite to the actor $\acute{\imath}$ to carry out a process of decisions making?

This process of interactivity can change in the time, generating a recurrent pattern. This pattern is analyzed, evaluating if it is stable and sustainable as base of the structure. The stability, as type of interactivity, is initially evaluated locally, this is from every actor towards the network and, later, local values are integrated into a global indicator.

The calculation of the State of Interactivity Index (SI) is developed from the answers to the interviews to the networks members. For the calculation of SI between A and B, 3 participants are shown: A, B and R; being R the remaining members (not A nor B) of the organization (Figure N° 2).

Every participant expresses $\frac{N(N-1)}{2}$ simple judgments, which are group according to figure N ° 2:

1. Declaration of A in relation to B, from A (1 value)
2. Declaration of A in relation to B, from B (1 value)
3. Declaration of A in relation to the rest of the network (R), from B (N-2 values)
4. Declaration of B in relation to the rest of the network (R), from A (N-2 values)
5. Declaration of A in relation to B, from the rest of the network (R) (N-2 values)

From the previous formulas, 3 values are calculated:

D1) The relative difference between 1. and 2.
D2) The relative difference between 3. and 4.
D3) The average of the relative differences between (5. and 1.) and (5. and 2.)

Every difference between A and B is calculated as: $|A-B| \times \frac{(A+B)}{2}$

The studied values are weighted in the following sum: 0.4 (D1) + 0.3 (D2) + 0.3 (D3).

Finally, this sum is multiplies for a factor of correction (k) obtained in a heuristic way, in accordance to the characteristics of the analyzed group. It is necessary to point out the bigger weighting of D1 over the rest, since it represents a direct declaration, unlike D2 and D3, that they are indirect.

In short, the State of Interactivity index A-B (SI_{AB}) is obtained from: $k \times \sum p_i \times D_i$

The resulting values range from 1 (best) and 7 (worst), which are **compound judgments** of the comparison of the simple judgments, classified in Table Nº 8.

The interactivity for the whole network (SI_{Net}) is calculated in the following way:

$$SI_{Net} = \frac{\left[\left(\sum F(A) + 0{,}7\sum F(B) + 0{,}5\sum F(C) + 0{,}3\sum F(D)\right)\times\left(F(A) + F(B) + F(C) + 0{,}5F(D)\right)\right]}{N^2}$$

Interactivity	Scheme of action	Compound judgment	Scale
Positive feedback	Repulsion	E	7
Hierarchical structuring	Coercion	D	6
Negative deal	Deal	D	5
Inaction	Inaction	C	4
Positive deal	Proaction	B	3
Interaction	Interaction	B	2
Negative feedback	Attraction	A	1

Table Nº 8. Determination of the type of interactivity from compound judgments

SI_{Net} values range between 0 (high level of repulsion) and 1 (high level of attraction), which classify according to table N ° 9, where a type of relationality is assigned to them.

On having a network classified as reciprocal it is said that the dominating relationships regulate the differences among persons in such way that, in a case of divergence. These are lowered through the quality of the coexistence. In case of a dealer network, the dominating relationships force to look for agreements to normalize the coexistence. Finally, the complement as symmetrical relationships generates division and rupture. The first ones by subjection or hierarchyzation and the second ones, for direct amplification of the discrepancy.

Type	Status
Reciprocal	0.75 < SI ≤ 1.00
Dealer	0.50 < SI ≤ 0.75
Complementary	0.25 < SI ≤ 0.50
Symmetrical	0.00 < SI ≤ 0.25

Table N ° 9. Relationality of values of SI_{Net}.

Evaluation of the Intellectual Capital (KI)

Finally, when relating three indicators described previously, a quantified measurement of intellectual capital, named KI (from the German Kapital Intellektuell) is obtained.

It is important to emphasize that KI is to lead the coherence state of the network, this is essential as soon as it moves away from the idea of "reification" or objectualization of this intangible.

The analysis of KI leads to a triadic interpretation of the cognitive structural equivalence (CSE), the syntagmatic equivalence (SE) and the indicator of the state of the network interactivity (SI). It is necessary to emphasize that this process is complex, the reductionism must be avoided in the interpretation.

Finally KI = $\sqrt[3]{CSE\,x\,SE\,x\,SI}$

KI takes values between 0 and 1 which are classified in Table Nº 10.

Type	Range	Definition
Cohesive	0.8 < KI ≤ 1.0	High coherence
United	0.5 < KI ≤ 0.8	Medium coherence
Untied	0.2 < KI ≤ 0.5	Low coherence
Disperse	0.0 < KI ≤ 0.2	Very low coherence

Table Nº 10. Classification of Organizations coherence

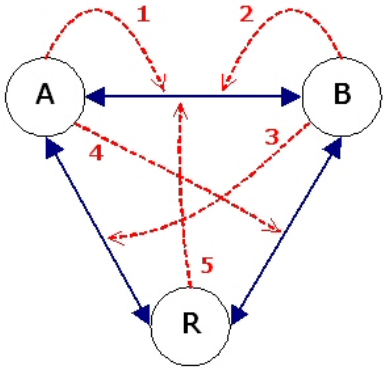

Figure Nº 2. Reference center map.

In this way, a network decisional that has compatible cognitive types of sintonic speech reproduction and a state of interactivity of reciprocal type classifies like cohesive (figure Nº 3).

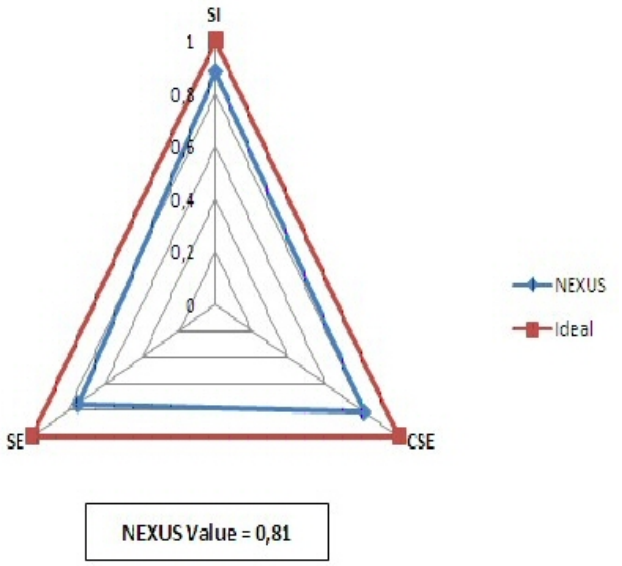

Figure Nº 3. Coherence graph for a cohesive network.

Figure Nº 4 shows a dispersed network, where the low coherence is due mainly to the fact that the command speech is not reproduced. A possible cause is a high number of hiporelatas in the decisional process, which impacts directly the strategy of action. A solution would be to re-configurate cognitive maps through agreed decision making models, to generate least decisional configurations through merorelatas.

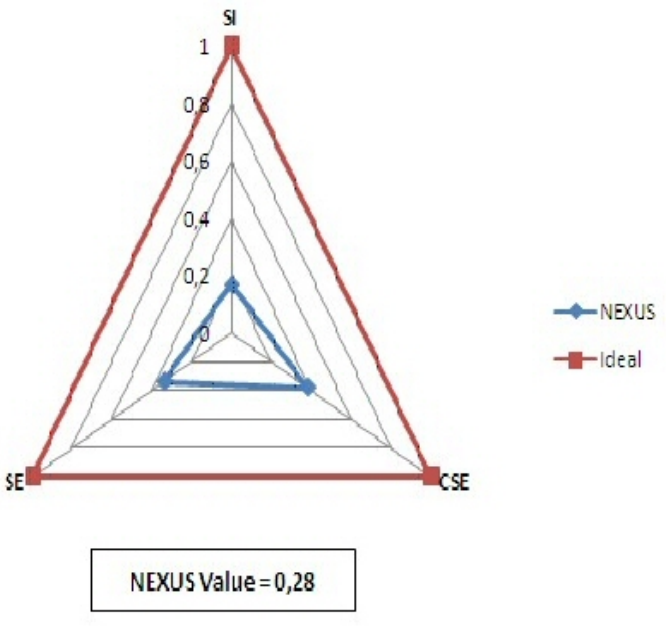

Figure Nº 4. Coherence graph for a dispersed network.

CONCLUSIONS

As said in the beginning, the transit from a prescriptive logic to poscriptive type one in relation to what is understood as knowledge production it implies locating the creation of value, as Intellectual Capital in the coherence of the decisional process, which can be configured as: distinction - explanation-decision-action between objectives and goals, between actions and programs i.e. to look for the alignment according to narrative axis and action axis. The incoherencies or "discrete jumps" produced are fundamental due to the communication supports, to control the difference between both axis are insufficient so the amplification of the difference is generated, by cognitive type incompatibility or the generation of low certainty speeches in decisions making, or because in the daily affective ambience symmetrical relationships freeze any possibility of network cohesion.

The state of a network is not static**.** Although the cognitive type is the variable that shows the least possibility of change, this does not define the state of the network by itself. In this way the coherence can be improved managing the decisional certainty of the speech and re-configuring the interactivity. In other words, generating participation in the decisional modeling and modifying interactions of repulsive type to areas that do not mean conflict.

The method developed is complementary to the idea of competences management since it supports context change of the network meaning. Because of that, a person can be competent in a context but not in other. Coherence management evaluates decision action configurations that can be taken by network, as bending and tensions from the triad cognition-semantics-interactivity occurs. These configurations are the Intellectual Capital of the organization because they have no only been legible to the own network but also to the external ones, which they have decided to establish or to cut relationships.

NEUS in its appliance is characterized to be non-invasive which in the practice means that both questions and solutions are modeled by the network, and also is not required that interviewers be an expert. Our method supposes that the knowledge activity is constitutive of the triadics configurations that historically have prevailed as part of the organization conservation strategy.

NEUS method target is the evaluation analysis and management of the decisional coherence of the productive processes generating connective mesh comunicationally sustainable in a way to propose configurations to manage the difference between the narratives to do and the doing of an organization.

REFERENCES

1. Ackerman, F. C. Eden and S. Cropper (1995) Getting Started with Cognitive Mapping. University of Strathclyde.
2. Sand, T and Lavanderos, L. 2008. Journal of Cardinal Intellectual. Volume 9. Not. 1. 2008
3. Bateson, G. (1973) Steps to an Ecology of Mind. Paladin Books.
4. Bateson, G. (1980) Mind and Nature - To Necessary Unity. Bantam Books.
5. Lahitte, H.B. (1981) Representation and record in anthropology. Cuadernos LARDS III:8.
6. Lavanderos, L. and Malpartida, A. (2001). Cognition and Territory. Publishing University UTEM. 190 pp. UTEM. Santiago.
7. Lavanderos, L. (2002). The organization of the Systems Culture - nature. Doctoral dissertation. Faculty of Sciences. University of Chile. Santiago. Chile. 160pp
8. Lavanderos, L. and Malpartida, A. (2005). Theory relacional of the communication as process eco_semio_autopoiético. Complexus. Vol. 1 Not. 2. pp. 45-86. http://www.sintesys.cl/complexus/revista2/articulos2/complexus2.pdf
9. Malpartida, A. R. and L. Lavanderos (1995). An approach society - nature: the ecotomo. Chilean magazine of Natural History 64.
10. Malpartida, A. R. and L. Lavanderos (2000). Ecotomo: To nature or society-nature relationship?. Acta Biotheoretica Volume 48.
11. Mantilla, B. S.A. (1999). Intellectual capital and Accounting of the Knowledge. Bogota: Ecoe Edition.
12. Marr, B. (2005). Perspectives on Cardinal Intellectual: Multidisciplinary Insights Into Management. Measurement. and Reporting. Elsevier Butterworth-Heinemann.
13. Mokyr, Joel. (2002). The Gifts of Athena: Historical Origins of the Knowledge Economy. Princeton and Oxford: Princeton University Press.
14. Petty, R. Guthrie J. (2000): Cardinal Intellectual literature review. Measurement. reporting and management. Journal of Cardinal Intellectual vol 1 N ° 2 pp 155-176.
15. Varela, F.; Thompson, E. and Thread, E. (1992). Of present body. The cognitive Sciences and the human experience. Publishing house Gedisa. Spain 318 pp.
16. Varela, F. (1998). To know. Publishing house Gedisa. Spain 120 pp.