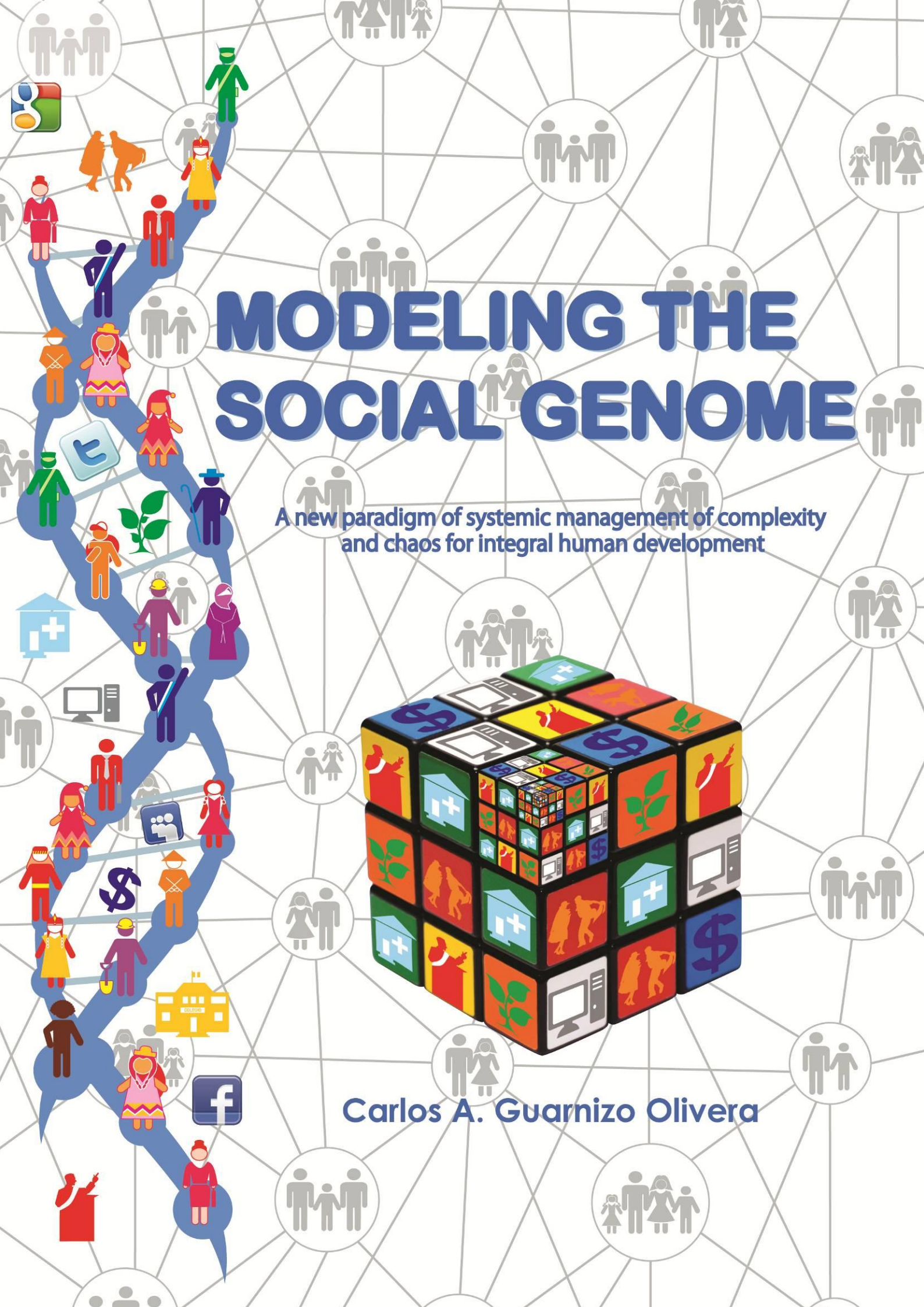


MODELING THE SOCIAL GENOME

A new paradigm of systemic management of complexity and chaos for integral human development



Carlos A. Guarnizo Olivera



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To God for illuminating my heart and my mind
within the existent chaos and complexity of our
universe

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instilled their love and values in me

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in life for their affection, friendship and tolerance

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and the many others that I met through their work

To all those who crossed the path of my life and
allowed me to understand myself and the universe
a little better

To you, who in reading this humble book, have
allowed me to transcend my own space and time

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PROLOGUE

This book is directed to all the social entrepreneurs who as a part of their mission in this life, devote their intelligence, passion and energy to creating a better world, helping those people who are, or feel excluded, as a consequence of limited resources and opportunities which inhibit them from reaching their potential.

Everything that is expressed in this book is based as much on the experience of work in social development projects accumulated during more than twenty years as it is on the reflective and self-critical evaluation of the processes implemented and the achievements reached during all that time. The observation of other experiences implemented through many social programs and projects, as well as those experienced at a personal and professional level are contrasted with the existing theory in relation to “systems”, “complexity” and “chaos” which has led to the need for the design and building of a new operational paradigm that makes our social mission more effective and efficient.

Because of this, it is very possible that the ideas expressed here, question the validity and relevance of many of the instruments and methodologies that are commonly used in the process of design, management, implementation, supervision, monitoring and evaluation of social programs or projects, an aspect that we must accept as being part of a process of re-apprenticeship in the building of a new paradigm within a systemic, complex, chaotic, variable and multi-dimensional reality.

This process of rebuilding involves each social entrepreneur and promotes in them the challenge of continuing to construct and innovate the new paradigm that is presented in this book as a way of achieving a more efficient and effective management of the social projects and programs in which we are involved and that permit us to transcend the relativity of our own space and time.

Carlos Guarnizo Olivera

“The definition of madness is to continue doing
the same thing . . . and expect different results.”

Albert Einstein

“The future belongs to the apprentices because
those who believe that they know everything are
already living in a world that doesn’t exist.”

Alvin Toffler

OUR CURRENT PARADIGM OF SOCIAL DEVELOPMENT

If there is something that social entrepreneurs have in common it is perhaps the ideal and passion that they put into achieving results for those who they help overcome one or several of their *social problems* in whichever form and expression those obstacles may take: malnutrition, illiteracy, poverty, violence, isolation, abandonment, mortality, low level of access and quality of services, low educational level; to cite some few examples among the hundreds which are determining factors in the actual level of development or quality of life.

Different to philanthropists, social entrepreneurs not only look to attenuate some problem or necessity by donating or giving things to those who supposedly need them, but promote some public policy or implement some project or program which achieves or contributes to supporting a resolution of the said problems that the commonly referred to *beneficiaries* suffer from. A saying, "It's not necessary to put the fish on the plate but rather to teach one how to catch it.", illustrates the difference between philanthropists and social entrepreneurs under current paradigm.

And it does work that way and as part of our mission and with the aim of helping an individual achieve desired social objectives throughout his or her life, varying strategies, methodologies and tools are applied which have been learnt and perfected through experience or acquired in some relevant academic education.

In this sense, and with the aim of exercising our entrepreneurial spirit, both work spaces and professional development opportunities are created at some state entity, in some organism of international cooperation, within a non-government, non-profit organization (NGO), inside a socially responsible company (CSR) or in a social base organization (SBO) or even perhaps looking for a political space to achieve the desired result.

Nevertheless, and perhaps different to business entrepreneurs (whose objective is to satisfy the needs of some type of market or clients through the sale of some product or service in the name of profit), social entrepreneurs have the difficulty of measuring and evaluating the results obtained, which are justified in many cases by the long time that is taken in resolving a social problem and the complexity of measuring it well, requiring in the best case the generation of indicators and even base line studies that permit the long awaited result to be evaluated.

As a result it is common for social entrepreneurs to point out that the solution to social problems is a complex and long term process where the possibility of measuring the results gained through the effort applied can only be ascertained in the long term and with the aid of measurements based on official statistics, if they are available.

Nevertheless, during recent years it has been observed that the achieving of substantial improvements in social indicators has become more of a challenge, in respect to what had been achieved decades before, thus reinforcing the concept that the solution to several problems is long term.

However, in the few cases in which we have been able to evaluate in some way the gains made in the improvement of some type of social problem through some intervention in a determined period, which is commonly called *pilot or flag* project, we find with an unwelcome surprise that with the passing of time and after culminating the intervention, what seems to have been gained can't be sustained in the long term and later on the project is described as, "good but not sustainable."

On the other hand, there is our experience with successful pilot projects, that on being implemented or replicated in other areas do not achieve or even approach the hoped for success, this failure being attributed in most cases to multiple variables behind a project, such as different circumstances, the lack of political support or management capacity in the zone where the replica of the intervention is made, among other explanations.

Therefore, it could be concluded on the one hand and as a way of justifying that the solution to social problems is a process of trial and error, that its results can only be measured in the long term, depending that is on the extent of the inevitable fluctuations in the political, social, economic, technological and environmental circumstances; or it could also be concluded, but this time in a self-critical way, that perhaps it is the manner in which social problems are attempted to be resolved which is not working nowadays, provoking therefore the need for changing the current paradigm of intervention for another, totally different one, that will help to achieve the ideal sought in a really successful and sustainable way.

If the challenge then is to conceive a new paradigm for the approach to social problems, then one of the most pragmatic ways of breaking our current paradigms down and initiating new ways of analysis would be the study of experiences in fields other than our own, and through analogy, making proposals for change or modification to the current form of intervening.

In this sense, for example, the analysis of the processes that successful business entrepreneurs employ in the commercial world, set against those used by social entrepreneurs is a good way of starting to explore new perspectives of doing things differently.

We will therefore begin by making a comparison of the processes, methodologies and tools that are used by both groups:

Processes / Methodologies / Tools	Business Entrepreneurs	Social Entrepreneurs
Definition of objectives and goals	Based on unsatisfied needs existent in the population	Based on social problems identified and prioritized from the state or civil society
Denomination of the target people	Clients	Beneficiaries
Identification of Clients/Beneficiaries	Through the segmentation of potential clients based on their needs and psychographic patterns	Through the identification of beneficiaries based on social problems identified and prioritized
Design of products or services	Based on diverse <i>perceived and valued</i> needs in each one of their segments of clients	Based on perceived problems as the cause of social problems in the group of beneficiaries
Method of relating to clients or beneficiaries	Persuasion and motivation so that they demand the product or service in a voluntary way (Marketing)	Awareness, technical and/or financial assistance to beneficiaries to contribute to the improvement of their problems
Development of products or services	Development and innovation of products or services with the aim of adapting to the diversity of their clients' needs	Development and improvement of methodologies and tools to achieve better awareness, technical and/or financial assistance for beneficiaries
Form of delivery of products or services	To attract the client to its point of sale or distribution	To seek the beneficiary in the area of intervention
Evaluation of results	Direct measurement of results in financial terms and market participation	Indirect measurement of results through social indicators and official statistics
Answer from client or beneficiary	Generally look for and pay for the product or service they receive	Generally wait for the free or subsidized product or service

If this comparison is analyzed, and does not pretend to be absolute, within its relativity it could be concluded that the focus of attention of social entrepreneurs is centered more on the problems than on the people even though the motive for this focus is the ultimate welfare of the people involved.

Therefore it can be clearly seen that methodologies and tools for the implementation of strategies and activities orientated towards the solution of problems have been developed which cater for *perceived needs* which are considered a priority for beneficiaries.

However, the question needs to be asked with every problem that we want to resolve if they are actually *perceived needs* on the part of the beneficiaries? Many times it is presumed by social entrepreneurs without it in fact being so, and this could well be one of the reasons why the desired results are not always achieved.

If a business entrepreneur doesn't really grasp what the perceived need of his clients is and doesn't design a product or service that satisfies that need, the product or service simply won't sell and this branch of his business will not be viable. Therefore, the first question that should be posed to our current paradigm is if the problems that actually need to be resolved, are or are not, really perceived needs by beneficiaries or must it be accepted that those problems identified are really only expressions of the ideal and

passion of social entrepreneurs in wanting to contribute socially, and to resolve what appears to be significant for them, but which is really of little import to beneficiaries.

Human beings, as strange as it may seem, become passionate about specific things, and in focusing on one thing instead of many we turn an inner key which drives us on. Social entrepreneurs are not exempt from that and this very passion that motivates them to resolve a specific social problem is perhaps also an impediment to seeing clearly what should be done and clouds judgment in assessing the true perceived needs of beneficiaries.

As Robert Chambers affirms in his essay, 'Poverty and Livelihoods: Whose reality counts?'¹, about the programs that fight against poverty throughout the world, 'The realities of economists prevail, expressing themselves in perspectives about poverty that refer constantly to poverty by income, and perspectives about employment that focus only on the lack of jobs . . . with a series of categories that are from urban, industrialized, northern hemisphere countries which has little relevance to the agricultural, rural, local, complex, diverse and dynamic world of poor southern countries. Poverty by income, although important, is only one aspect or part of the problem'.

Nevertheless, our current paradigm of contributing to the solution of social problems has become much more uncertain, in that the needs or problems really perceived for each person are almost infinite. Each person in this world has different perceived needs according to his culture, moment, situation or circumstance, which can vary as time passes, or even during the same day.

Another one of the differences between the two groups of entrepreneurs is that related to accountability by results. Those working in the social field are involved in the activities of *awareness*, known also as *social marketing* whose aim is to make people realize actions or improve their attitude in resolving social problems which interest them. Activity that in the end results in *activism*, where the actions that are implemented, are in some way related to the purpose of the achievement desired, but do not contribute to concrete and measurable results.

Activism is a process frequently seen within the current paradigm and it consumes vast quantities of resources. Examples of *activism* are activities like street bands, radial spots, awareness marches to name a few, that while in themselves are highly interesting, creative and even novel but fail to produce a direct effect (although to many it would appear they do) at the conclusion of the activity realized.

This activism can be justified as being part of a group of necessary interventions given the complex nature of social problems, however no one can affirm to what extent it

¹ Robert Chambers, *Poverty and Livelihoods: Whose Reality Counts? A Policy Paper No. 1 commissioned by UNDP for the World Summit for Social Development.* (New York: UNDP, August 1994)

contributes to the achieving of a solution of a determined social problem (cost/affectivity).

On the other hand, in the field of successful business entrepreneurs, measurable results are achieved when they implement activities of promotion and publicity that are developed as part of their marketing strategies, which through analogy represent the activity of awareness that social entrepreneurs develop in their strategies of social marketing.

It would seem that the cause that explains this difference lies in the business field as opposed to its social counterpart, where products and services are designed with a view to the real and existent needs of people rather than as a result of problems or the perceiving of needs of those requiring assistance.

It is this very point which promotes the need for changing the current paradigm used to resolve social problems, for another, which will contribute to the integral development of people, where each person can better attend to *their own needs* and resolve their *own problems* thus making in the process one of the most effective and successful ways of contributing to their own integral development.

Therefore, the famous saying: "It's not necessary to put the fish on the plate but rather to teach one how to catch it. ", under the new paradigm would also become obsolete, given that its meaning would be linked to the solution of a problem perceived by social entrepreneurs without considering the group of needs really perceived by the people to whom they supposedly want to help survive. Or in other words and within the same context of the saying, if people learn only how to fish to resolve the necessity for procuring food, they could live from the fish they catch, but their development is tied to a single opportunity. If for some reason, circumstance or environmental change, the possibility of fishing ceased to exist, the people would have the original problem again, which indicates that only a temporary solution was achieved, and one in the end that wasn't sustainable.

Finally, this metaphoric example also helps us understand why many initiatives of productive development that form part of projects and programs of social struggle against poverty are not sustainable, especially those projects that promote some specific type of productive initiative, without considering the variety of expectations and the real perceived needs of the beneficiaries themselves and the complexity that has to be administered behind the whole process of enterprise, whether this has a social or business purpose.

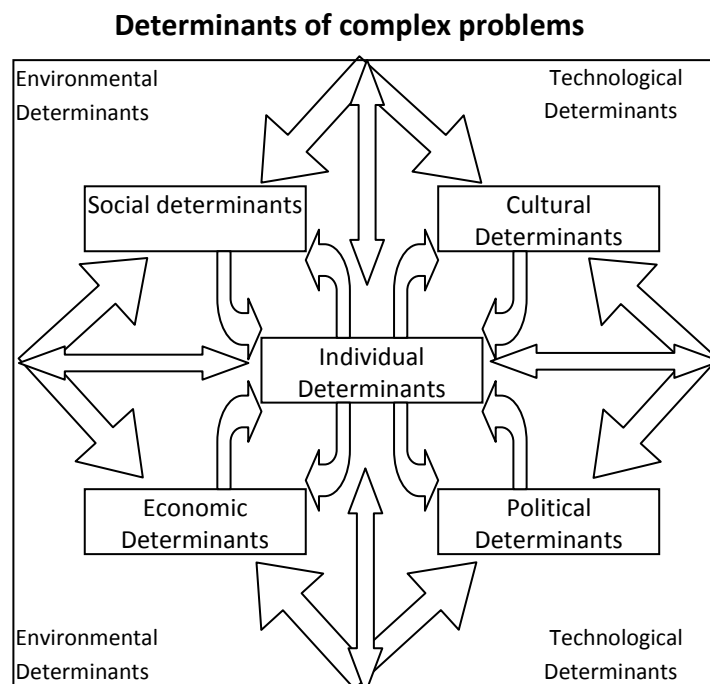
UNDERSTANDING THE COMPLEXITY OF SOCIAL PROBLEMS

With the purpose of conceiving a new paradigm for the approach to social problems, it is important that we first have a better understanding of the complexity of these types of problems. To do that, we need to make a revision and generic analysis of the multiple causes of each social problem, so that a relation of multidimensional interdependence between all the causes can be seen. These causes are at the same time determinants of other problems of a diverse nature, which makes it all but impossible to differentiate the causes of the consequences.

Therefore, it can be concluded that social problems are extremely complex as a result of their interdependence with other *non-social* and *social* problems, which are usually classified as being of an individual, cultural, economic, political, technological, environmental nature, etc. This way of grouping the said problems, although being academic, enables us to understand the magnitude and complexity of the problems faced in a more comprehensive way.

Nevertheless, to conceptualize social problems only as a consequence of other problems is also inexact, given that the presence of other factors which are not considered to be problems as such, also have, in a positive or negative way, a contributing effect.

For a more holistic understanding of the causes of complex problems whether they be social or non-social it is more appropriate to talk of the group of determinants (problems and non-problems) that must be taken into account. See diagram below.



Source: Elaboration of the author

Individual determinants: These determinants are those factors that express the conditions each human being has in their individuality, such as:

- Genetics
- Way of thinking
- Principles and values
- Level of self-confidence
- Lifestyle
- Behavior
- Habits
- Educational level
- State of health
- Nutritional status
- Etc.

Social determinants: In this case we refer to all the factors relevant to our way of living together and to our social development, starting from our own family, such as:

- Forms of living together and family education
- Access and quality of housing
- Access and quality of health services
- Access and quality of education services
- Access and quality of legal services
- Access and quality of recreational services
- Availability and quality of transport and communication
- Level of security and citizen protection
- Level of internal and external migration
- Level of equity, discrimination and existent social exclusion
- Etc.

Cultural determinants: The factors referred to here are behavioral standards of our society that have to do with our own customs, traditions, beliefs and history:

- Level of openness or religious dogmatism
- Level of civic development and respect for rules
- Level of adaptation to generational changes
- Level of paternalism or existent assistencialism.
- Level of development of artistic and cultural expression
- Etc.

Political determinants: In this category we identify those factors related to the exercise of power and citizenship, whether at a community, regional or national level, such as:

- Existent economic, social and environmental policies
- Level of governability and representation of authorities
- Level of transparency and accountability report of authorities
- Level of democracy and citizen participation
- Level of independence from public power and communication media.
- Etc.

Economic determinants: Here we refer to all those factors that express our way of producing and distributing wealth in our society, such as:

- Level of existent poverty and extreme poverty.
- Level of personal or family savings
- Level of actual full or part-time employment
- Level of development of internal or external markets
- Level of the production of value added products
- Level of productivity and competitiveness of our companies
- Level of formality of property and commerce
- Level of access to credit and financial sources
- Level of de exportation and importation gained
- Efficacy and efficiency in government spending and investment
- Level and types of investment at a family, business and state level
- Level of subsidies and existent protectionism
- Etc.

Technological determinants: All the factors referred to here, express our capacity for creativity, use, combination and development of technologies of every type, such as:

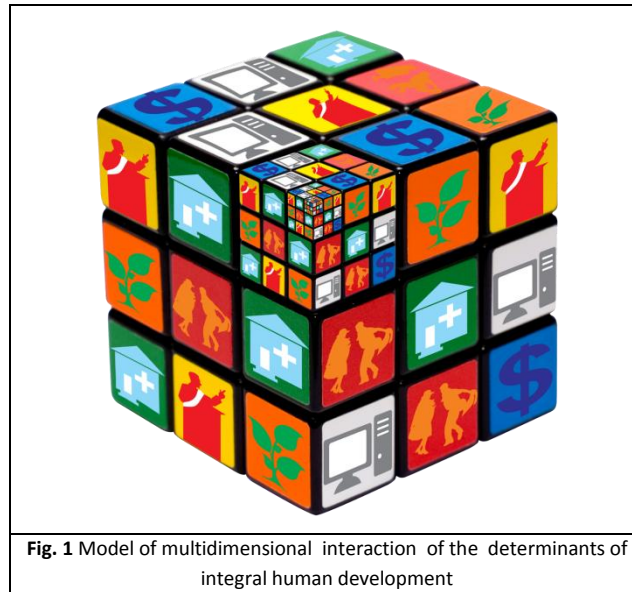
- Productive artisan and industrial technology
- Computer and communication technology (TIC)
- Bio-medical technology
- Educational technology
- Renewable technology
- Military technology
- Etc.

Environmental determinants: All the factors that express the way we relate to our physical environment, such as:

- Access and use of systems of drinking water and cleanliness
- Access and use of regulated systems of solid residuals
- Levels of existent environmental pollution
- Level of flora, fauna and natural resources conservation
- Level of the use of renewable and non-renewable energy
- Risk level and vulnerability to natural phenomena
- Etc.

The fact of having listed examples of some of the hundreds or thousands of determinants is to help us understand the complexity of existent problems with respect to human development in an integral way, and also to recognize that all these determinants exercise, in a direct or indirect way, some positive or negative influence between themselves, and that as a consequence any social or non-social problem that needs to be resolved, generates a set of cause and effect interactions that are beyond our capacity to understand and control, all of which in essence describes the complexity of existent problems.

A practice model that describes this set of interactions as part of a complex process is the famous *magic cube*, in which the colors of each face can be conceptualized as representing each group of determinants (individual, social, cultural, political, economic, technological and environmental) and each piece to its own determinants. The cube models the way in which the action of each determinant influences other determinants as much in an individual way as it does in the whole set, affecting one and all the others in the process.



Unfortunately, the solution of social problems is not as simple as moving the pieces of a single cube until an ideal situation is reached. Rather, each piece of the cube can be imagined to be another magic cube or set of determinants that need resolving, and in turn that each piece of this sub-set is another complex determinant and so on.

THE NEED FOR A NEW PARADIGM FOR THE APPROACH TO SOCIAL PROBLEMS

One of the main aspects to consider when building a new paradigm for the approach to social problems is accepting that these problems are extremely complex and that they as a consequence should be viewed as not being exclusively *social* problems. In this sense the review of studies or existent theories about how complex problems should be understood and approached is a good starting point for the exploration of other ways of resolving these problems.

In that respect, one of the most solid inputs in this field and which contributes to the building of the new paradigm is one of the conclusions established by one of the most famous scientists in human history, Albert Einstein, author of the Theory of Relativity, who in one of his statements applied to our social field said: 'we can't solve complex problems in the same way that they were created.'

If we analyze this statement thoroughly, we realize how surprising and relevant it is in assessing how we have been approaching social problems. To illustrate an example by choosing an obviously complex problem, we will make a simple analysis of the way we have been treating and approaching the solution to the problem of *chronic infantile malnutrition* for decades.

If we begin by identifying the way in which this problem was created it is easy to conclude that a child acquires chronic malnutrition in most cases through the lack of adequate nutritional input from its formation in the mother's womb or in the early stages of life. Because of this it is logical to accept that a good program or project to decrease chronic malnutrition in our children would be a mix of activities, that on one hand guarantee their alimentary security, and on the other, offer a group of educational activities or training especially aimed at mothers, so that they can adequately nourish by exclusively breastfeeding, and prepare food and provide for children in a balanced way with sufficient quantity.

In the light of the results gained in reference to the reduction of chronic infantile malnutrition in the world, it can be said that the strategy implemented, that is by approaching the main causes that created it, did perhaps have some success in the first decades after its introduction, however, during the last two decades, it can be observed that chronic malnutrition is still at the same level that it previously was, or has only been reduced by a few percentage points according to the most auspicious estimates.

It is at this point where it can be seen that the classic paradigm of wanting to resolve a complex problem, 'in the same way that it was created', comes into play and that continuing with strategies of that type only serve to waste efforts and resources on a strategy that has failed to achieve a solution, regardless of the complex nature of the problem.

It is certain if we analyze why chronic infantile malnutrition is such a difficult problem to solve that we will discover that this is at the same time cause and consequence of individual determinants (low birth weight, diarrhea and respiratory infections frequently found in this group of children, nutritional state of the mother, etc) economic (poverty, inequality, depression, market exclusion, etc) political (corruption in food and social welfare programs, etc) social (school desertion, alcoholism, migration, illiteracy, discrimination, inequality of production, etc) cultural (chauvinism feeding habits, etc) environmental (inadequate basic cleanliness, contaminated food and water, etc), to name a few factors that are totally interrelated and that interact with each other ensuring the continuation of the problem.

Because of this it is absurd to think that all these factors can be approached from the simplistic optic of a “Logical Framework Approach”² that addressing alimentary security, maternal lactation, providing information and training to mothers through some program or project in the fight against malnutrition, that would mean that the levels of the stated malnutrition could be reduced to almost zero.

Therefore, we could very easily fall into the simple trap of thinking that a project or program against infantile malnutrition should directly approach *all possible factors* related to this problem so as to guarantee its effectiveness and ensure that no child on our planet suffers from malnutrition.

In this way the idea of implementing a single program or project that tries to directly approach most of the determinants of a problem not only damages its feasibility through the enormous quantity of resources that are consumed, but also through the sheer complexity of this type of *holistic* project which endeavors to confront each and every one of the factors that determine the problem.

An expansive megaproject or program must therefore be created with multiple problems that need resolution which require the implementation of a diversity of strategies for the solution of each problem; a program that is not capable of being incorporated into our current paradigm and management capabilities.

With this in mind we are obliged to maintain some aspects of the current paradigm and *prioritize* certain *key* problems or determinants as we amplify the program or project for a new approach for the solution of complex problems. In the example case about the problem of chronic infantile malnutrition, the project could be amplified with regard to the improvement of access to health and education services to the beneficiaries, or if possible an additional economic subsidy granted to the families that need it. This strategy has already been implemented in some social programs although

² The Logical Framework Approach (LFA) is an analytic tool designed by the German International Cooperation Agency (GTZ) in 1970 in order to plan and manage social projects. This tool was adopted, with some modifications, by many international cooperation agencies. The LFA helps to establish a set of main causes and consequences as the root of a main social problem, which has to be addressed in order to solve it. For more details about this methodology go to this link: <http://preval.org/files/00423.pdf>

the desired result of achieving the eradication of infantile malnutrition has yet to be achieved.

Nevertheless, results show that the greater the variety of determinants introduced into a program or project, the greater the possibility is of achieving a resolution to a complex problem. However, this still doesn't guarantee that the solution or tendency towards a solution is sustainable, and that, on finishing the program or project, the complex problem will flare up again at some stage; the variety of determinants related to the problem continue to exist, exerting their influence constantly, even as gains are achieved, producing the classic problem of a lack of sustainability in the projects.

THE OLD THEORY OF SYSTEMS AS A BASE FOR BUILDING A NEW PARADIGM

If there is any scientific theory which helps us understand the complexity of the problems and their working relationship with regard to the determinants, it is “The Theory of Systems”. This theory, conceived by the Austrian Ludwig von Bertalanffy³, defines our reality or system as a whole, as being unified but composed of interrelated and interdependent components or sub-systems separated by some identifiable limits in their environment, surroundings or supra system.

This theory establishes as such that every system is subjected to four laws, which are important to know for their implications in our search for a new paradigm for the solution of complex problems:

Law of entropy

According to Bertalanffy, this law establishes that every system tends towards the state of disorder or chaos, and the more chaotic it becomes the more it loses its capacity of capturing or processing energy. This law also establishes that if all systems tend towards entropy, the open systems (social, biological, etc.) are the only ones that can withstand it, introducing negative entropy (also called *negentropy*) stemming from its internal field or its own environment. Therefore, *negentropy* is the inverse process to entropy, which is defined by the step from one state of random disorder or chaos to another one of predictable order.

An social example in this respect is the way that the traffic in a city, which tends to be chaotic, develops. However, the introduction of signs and traffic rules, and the vigilance of their implementation, can impose order (*external negentropy*), but in the absence of signals the drivers themselves regulate this sub-system if only for the fact that they wish to arrive at their destination, which is known as (*internal negentropy*) or also called *self-regulation*.

Law of holism

Through this law Bertalanffy establishes that a system must be considered as a whole and affirms that what affects a part of the system has repercussions in its totality.

³ Ludwig von Bertalanffy, *General System Theory: Foundations, Development, Applications* (New York: George Braziller Inc, 1968, Edition revised 1976)..

For example, if one of the pieces of a device or artifact fails, the functioning of the whole is impaired. Equally, if there is a problem with one member of a family or social organization, the whole group as a system is affected, and in turn important problems are created for each member of the group.

Law of synergy

According to Bertalanffy, the principle of synergy establishes that the results that a system achieves are greater than the simple addition of the independent results achieved by each one of its parts. Synergy can be positive or negative.

For example, in a school none of its parts (teachers, classrooms, books, students, etc.) by themselves produce people educated to be active members of a society, which is in fact achieved, if all of these components act together. The school, therefore, produces many positive synergies in the education of children; including those children who live in dysfunctional families and are exposed to negative synergies produced at home, which has repercussions in their education and development within and outside of the school.

Law of recursiveness

By means of this principle, Bertalanffy establishes that every system is a sub-system to others in the superior order, whose characteristics are replicated and shared, and with which they are in interrelation and interdependence. In other words the minor systems are a representation of major systems and vice versa.

A classic example of recursiveness is a human being who is composed of systems, and these in turn by organs and these by cells; nowadays the process of cloning shows us that starting from one cell, an entire organ, system or even the human being himself can be formed again.

As with social systems, people have standards of individual behavior that replicate and represent those of a cultural organization which are played out in our own social space, whether that is our family, community, work place or school. Everything which gives feedback and reinforces the said standards to be maintained and is part of our daily life, takes the name “cultural pattern”.

It is therefore necessary to understand that social problems are only an expression of how diverse types of systems and sub-systems in reality operate (these can also be called determinants) and how they are governed by the four laws of the Theory of Systems mentioned above. It should be seen that individual, social, cultural, political, economic, technological and environmental determinants are components of a supra system and that they tend towards chaos and disorder and produce negative and positive synergies (law of entropy and synergy) and that they are all interrelated and directly influence the problems we want to solve (law of holism and recursiveness). To ensure that our systems achieve development and welfare, and as part of the work of

social entrepreneurs, it is necessary to introduce *negentropic* processes and produce *positive synergy*.

A new paradigm for implementing really systemic processes in approaching social problems is necessary. A new paradigm is necessary, that replaces the current one that implements and continues to implement specific programs or projects to solve each complex problem in an isolated and independent way; accepting that the current one is obsolete from every point of view and therefore inefficient and ineffective in its ability to generate sustainable solutions.

The time has come to recognize that within the reigning lineal paradigm the social field is plagued with thematic projects orientated to specific problems (programs fighting poverty, reducing malnutrition, projects for improving self-confidence, anti-corruption projects, anti-discrimination, programs to reduce maternal and infantile mortality, programs against HIV/AIDS, and those that aim at reducing premature pregnancy in adolescents, etc.) These projects do not consider nor would be able to consider the complexity and interrelations of all the determinants that produce them, given that the current paradigm only takes into account some lineal or simple cause and effect relationships for the approach to the problems, conceived from the simplicity of the “Logical Framework Approach”.

THE THEORY OF COMPLEXITY APPLIED TO SOCIAL PROBLEMS

If at this stage we could agree that “We can’t solve complex problems in the same way that they were created”, then the great challenge is to propose another way of finding a solution.

In this sense it would be correct to ask ourselves what the new strategies and methodologies and tools would be that could permit us to resolve complex problems in an efficient and sustainable way, knowing that these are caused by a set of multiple and diverse determinants that are also complex and interrelated. The answer therefore can only be a new paradigm of intervention located within the above mentioned complexity.

To achieve that an explanation of the complexity is required and The Theory of Complexity, developed by the French philosopher Edgar Morin⁴, is necessary to review. In referring to The Theory or Paradigm of Complexity, Morin sustains that all relationships and interactions that take place in the universe and the sub-systems that comprise them are ambivalent or ambiguous, independent and dependent, ordered and disordered, simple and complex, integrated and non-integrated, random and non-random, harmonic and disharmonic, etc. As a result of which he establishes that the acceptance of the inherent complexity is also the acceptance of all these contradictions, paradoxes and principles which govern them.

Among the paradoxical principles that need to be taken into account in the understanding of the paradigm of complexity, according to Morin, are those of order and disorder; autonomy; complexity and completeness, reason, rationality and rationalization, which we will summarize and translate in examples applied to the social field.

Order and disorder

This concept establishes the coexistence in the universe of ordered phenomena (organized and structured) together with disordered phenomena (disorganized, chaotic or random) which are complimentary and form part of the same continual process. In other words, processes exist, which enable order and disorder to cooperate in the organization of structures or sub-systems of the universe.

An example of this is a company that seeks to organize itself as well as it can in order to develop its operations in the most efficient and ordered way. However, within the business itself, informal and disorganized processes also exist, which contributes to people’s social interaction and creativeness. Without this informal interaction, mental

⁴ Edgar Morin, *Introducción al pensamiento complejo*.(España:Ed. Gedisa, 1998).

and social problems of employees could be created, which also impact upon the overall performance of the company.

Self organization, Autonomy and Dependence

Under these concepts, Morin establishes that biological and social sub-systems create their own determinants and their own ends (self-organization) as singular or independent subjects (autonomy) that at the same time depend on other determinants or sub-systems to exist and develop (dependence).

All of us are examples of this, in that to develop or self-organize ourselves we depend on genetic, cultural and social conditions which allow us to become organized, to be ourselves and exercise our own autonomy. In this sense the existence of a paternalistic culture would restrict the development of these processes in people.

Complexity and Completeness

In a way, and complementary to the concept of complexity, which is defined as the existence of contradictions and ambiguities in the universe; completeness or complication, as defined by Morin, refers to the way that people interpret complexity.

While complexity allows us to affirm that all the processes in life are ambiguous, multidimensional and interdependent, completeness allows us to understand that we will never be able to escape the implied uncertainty that this carries with it or ever have a complete understanding of what is happening behind all the phenomena that comprise reality.

In other words, completeness is the level of awareness that human beings have of complexity. The greater our level of completeness is, the greater our capacity to understand and tolerate contradictions is, and therefore to catalogue as error or accident that which we can't understand or that which has no apparent explanation.

The paradox of complexity applied to the social field is displayed by our interpretation of social problems, which can be seen as reductionist, and which is translated into the implementation of strategies and simplistic methodologies (logical framework approach, risk focus, social marketing, awareness, technical assistance, etc)

Reason, Rationality and Rationalization

According to Morin, reason corresponds to the logical will that human beings possess of wanting to have a coherent vision of the surrounding phenomena extending into the universe; while rationality refers to the way we apply this reason or logic in the real world, and when reality doesn't agree with our reason, we have to admit that our logical system is insufficient.

Rationalization, on the other hand, is the fact of wanting to encapsulate reality within a logical or coherent system (paradigm), and therefore every fact that contradicts this

stated system is discarded, forgotten or put to one side and seen as an accident, illusion or something simply apparent.

An example of this is the way that many social entrepreneurs design (reason) social projects or programs, where through 'a logical framework approach', phenomena that happen after a determined problem are interpreted with rationality with the aim of finding a solution.

It is in the moment of implementing the project that many times we cling to the logical framework proposed, rationalizing reality, and therefore only implementing actions without achieving the expected results that supposedly should have resulted as a logical consequence of our reason and rationality.

In the end with the objective of approaching the complexity of reality and with the purpose of including and interrelating the above mentioned concepts, Morin establishes three principles that govern this new paradigm:

The Dialogic Principle

This principle sustains the existence of duality or antagonism as part of the proper unity of structures and processes of complex reality. An example of this is the presence of formal organization and informality (disorganization) within a company, which was mentioned as part of the concept of order and disorder that exists as part of complexity.

Through this principle, the coexistence of a diversity of dual aspects within a family or organization is understood; the same as the diversity of characters, thoughts, attitudes and behavior of people, which produce as much synergy as antagonism in daily life.

The Principle of Recursiveness

As with The Theory of Systems, this principle refers to how much living organisms as well as social organizations are systems produced by interactions of cells or individuals which form them, and that these systems once produced, reactivate their own cells or individuals and reproduce or develop them.

In this way the autonomy of human beings leads to the existence of diverse societies, cultures, languages and acquired tastes. This diversity at the same time is something that permits us to be able to exert our autonomy and direct our development. A cell can't live and develop itself if it doesn't form part of the living organism that hosts it, and this living organism itself can't survive if the cells that form it don't exist.

Because of this, Morin shows that recursiveness is an idea that breaks the line of cause/effect down, considering that in complex reality, everything that is produced turns upon that which it has produced, in a cycle that in itself is self-constituent, self-organizing and self-producing.

An example of recursiveness in the social field is the paternalistic culture produced through classic social programs or projects which produce individuals or beneficiaries dependent upon assistance which they demand all the time. This makes assistance become a perceived need which promotes the existence of more paternalistic programs, creating in this way a paternalistic culture sustained as much by its own social entrepreneurs as it is by the population itself.

The Hologramatic Principle

A physical hologram is that in which the smallest part of the image of an object contains almost the whole of the information of the object represented. That is, the hologramatic principle affirms that not only is the part in the whole, but that the whole is also in the part.

This principle, according to Morin, is present in the complex reality of the biological and social world. In the biological field it is well known that a single cell of any organ that forms part of a living organism contains the genetic information (DNA) of the organ as well as the whole organism, so that by inference the smallest part of a hologramatic image of the cell is also an image of the whole organism or system.

In the social field the hologramatic principle goes beyond the reductionism expressed to include those who only see social reality through some of its parts or determinants and it also exceeds the concept of holism that only allows us to see society as a whole and product of the total interaction between all the parts that comprise it.

In conclusion, the hologramatic principle together with the principle of recursiveness and dialogic principle open the door to a new paradigm which establishes that we can transform the whole through its parts and the parts through the whole. From there, Morin asserts that the hologramatic idea is linked to the recursive as it is at the same time to the dialogic, as part of a changeable systemic reality that represents, reproduces, provides feedback and self-regulates itself.

In other words, within the field of social development, we must be able to implement a new strategy that permits each one of the parts (people) of our system (society) to have sufficient power to implement their own processes of development and capacity to solve their own problems (self-regulation) in an autonomous and dialogic way, being aware that it forms a synergetic part of a world social hologram which is being developed but one that is recursive with its own interests or processes.

Before beginning to define the strategy of implementation of a new paradigm of social development, the analysis of The Theory of Chaos applied to this field will be necessary.

THE THEORY OF CHAOS APPLIED TO HUMAN AND SOCIAL DEVELOPMENT

Another one of the theories that gives us crucial elements for the building of a new paradigm for the approach to social problems is The Theory of Chaos, as a new science in the process of discovery that is already contributing concepts and principles that are changing the current scientific paradigm.

Among this theory's main concepts and principles are the 'Butterfly Effect' and 'Fractal Representation'. The *Butterfly Effect* was discovered in 1969 when the mathematician and meteorologist Edward Lorenz⁵ was studying the behavior of the atmosphere and trying to find a mathematical model by introducing a few variables into a computer that would be able to predict the behavior of great masses of air, facilitating climatic forecasts in the process.

However, while doing that, Lorenz observed to his surprise that the failure to enter a few decimals in the opening data of his model, led to great differences in the predicted outcome. He therefore concluded on the one hand, that whatever small perturbation in the initial conditions of a system can have a great influence on the final result, and on the other hand that it is not possible to make long term predictions given that minimum and even unknown variables exist that alter the behavior of every system in an unpredictable way.

In this respect, Lorenz illustrated his theory with a hypothetical example. He suggested that if we imagine that we have been able to make a very exact prediction of atmospheric behavior based on very precise facts, then into this equation we introduce the simple flap of a butterfly's wing on the other side of the planet, then the original prediction would be made completely erroneous to such a degree that a single flap could produce a wild storm.

The name *Butterfly Effect* sprang from this hypothesis and denotes the principle that explains the phenomenon of amplification of chaos that may appear in the behavior of a complex system and therefore is constituted as one of the characteristics of the behavior of that type of system, and is interrelated with an infinity of variables that change in a complex and erratic way, making predictions of such systems beyond the short term, impossible.

⁵ Edward Lorenz, "Three approaches to atmospheric predictability", *American Meteorological Society*, Vol.50 (1969).

If the *Butterfly Effect* is applied to social systems it becomes clear why social entrepreneurs fail in their attempt to execute long term social projects, the results of which are invariably unsustainable.

It must therefore be considered that an infinity of *Butterfly Effects* exist in the social field which in this book have been referred to as determinants and which elude, regardless of the efforts made, our capacity to administer and control them.

Another of the fundamental principles of The Theory of Chaos is the discovery of Fractals made by Benoit Mandelbrot⁶, a mathematician born in Poland employed by IBM to study the patterns or existent similitude in the fluctuation of the price of cotton, which is described by the famous writer, journalist and biographer James Gleick⁷ in his work, “Chaos—The Creation of a Science.”

In this respect, Gleick tells us that when Mandelbrot analyzed the data of the price of cotton in the computers of IBM from the year 1900 on, he observed that the numbers that produced aberrations from the point of view of the normal distribution also produced symmetry from the geometrical point of view; each particular change of price was random or unpredictable but the curves of the sequences of the changes of the daily and monthly price fit perfectly, owing to the fact that the degree of variation had remained constant through an extensive period of sixty years, after having passed through two world wars and The Great Depression.

According to Gleick, previous observations made with respect to this such as the ramification of the blood vessels, the branches of a tree, the internal structure of the lungs, the data graphics of the stock market, and many other systems of the real world, determine the existence of a recursive similitude (self-similitude) in the patterns that model natural structures and the processes created by man, which are represented by geometric figures known as *fractals*. In simple terms, a fractal is a geometric form that is composed of small parts (fractions) identical to the main form.

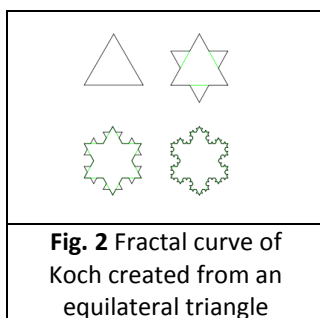
A classic representation of a fractal model is Koch’s curve, created in 1904 by the Swedish mathematician, Niels von Koch⁸, who starting from an equilateral triangle and a set of recursive interactions, made with the same triangle, obtained a curve that in the end was transformed into, “Koch’s Star or Snowflake.”

This *Snowflake* contains the triangle in all its parts and is formed by the set of triangles that represent it as much in its snowflake form as in its linear form, as can be observed in the following figure:

⁶ Benoit Mandelbrot., *Los objetos fractales: forma, azar y dimensión*. (España:Tusquets Editores, 2006).

⁷ James Gleick, *Caos: La creación de una ciencia*. (España: Seix Barral, 1987)

⁸ Koch H. von. “Une méthode géométrique élémentaire pour l'étude de certaines questions de la théorie des courbes planes” *Acta Math*,n 30 (1906): 145-174.



Other illustrations that show the presence of fractals in natural phenomena are shown below:

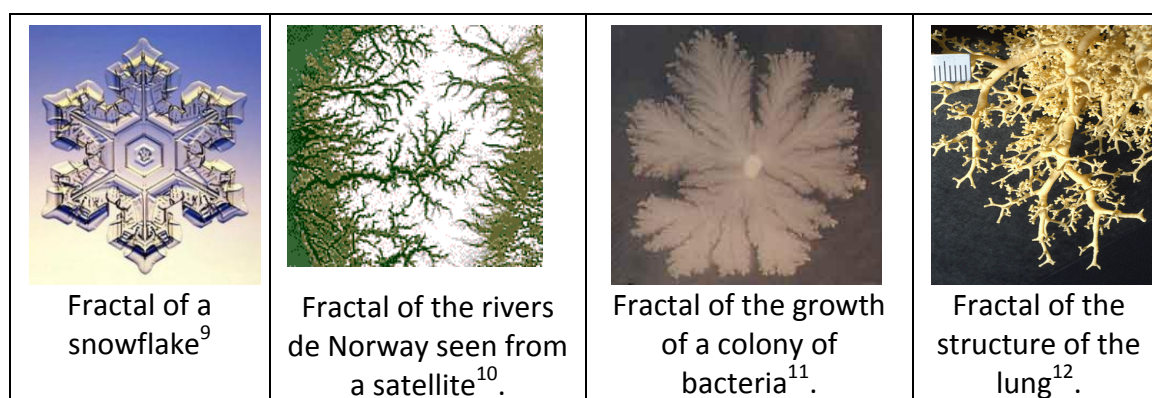


Fig. 3 Set of natural fractals

Therefore the essence of the *fractals* is the *recursiveness* established as much in the theory of systems as in the theory of complexity, where the parts are found in the whole they represent, and the whole is a representation of the parts.

However, it has also been discovered that fractals are not only found in physiological or natural forms of the universe, but also in the dynamics of many social processes.

As evidence of this, Ron Eglash y Toluwalogo B. Odumosu¹³ discovered the existence of fractal patterns in architecture, art, design and social processes in many parts of Africa. One of these important discoveries, among many others, was observing from an aerial shot, many African villages that were built during several generations by the same people (without resorting to an architect or construction company), where it can be observed that the majority of the villages are designed and organized following fractal patterns, where the same geometric figure is present as much in the interior of the

⁹ <http://www.nevasport.com/reportajes/img/reportajes/copos-nieve/image017.jpg>

¹⁰ <http://www.dmae.upm.es/cursofractales/capitulo8/NorwayS.gif>

¹¹ http://www.dmae.upm.es/cursofractales/capitulo8/bact5_1.jpg

¹² http://2.bp.blogspot.com/_C8QOuYKH0/R5dPAOFAn7I/AAAAAAAAABo/PzHArYJlrW0/s320/Lung3.gif

¹³ Ron Eglash y Toluwalogo B. Odumosu, "What Mathematics from Africa?", *Fractals, Complexity, and Connectivity in Africa* (Italia: Polimetrica International Scientific Publisher, 2005).

houses as it is in the distribution of the houses throughout the village, as is displayed in Figure 4 below:

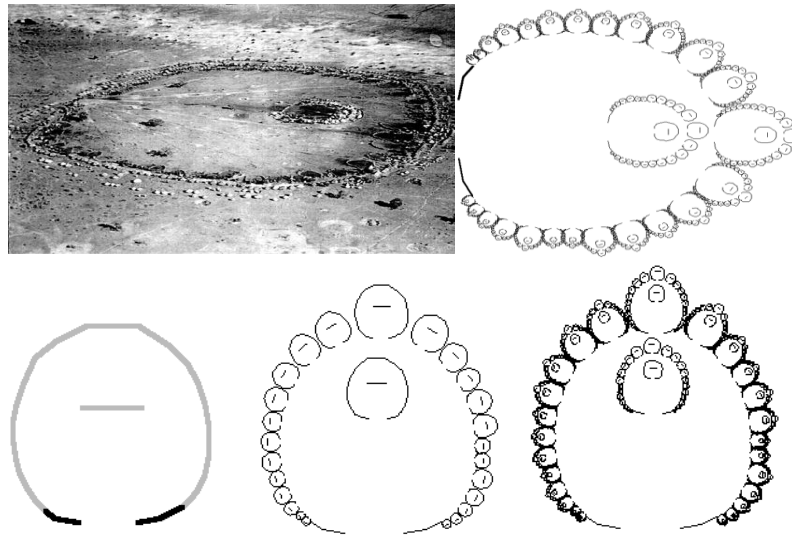


Fig. 4 Aerial view of Village Ba-jla in the south of Zambia where the existence of a fractal pattern in the interior of the houses is shown, as well as in the construction of the houses and their distribution throughout the village (Taken from the publication of R. Eglash y T. Odumosu: *Fractals, Complexity, and Connectivity in Africa* with their authorization)

As R. Eglash and T. Odumosu describe it: *“At the smallest scale, if we were to view a single house in the family ring from above, we would see that it is a ring with a special place at the back of the interior: the household altar. The settlement as a whole has the same shape: it is a ring of rings. The settlement, like the family ring, has a front/back social distinction: the entrance is low status, and the back end is high status. At the settlement entrance there are no family enclosures at all for the first 20 yards or so, but the farther back we go, the larger the family enclosures become.*

At the back end of the interior of the settlement, we see a smaller detached ring of houses, like a settlement within the settlement. This is the chief’s extended family ring. At the back of the interior of the chief’s extended family ring, the chief has his own house. Enclosed by that ring is an alter composed of miniature houses representing the spiritual presence of ancestors. The scaling sequence allows a kind of infinite regress into the spiritual realm” (*Fractals, Complexity, and Connectivity in Africa*, Page 103).

Another one of the discoveries related to the existence of fractal patterns in the social field, is the investigative work realized by Guimera and his collaborators¹⁴, who with the aim of analyzing and characterizing complex networks, evaluated the social networks built across the electronic mails that circulate between the 1700 employees of the University Rovira i Virgili de Tarragona, in Cataluña, Spain.

¹⁴ Guimerá, R, et al. “Self-similar community structure in a network of human interactions” *Phys Rev E*, n 68, artículo 065103 (2003)

Guimera discovered a pattern of self-organization in the social networks generated by the interchange of electronic mail. He found that the pattern of organization of the sub-communities of contacts created is identical between themselves as is the pattern of contacts in the community as a whole. He concluded that within the pattern of recursive self-organization existent in complex systems, such as the formation of fluvial networks, a mechanism or universal force responsible for the self organization and evolution of social networks exists. This, among other suppositions could owe itself to the continual interchange of information in the network with the aim of seeking cooperation and maintaining active contacts that allow the members to be more efficient in optimizing their purposes.

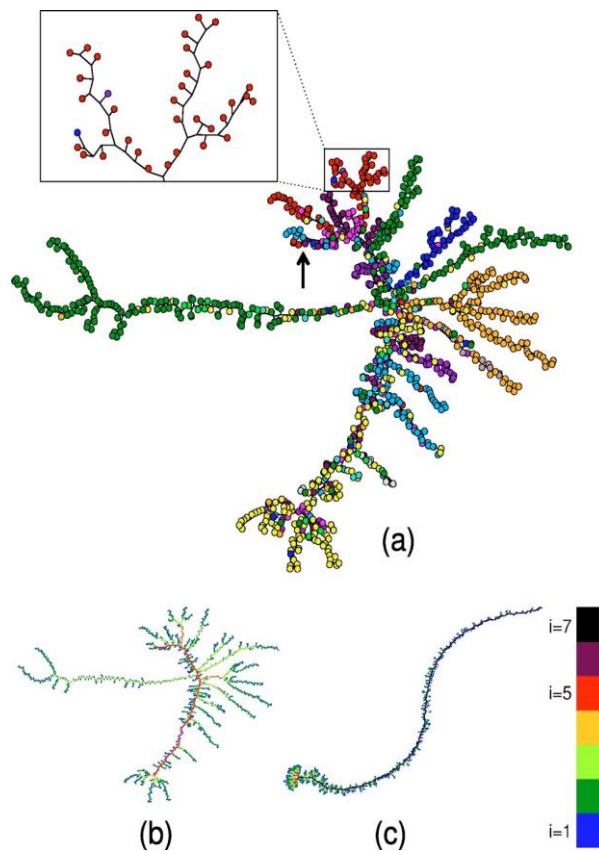


Fig.5. Communities of the email network at the University of Rovira i Virgili graphed in a binary tree as result of the application of the algorithm GN to the network of electronic addresses of the URV (a) The position indicated by the arrow represents the root of the tree where its branches are enlarged in such a way that the pattern of organization of the community of contacts can be clearly differentiated. (b) Pattern of organization of all the community on a minor scale without showing the branches, which nevertheless replicates in a fractal way the structure indicated by the arrow in fig a. (c) Pattern of organization of a network of contacts created in a random way where the absence of structured communities is observed due to the lack of branches, in contrast to the similar intricate structures seen in figure b. (Taken from the publication of Guimerá et al with his authorization).

In a sense, fractals impose harmony and recursiveness within chaos and the complexity of the systems of reality and permit therefore the inference of the existence of a self-organizing code that generates this type of negentropy or order in a systemic way.

Drawing an analogy with the genetics of biological systems, fractals can be imagined to be part of the phenotypical expression of complex systems in a similar way that the

codes of a genetical system (genotype) manifest or express themselves in the shaping of the organic structures that they create and structure (phenotype).

As a result, the new paradigm of social development could consider the existence of this code or negentropic mechanism to be a way of catalyzing or promoting a more systemic process of social development according to the complexity of the determinants of human and social development with the objective of achieving (or perhaps it is a question of only accelerating) the social development processes and evolution of humanity in a more integral and harmonic way.

With this in mind, the existence of a *fractal pattern* or *hologramatic* model of social development that is self-regulating can be concluded to be a sort of catalyzing negentropic force of social systems which in turn allows us to conceive the proposal of a **Social Genome**, which through analogy, and in the same way that the human genome governs the development of biological systems, would codify and regulate the self-organization and development of social systems.

Additionally, given the hologramatic and recursive relation of complex systems, the power to mould social genetics could be also an efficient mechanism to mould, at the same time and in the long term, the genetic biology of human beings. This would also carry with it the possibility of developing another field of application in what is nowadays known as *social medicine*, where new discoveries show how feelings, relations and social processes are strictly related to the appearance of physiological and biological disorders of human beings on our own planet.

POSTULATING THE EXISTENCE AND POSSIBILITY OF MODIFYING THE SOCIAL GENOME

If we agree that social systems self-regulate within complete systems then we could conclude that we would only have to leave people, in particular those socially excluded, to their own ends and with time they would reach an evolved stage regardless of how long that change would take.

In fact, in the real world this is exactly what happens, knowing that current social projects or programs suffer from a lack of effectiveness, efficiency and sustainability in resolving people's social problems. It can be inferred that this is only a part of a natural social evolution that unfurls through time, taking into account that every social project or program is in itself one determinant more in an infinity of existent determinants that through the synergy and negentropy they produce, contribute to the evolutionary process

However, the knowledge that all open systems, whether they be physical, biological or social, tend to entropy (disorder and chaos) and that they depend on negentropic processes to be able to attain organized and harmonic development, allows us to propose the need for reliance on some type of intervention or strategy for achieving more integral and harmonic human and social development in a more accelerated manner.

For this reason and in the same way that open physical systems possess a fractal model that represents and models them recursively in their complex development, as do biological systems which possess a hologramatic genetic code established in the DNA of each integrate cell of the system that models and regulates their development recursively (which genetic engineering is trying to decipher with the aim of being able to understand and correct its deficiencies); social systems would also possess a *Social Genome* that would be represented by social DNA, structured by people themselves, who in a recursive way would be the variety of the genetic codes of the social DNA that models and represents each one of the social organizations or **social cells** in which we participate and develop.

If we consider by analogy that each one of us is a strand of the DNA of the society that we belong to, then the genetic codes or **social genotype**, would be people's thoughts, desires, attitudes and behaviors, all of which at the same time is the fruit of the social environment in which we grow, given the recursive property of our social systems.

These thoughts, attitudes, desires and behaviours enable us to achieve or inhibit our objectives in life, modifying our own behavior and actions. This is also a hologramatic representation of organizational behavior of social spaces or cells in which we as individuals participate and develop; the resultant whole constituting the social culture of our social system as a group, that could also be referred to as **social phenotype**.

The importance of being aware of the existence of the *Social Genome*, resides in the fact of representing all the complexity of the development of our social systems, whose knowledge would permit us to introduce, as in the case of genetic engineering, *positive negentropy* that can catalyze and model the social development of our social cells in a harmonic and ideal way and therefore connect our aspirations as social entrepreneurs with those of people in general without diminishing the existent variety and complexity.

With this aim, what we propose is to ‘model in a positive way’, the existent social genetic code, introducing in a responsible and consensual way, a set of standards or social codes of integral development, elaborated through a proposal of positive situations (standards) that must be reached ideally by each one of the cells and social organizations in every area of the developmental determinants of our society (individual, social, cultural, economic, political, technological and environmental).

In this way, these standards can be promoted in people and social organizations, incorporating them as part of our own collective vision of integral development, which at the same time through the principle of recursiveness would be part of a collective vision releasing the necessary synergies for its systemic implementation.

Below, as a way of example, a list of, ‘standards of integral development’, are presented which could be an expression of a **social genome** that would represent the hologram of development of an ideal rural community.

HOLOGRAPHIC REPRESENTATION OF THE STANDARDS OF INTEGRAL DEVELOPMENT OF THE FAMILIES OF A RURAL COMMUNITY

STANDARDS OF INTEGRAL DEVELOPMENT OF A RURAL FAMILY	STANDARDS OF INTEGRAL DEVELOPMENT OF A RURAL COMMUNITY
INDIVIDUAL STANDARDS	
Every member of our family has their own national identity document(I.D.)	Our community has a census of every person who resides in it.
Every member of our family has the necessary health controls and vaccinations up to date	Our community has a system of vigilance to ensure that all its members have health controls and vaccinations up to date.
Every member of our family have a health insurance that covers all illnesses and accidents	Our community has some quality health services available to all our families
Every member of our family who is under 6 months old receive exclusive maternal breast feeding and those older than 6 months and less than 5 years receive at least 5 rations of food a day.	Our community has a system of vigilance to ensure that all our children under 6 months old receive maternal breast feeding exclusively and those over 6 months and less than 5 years old receive at least five rations of food per day.
Every member of our family who is more than 6 months old consume carbohydrate foods everyday (potato, rice, sweet potato, etc.) to provide energy and strength	Our community produces carbohydrate rich food that guarantees the daily requirements of all our families.
Every member of our family who is over 6 months old eat fatty foods on a daily basis (oil, butter, peanuts,, etc.) to provide heat and energy.	Our community produces sufficient fat rich food to provide the daily requirements of all our families.
Every member of our family who is over 6 months old eat protein rich food (any type of meat, milk, soya, eggs, etc.) for adequate growth.	Our community produces protein rich food to provide the daily requirements of all our families.
Every member of our family who is over 6 months old eat iodized salt and foods with vitamins, minerals y micro nutrients on a daily basis (any type of fruit and vegetables) for added protection against illnesses.	Our community produces foods rich in vitamins, minerals and micronutrients that provide the daily requirements of all our families.
Every member of our family wash their hands before and after eating , before cooking, after going to the bathroom , after changing nappies etc.	Our community encourages all the members of their families to wash their hands before and after eating, before cooking, after going to the bathroom, and before changing nappies etc.)

Every member of our family brushes their teeth after eating food, on getting up and before going to bed.	Our community encourages every member of their families to clean their teeth after eating, before getting up and going to bed.
Every member of our family visits the dentist at least once a year.	Our community has quality dentistry services available to all our families.
Every member of our family practice some type of daily physical activity or exercise for more than 30 minutes (walking, sport, exercise, rural work, etc.).	Our community has areas that promote daily physical activity or exercise for everyone.
Every member of our family avoids the regular and excessive consumption of alcoholic beverages.	Our community has some policy or regulation that promotes the non-consumption of alcohol.
Every member of our family avoids the consumption of tobacco and other drugs.	Our community has some policy or regulation that prohibits the consumption of tobacco and drugs.
Every member of our family has a basic educational level in accordance with their age. (pre-school: 3 to 5 years; Primary: 6 to 11 years; Secondary: over 12 years).	Our community has easy access to quality preschool, elementary and secondary schools.
SOCIAL STANDARDS	
Our family has an improved home with comfortable and safe rooms for all its members.	Our community encourages all its families to have comfortable and safe rooms for all its members.
Our family has facilities for any handicapped family member so that they can develop with autonomy and safety.	Our community has facilities for handicapped members.
All the members of our family are treated with respect and without any type of violence (psychological, physical and sexual).	Our community has policies or rules approved by an assembly which encourages respect and non-violence.
All the members of our family have their own social networks with which they interact physically and virtually.	Our community has activities and spaces that encourage relationships and social interaction.
Our family has a plan of family development which is implemented with the participation of all members.	Our community has a common development plan which is being implemented in a participatory way.
Our family has family recreation spaces or activities where joint activities take place.	Our community has good recreation areas for the enjoyment of children, teenagers and adults
CULTURAL STANDARDS	
All the members of our family share some principles and values that identify and differentiate us from other families.	Our community shares some principles and values that characterize and differentiate it from other communities
All the members of our family share customs and traditions that identify and differentiate us from other families	Our community shares customs and traditions that identify and differentiate our community from all others.
All the members of our family participate in some cultural artistic or religious activity that strengthens the spirit.	Our community promotes social, cultural, artistic or religious activities in a permanent way.
POLITICAL STANDARDS	
All the members of our family obey rules and agreements taken by all the family to facilitate living together (each member has his set responsibilities or duties).	Our community has policies and rules approved in an assembly that facilitate the living of the community as a whole.
All the members of our family communicate and express their ideas without any restriction.	Our community has spaces that promote dialogue and communication without any restriction of any type
All the members of our family exercise our individual rights as citizens without any restriction.	Our community has active community organization democratically elected and authorized by the municipality..
ECONOMIC STANDARDS	
Our family has a financial income that satisfies all the basic needs of the house: clothing, food, health, education and leisure for all the family.	Our community has access to social services of support to families which do not cover their basic needs.
Our family manages to save a part of its annual income in order to make investments or cover eventualities.	Our community has access to financial entities which offer savings or investment opportunities.
All the members of our family over 18 years and less than 65 have some type of employment or occupation or are studying with this end in mind.	Our community has access to social services for people between the ages of 18 and 65 to find work or continue their studies.
Our family has assets or property as part of its patrimony that is on the public register.	Our community has a municipal registry of its properties which are duly inscribed.
Our house has a security system to prevent robberies, fires or floods.	Our community has a system of vigilance to prevent robberies, fires and floods.
TECHNOLOGICAL STANDARDS	
Our family has a method of communication with other localities, regions or countries (radio transmitter, telephone or computer with internet)	Our community has telephone cabins or internet that allows us to connect adequately with other communities, regions and countries.
Our family has easy access to some medium of mass communication that keeps the family informed about local, regional and world events (radio, newspaper, television or internet).	Our community has a radio and television signal which allows us to be connected with the world.

Our family has some method of transport which allows us to move between one place and another when required.	Our community has good transport services that allow people to move freely and safely around to different nearby centers of population.
Our family has the basic equipment to give our products added value.	Our community mostly consumes value added products produced by our own families.
Our family has a piped watering system or drip dispersion that increases productivity throughout the year.	Our community ensures that all its families have piped watering systems or drip dispersion that permits the earth to be productive all year round.
Our family has a Fixed Diversified Orchard which produces a variety of vegetables throughout the year.	Our community provides all its families with permanent orchards that produce a variety of vegetables all the year
Our family produces Associated Cultivated Grass which sustains the breeding of large and small animals.	Our community encourages all its families to produce Associated Cultivated Grass which sustains the breeding of large and small animals
Our family uses Organic Fertilizer which improves productivity of crops planted and preserves the environment.	Our community encourages all its families to use Organic Fertilizer which improves productivity of crops planted and is environmentally friendly.
Our family has a system of the Technical Breeding of Cuyes which increases productivity throughout the year.	Our community encourages all its families realize the Technical Breeding of Cuyes which increases productivity throughout the year.
Our family has a system of egg laying hens which allows us to produce eggs on a large scale throughout the year	Our community encourages all its families to have a system of egg-laying hens which allows them to produce eggs on a large scale throughout the year.
Our family has Mini Plots of Grains and Tuberculars that allow the production of this type of product to be realized throughout the year.	Our community encourages all its families to have Mini Plots of Grains and Tuberculars that allow this type of product to be crown throughout the year.
Our family has a system of Agro-forestry that reduces erosion and protects the land.	Our community encourages all its families to have a system of Agro-forestry that reduces erosion of their property.
Our family has improved stables which helps the productivity of our animals throughout the year.	Our community encourages all its families to have better stables to improve the productivity of their animals throughout the year.
Our family has a fixed canopy which permits the production of a variety of tropical fruit and vegetables throughout the year.	Our community encourages all its families to have a fixed canopy which permits the production of tropical fruits and vegetables throughout the year.
Our family has a source of renewable energy which provides permanent efficient supply without contaminating the environment.	Our community encourages all its families to have renewable energy sources which provide energy all year round in an efficient and non-polluting way.
Our family has a bio-digester which produces its own gas for domestic or productive activities.	Our community encourages all its families to have a bio-digester which allows them to produce their own gas for domestic or productive activities.
Our family has a system of Fish Breeding which enables the consumption of fish one a week.	Our community encourages all its families to have a system of fish breeding which enables the consumption of fish among families.
ENVIRONMENTAL STANDARDS	
All the members of our family drinks safety water (water of guaranteed portability, oiled water, chlorinated water ,filtered water, steamed water)	A safe water system is provided for all the houses in our community (Network of drinking water).
Our house has some system which guarantees an adequate sewerage system (bath with system of pipes, ecological latrine, etc.)	Our community has an adequate sewerage treatment system (plant of treatment by percolation or oxidation).
Our house has some system which assures the adequate marking and location of solid residual collection (organic and inorganic garbage containers).	Our community has an adequate system of the elimination of organic and inorganic residuals (garbage collection, sanitary refilling, recycling system, etc.).
Our house is always clean, ventilated and ordered with the help of all those who live within.	Our community has a weekly frequency of cleaning streets, footpaths and public areas.
Our house has separated rooms outside of the house for the breeding of domestic animals.	Our community has policies and rules which regulate the circulation or presence of large and small animals in public spaces.
Our house has some system that guarantees an adequate ecological energy supply (electricity, gas, solar energy, etc.).	Our community has a system of supply of non-pollutant electrical to all families.
Our house has a kitchen which does not produce internal smoke which could place the health of our children at risk.	Our community ensures that houses and businesses do not pollute the environment.
Our house has green areas, whether they be orchards, gardens or cultivated plants in pots that are well looked after.	Our community has green areas and a system of maintaining them.

Source: Elaboration of the author himself for the program “Integral and Sustainable Development of Underserved Rural Families in the Provinces of Pisco and Huaytará” in Peru.

The standards of integral development that are presented here are not exclusive, given that they must be the result of a shared vision of development of the families within their community. What we want to show is the simplicity with which the standards would allow the generation of a shared vision as an expression of the ideal social genome of a social group, which in turn generates a collective consciousness that permits major synergies and positive negentropic processes for development to be achieved.

Taking into account everything that has been outlined and explained to this point, the proposal of a strategy will now be presented which considers the application of our own experience in the use of standards of integral development, and from all that deduced thus far, which has been based on the theories of systems, chaos and complexity the Social Genome will be modeled as a new way or paradigm of achieving human development in a more efficient, effective, integral, harmonic and sustainable manner.

MODELING THE SOCIAL GENOME THROUGH SOCIAL NETWORKS

A way of incorporating the application of the theories of systems, complexity and chaos reviewed thus far in reference to the solution of complex problems from a pragmatic or operative point of view, would be possible if we can agree in the following postulate: *“Only the power of variety or diversity can manage the necessary changes for the systemic resolution of problems or determinants of chaos and complexity”*.

This postulate can be considered a key for the construction of a new paradigm or way of implementing human development which would permit us to do things differently, and achieve a solution in the process through maximum efficiency and effectiveness when acting upon the problems presented. An analysis of what this postulate proposes in an operational sense in each of its affirmations will be undertaken.

The concept of *“the power of variety or diversity”* could be formed in such a way by simply observing each individual from a thousand and one angles, noting the effect that the diversity of their life experience and ambiguous and changeable social circumstances has upon each person and which in turn influences their dialogic reality.

This type of power that is innate in human beings from an evolutionary point of view is a diverse latent power that can be harnessed to confront the sum of each individual’s problems, providing a myriad of possible solutions (positive or negative synergy) that appear regardless of whether the problems are simple or complex.

A real variety or diversity of strategies, methodologies and tools can be perceived in each human being, which can be applied and even created in accordance with their capacities (power). It also implies that the desire of social entrepreneurs to achieve a solution for a complex problem in a simple reductionist manner is no longer valid.

The following part of that postulated; *“can manage”*; must be carried out operationally. It is here where our management knowledge allows us to affirm that the larger or more complex the organization or problem is, the more difficult it is to administer.

A consequence of this is the tendency of complex organizations to break up into smaller ones which are capable of administering themselves in a more autonomous, efficient and effective way.

To achieve this, an adequate process of decentralization or transference of power or decision making at more operational levels of an organization is one of the most efficient and effective ways of improving the administrative capacity in finding solutions and taking advantage of opportunities existent in our environment to achieve our objectives.

Therefore, a corporative manager faces the challenge of trying to coordinate the most decentralized parts and synergizing the rest of the units of the whole organization in an effort to achieve the results that the corporation is seeking.

In decentralizing the *power* of people, we are ceding more power to the existent variety, to facilitate the resolution of their problems in an autonomous way, taking advantage of the opportunities within their reach, and thereby improving their capacity to administer the determinants of complex problems.

Finally, the concept of “*necessary changes*”, which is established in the postulate as the synthesis of the theories expressed, implies the pertinence and efficacy of the actions (these are called: strategies, methodologies or tools) that people implement in resolving their own problems; where it is the set of solutions gained by each one of us as people which in the end generates the necessary changes or results in solving complex problems or in improving the determinants of the set (positive synergies and system recursiveness).

The closer people are to their problems (or determinants) the more possibilities there are of implementing a more pertinent, effective and sustainable solution and thus of gaining specific results in accordance with their current capacities or limitations (rationality and completeness).

On the other hand, the power of realizing pertinent, effective and sustainable actions is a condition that allows us to achieve results and get feedback to our perception of ‘*If we could achieve it*’ and ‘*If we could maintain or sustain it*’. This improves our self-confidence substantially and as a consequence our own autonomy and capacity of entrepreneurship which drives us to assume new and greater challenges in life (capacity of each human being to self-regulate and to generate internal negentropy).

Nevertheless, the existence of a paternalistic culture at a government level, through organisms of international cooperation, ONG’s and socially responsible businesses, without mentioning philanthropists, has dragged social entrepreneurs into being part of a problem that to a large extent they themselves created (negative synergies and recursiveness) and that regrettably has provided no solution.

The paternalism in social programs reinforces the current paradigm that supposes that people cannot progress alone nor administer the necessary changes, and which insists on labeling individuals as *beneficiaries*. Reinforcing, as a consequence, the need for the presence of social entrepreneurs to help people constantly, generating unwittingly in the process, negative synergies and the rejection of the power of self-regulation.

At this stage, it should be patently clear that what the new paradigm has to implement are new programs that instill in people the desire to resolve their own problems by clarifying what they want to achieve or resolve, through an expression of their own power of variety or diversity.

While the above may be a great step forward the doubt still persists as to whether this natural way of promoting social development assures us of the improvement of these social problems or indicators given that we know that the power of variety produces synergies and recursive processes that are both positive and negative and which were previously more easily gauged through the aspirations of social entrepreneurs themselves.

It is here where the concept of Social Genome and the coordination of Integral Development Standards at the level of Social Networks becomes the catalyzing strategy for the processes of integral human development through the new paradigm of the empowerment of variety.

For this reason, the translation of social and political indicators and development plans into specific results or clear standards, which are feasible and measured in the most operative levels of a society (social organizations) with criteria of highly specific and universal evaluation is nowadays the strategy that makes a process of management of development governable; one which is based on the empowerment of people orientated towards desirable results, and therefore relies on the pragmatic model of the social genome of a group of people or society.

In this sense, if people have the power, freedom and autonomy to pursue and achieve their own goals or standards, through the support of state bodies and socially responsible organizations, then the objectives or mission of *beneficiaries* would be made more feasible. Incentives could be given to channel part of their efforts towards the achievement of the said standards, guaranteeing in this way the fulfillment of our desired social objectives without ignoring the rest of the standards that are part of the variety and diversity that people are seeking (generation of negentropy and positive synergies).

Additionally, and with the aim of guaranteeing that the power of variety administers the necessary changes, it is necessary to constantly encourage the decision making capacity of people and team work as a strategy that boosts the transforming capacity of people and motivates them to achieve greater goals. This strategy denominated nowadays as *coaching* at an individual and group level, is one of the most effective methodologies used to empower people to react to challenges.

For this reason, to promote team work is as much a process of group empowerment as it is a mechanism for control or positive self-regulation of the power of each one of its members in the exercising of individual liberty. Individuals do what they want to do or achieve what they want to achieve, but know that it is the group which regulates these liberties, as they seek to achieve their own goals within the group objective (collective standards to achieve), the common welfare and the objectives of the same organization (generation of positive synergies).

Likewise, another one of the sources of *group empowerment* we have at our disposition and that is linked to human nature, is the need that all of us have to belong to some group or social network. Therefore, from the perspective of the new

paradigm, we can consider a social network to be a space in which our identity as people can be recognized, a place where our achievements or results can be appreciated in a form of mutual apprenticeship which is often produced through the spontaneous social interaction between members of a group.

The desire that people have to actively participate in social networks that have similar purposes, needs and goals enlarges the *power of variety*, orientating it towards the obtaining of the necessary changes required for the solving of complex problems. This is one of the most efficient strategies of the new paradigm that permits people to be protagonists in their own development through the solution of their problems and fulfillment of their needs.

Given the accelerated expansion of computer and media technology even in rural areas and in populations normally excluded from such, the development and growth of models of virtual social networks¹⁵ can become one of the most efficient ways of promoting this type of strategy as part of this new paradigm of human and social development based on the modeling of the social genome through standards of integral development.

In summary, the resultant combination between *individual empowerment* and *group empowerment* (teamwork and social networks) for the achieving of *standards of integral development*, with the purpose of modeling a new *genetic map* or *social genome* is constituted in a powerful mechanism of inter-apprenticeship, recognition, motivation, self-control and regulation of the power of people to do things freely but with a sense of achievement and common good.

To implement the new paradigm for the approach to social problems from the focus of the theories of systems, complexity and chaos, we propose the strategy of *improving the social genome* through *standards of integral development* which refers to the process of “*ensuring that each person has the power to obtain specific results(standards) that express in a conscious and recursive way their own dreams along with the integral welfare of society, based on the diversity of capacities and existent resources in their space or social network*”. This process goes beyond the problems that have been prioritized based in a “Logical framework”, limiting the strategies of solution just to what the social entrepreneurs could implement.

It would therefore be of assistance to review some experiences that can be considered to be tendencies or outlines related to the implementation of the new paradigm of social empowerment orientated to standards or specific results which will help us to better understand all that expressed above about the new paradigm, including its feasibility of application.

¹⁵ Virtual Social Networks: Facebook, Hi-fi, Twitter, Tagged, MySpace, Google+, Youtube, Etc.

EVIDENCE OF TENDENCIES IN THE IMPLEMENTATION OF THE NEW PARADIGM

Below some experiences in the social field are presented as outlines or tendencies in the implementation of the new paradigm of modeling the social genome by standards, in the understanding that this paradigm is evolving as part of the hologramatic and recursive process of human and social development.

GRAMEEN BANK: Micro credits and development in social networks of poor women.

At an international level, one of the most successful experiences that shows an outline of the implementation of this new paradigm in the field of social and economic development is the micro credits program of Grameen Bank initiated in 1976 in Jobra, a village of Bangladesh, by the Nobel Laureate for Peace, Professor Muhammed Yunus.

In this program, it was enough to put in place a small capital of 27 dollars from Professor Yunus himself with the aim of financing micro credits to 42 poor women of Jobra based on the following criteria:

- a) Each woman had to implement her own productive project based on what she could and wanted to do.
- b) The borrowers made a commitment to repay their loans and to achieve a set of 16 decisions¹⁶ (standards) in reference to economic, social and environmental development established by the program with the aim of improving 10 indicators¹⁷ of success.
- c) To receive the micro credit, the women organized themselves in groups with a maximum of five people formed voluntarily by them (*social network*), which had the function of supervising and supporting its integrants so that they fulfilled the implementation of the decisions and their repayments.

The results¹⁸ are surprising, and as if it was a “Butterfly Effect”, the program, up to 2009, had been able to benefit a total of 7.34 million borrowers. 97% are women, with total paid out loans since its creation rising to 6.55 billion dollars of which 98.35% has been repaid. According to studies carried out by the bank itself, 64% of the families of the borrowers have passed the threshold of poverty and improved some of their standards of the quality of life.

In this way, we can see that the Grameen Bank implemented an outline strategy of modeling of the social genome, starting from the micro credit obtained, that each beneficiary within her social network, had the power of beginning to battle with her own determinants, initially by satisfying some of their main perceived needs, all of which helped to lift them out of poverty and improve some standards of their quality of life through their own methods.

¹⁶ 16 decisions: http://www.grameeninfo.org/index.php?option=com_content&task=view&id=22&Itemid=109

¹⁷ 10 indicators: http://www.grameen-info.org/index.php?option=com_content&task=view&id=23&Itemid=126

¹⁸ Results: <http://comitepaz.org.br/download/Grameen%20Bank.pdf>

Nevertheless, this strategy hasn't been able to handle the complexity of the integral development of its *beneficiaries*, as the program only concentrates on the approach of a group of standards proposed for its own program.

SIERRA PRODUCTIVA: Standards of technological development for rural development

The program 'Sierra Productiva' (Productive Sierra) is a Peruvian model which also represents a tendency in the implementation of the new paradigm of modeling the social genome. This program was initiated in 1994 in the micro basin of "Jabón Mayo", at four thousand meters above sea level, in the province of Canas, in Cusco – Peru. It was work undertaken by the Institute for Agrarian Alternative (IAA) in conjunction with the Association of Farmers from Cusco (FDCC) with the aim of developing the small native production of poor farmers and integrating it into the market.

The program encourages the implementation of 18 types of rural technologies to enable each rural family to improve its indicators of economic, social and environmental development. The strategy of approach consists of each family forming a *group* or *social network* of inter-apprenticeship with other families (groups vary between 5 to 10 families), where each one of them is responsible for implementing the technologies on their properties with the support of other farmers called *Yachachiqs* (which in the Quechua language means "he who transmits what he knows").

In this case, the 18 technologies proposed became 18 development standards for achievement, where the *Yachachiqs* were included in a strategy which allowed changes to be introduced in the social genome of these families through their "social networks or groups of inter-apprenticeship".

The program possesses qualitative indicators that measure the improvement of economic, social and environmental standards achieved in the grouping of the families, provided by the testimony of all participants indicating substantial improvements in their levels of production and economic income: consumption of clean water, better hygiene, better infantile nutrition, improved self-confidence and a greater prominence of women, reduction of alcoholism and family violence, greater range of value added products and the development of their local markets.

Nevertheless, as well as having a system of standards and indicators measurement, another aspect that the program needs to improve is to do away with the paternalistic component which subsidizes most of the costs of implementation for families. In this case the strategy of micro credits employed by Grameen Bank could assist in the consolidation of a unified approach ensuring greater possibilities of success in the process of expansion and sustainability of the model.

MY SCHOOL: Information technologies and social networks to improve standards of quality in education.

In the field of education, one of the most original models used about standards of development, social networks and systems of information for the modeling of the social genome at the level of educational institutions in Peru is the program "My School". This

model, which is being implemented through the Social Contribution Program of SK Innovation and ProSynergy in Alliance with the Centro de Investigación y Servicios Educativos (CISE) of the Pontificia Universidad Católica del Perú (PUCP), was originally conceived, during its two first years, as a program of intervention at the level of classrooms, using the web portal “My Teachers Network”. Teachers came from diverse schools of the Peruvian provinces of Ica, Pisco, Chincha and Cañete.

The strategy of the model consists, on the one hand, in offering a long distance course to directors, teachers and administrative personnel from the educational institutions at pre-school, primary and secondary levels. Access is granted to this in a voluntary way through a partial scholarship. The course encourages the participants to implement a set of activities to improve the quality of *pedagogical and administrative standards* in their school through the participation of the entire educational community, including students and their families in an extended *Social Network*. As well, the participants are organized into groups of inter-apprenticeship with the aim of gaining feedback and technical assistance from a “coach” or group tutor.

On the other hand, the strategy also considers the use of a web portal created for the program, and which is named “Mi School” (www.micentroeducativo.pe), through which all the educational community reports their progress and achievements, shares their experiences and materials, forms their virtual social networks and receives recognition from their peers and authorities.

In a specific way, the long distance course and the web portal encourage each participant to develop the following processes:

- *To each school principal or director:* To register his school and all his teaching and administrative staff in the web portal; to publish the institutional educational project and the internal regulations of his school; to organize the process of self-evaluation, analysis and monitoring of the standards of quality of his school; to form improvement teams for each one of the quality standards prioritized; to monitor the activities that each team implements; to evaluate the performance of each team and the changes that their efforts are making on the quality standards; to give incentives or social recognition to the members of the school according to their efforts; among other actions.
- *To each teacher or class tutor:* To register the profile of their class, entering the list and photographs of their students; to form a class committee with the participation of parents or family members; to evaluate the base line of the standards of learning of his students and analyse results together with parents; to agree with parents to implement improvement activities base on the results obtained by children; to publish class sessions implemented as part of the innovative strategies of teaching—learning completed through the long distance courses; to evaluate the learning level gained by his students at the end of the school year; among other actions.
- *To each student:* To register their personal profile including personal plans, their interests and hobbies; to form their own social network with students at school or from other participating schools in the program; to do a self-evaluation of their profile or way of learning; to publish their main works; to evaluate the organizational climate of their class; to monitor the learning standards that are

being achieved in all subjects studied; among other actions. In the case of pre-school children or those primary school students less than 10 years old this work can be completed with the support of parents or the teacher involved.

- *To each member of the administrative staff:* To evaluate administrative management standards in their institution; to participate in teams which continually improve standards of quality of school administration; among other actions.
- *To the parents:* To become registered in the parents' association and its class committees in the portal web; to publish the annual work plan of the association and its class committees; to publish the implementation activities of those plans; to monitor class work and learning standards achieved by their children; among other actions.
- *To all the members of the educational community in general:* To register their personal and professional profile; to carry out a self-evaluation of their labor competences; to create their own social network of colleagues as much within as outside of the school; to publish and share documents; to publish their monthly agenda of work, detailing activities being developed in relation to projects of continued improvement of quality standards in which they are participating; to evaluate the organizational climate of their school; to have access to the post box of congratulations, suggestions and claims within their school; to publish photographs or videos either personal or institutional; to have access to the virtual library of all publications realized by all the members of the network; to participate in virtual forums; to send or receive messages from their social networks as they do in making or receiving comments from articles published in the portal.

Based on that reported in the web system "My School", the members of the educational community have their progress evaluated and receive social recognition for their efforts, which comes from their own social networks, colleagues and authorities, along with physical incentives (memory usb drivers; lottery of digital cameras and computers, etc.) given out by the program, as well as the Certificates granted by the PUCP at the end of the first year. In this way and through the use of the web portal "My School", the program implements improvement processes of the integral standards of quality as much at a pedagogical level as administrative, with the aim of having a positive impact on the quality of teaching of each student.

The results gained in the first two years of implementation, based on a research made by the PUCP¹⁹ compared with students from non-intervened "teachers networks", showed an improvement in the competency of learning of the students of the order of 40% in mathematics and 27% in integral communication which includes reading comprehension and 23% in other areas of the school curriculum. Improvements in the standards of administrative and institutional management whose improvement processes were implemented at the end of 2011 have still to be evaluated.

¹⁹ Effect of the program "Innovative strategies for teachers' excellence" to improve standards of learning, in communication and mathematics, from students coming from classrooms of elementary and secondary schools, whose teachers used the web portal "Mi Teachers Network". Pontificia Universidad Católica del Perú (PUCP). Vice Rectorado de Investigación. Education Faculty. February 2011.

MY HEALTH NETWORK: Social networks to improve quality in health care standards.

In the field of health, a process of modeling of the social genome of a local health system through the use of TICs, social networks and standards, is the model that has been introduced as part of the Social Contribution Program of SK Innovation and ProSynergy with the support of the NGO 'Futuro Sostenible'.

This model has been implemented since January 2009, through the use of a system called "My Health Network", (www.miredsalud.pe). The purpose of this program is to improve the quality of the health services from a Health Micro Network²⁰ based on standards of quality set by the Ministry of Health (MINSA), through the participation of the users themselves, families, community volunteers, community authorities, health workers and local governments.

The web system contains a set of manuals for on-line use, which together with the technical assistance of field workers under the modality of Coaching, permits each Health Micro Network to implement the following processes for quality improvement:

- *To each health worker:* To register their personal and professional profile; to carry out a self-evaluation of their work competences according to the position occupied; to create their own social network of colleagues; to publish and share documents, such as publishing the activities that are developed in relation to the plans of continuous quality improvement in those they have participated; to evaluate the organizational climate of the micro health network in which they are involved; among other actions.
- *To each health care facility:* To register their categorization, variety of health services offered; to carry out the self-evaluation of its standards of accreditation and the quality of infantile and maternal attention; to publish the plans and activities of continuous improvement of the said standards; among other actions.
- *To each community:* To register the census of the people and families that live in the community, to carry out the self-evaluation of its standards of health promotion at the family, school and community level; to report the level of cover and quality of attention that its children under the age of 5 years and mothers are receiving; among other actions.
- *To the users:* To process their claims and suggestions on-line with the participation of the Ombudsman for Woman, Child and Adolescent (DEMUNA), that belongs to the local municipality.

Thanks to the web system, all activities of quality improvement, such as the detail of the improvement of the standards of accreditation and attention of health establishments, of the standards of work competence of workers, and of the standards of health promotion in the population, can be monitored by the Manager of the Health Micro Network, or by local and regional authorities from any computer connected to internet.

²⁰ Health Micro Network: Network of primary health care facilities with diverse resolution capacity that provide health care services in a specific territory.

The results gained in the second year of implementation of the program showed improvements of 40% in the standards of accreditation, of 30% in the standards of child/mother care, of 20% in work competences and 15% in the standards of health promotion of families and communities which undertake a self-evaluation appraisal.

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Although in all these examples the tendency towards a form of modeling of the social genome through standards has been clearly observed, in which the people and their social networks are those that have the power of implementing their own actions within the framework of a set of proposed standards and incentives to be fulfilled that allows them along with the organization which promotes them to reach their objectives and satisfy their own needs, the fact remains that these programs are still only isolated efforts within the current paternalistic paradigm, which are implemented under the logic of projects or programs conceived by some non-governmental organizations and private businesses, whose lessons learned still cannot be considered as the central core of a territorial strategy of sustained social development under the charge of all the organizations involved.

To gain a better understanding and overview of the problem, a methodological proposal that allows the implementation of the new paradigm in a more systemic and pragmatic way will be presented and sustained below.

PROCESS OF MODELING THE SOCIAL GENOME THROUGH STANDARDS OF INTEGRAL DEVELOPMENT

With the aim of being able to put the implementation of the new paradigm of modeling the *social genome* into practice through the use of *standards of integral development*, one of the main aspects to take into account, which is different to the paternalistic paradigm, is the focusing of our actions in accordance with the true aspirations and needs perceived by people, whose quest for satisfaction becomes the motor that drives them to initiate the implementation of actions for the achievement of their development, along with guiding the processes of improvement to be implemented towards the achievement of specific results, rather than putting a simple solution of the problems in front of them.

Therefore, one of the great additional differences between the old paradigm for the solution of *problems* and the new paradigm of modeling the social genome for *results* (standards) is the way of administering its implementation.

In the paternalistic paradigm, the processes are administered or implemented “from top to down”, given that it is the promoter of the project or program who in the function of achieving what is wanted, establishes objectives and goals and prescribes a set of logical strategies and activities to be implemented in favor of the beneficiaries in the same manner that certain activities of supervision, monitoring and evaluation are handled in controlling their fulfillment. If some activities include the participation of beneficiaries it is done strictly under what has been established in the “Logical Framework” of the program or project.

Within the paradigm of the modeling of the social genome by standards, the results (standards of integral development) can be promoted “from top to down”, on the one hand, as part of a mechanism of generating a shared vision, and on the other hand, all the goals and specific actions that must be carried out by people or teams for the achievement of the said standards are implemented “from down up”, by the actions of people within their own space and social networks.

Additionally, in the new paradigm, the processes of supervision are replaced by processes of inter-apprenticeship and the processes of monitoring and evaluation by processes of internal monitoring undertaken by the social network itself and by processes of self-evaluation of the results realized by each integrant of the network, in function of the standards of integral development that must be achieved.

In this context, it can be affirmed that the classic model of hierarchical scales of supervision, monitoring and evaluation for the control of work carried out by people, as well as the processes and results in an organization or system, remains a part of the old paradigm, that becomes obsolete from the perspective of the paradigm of social empowerment for standards of integral development.

The fact that people can traduce all their needs into aspirations and specific dreams (standards of integral development) that are feasible and that can be achieved in time, one by one, is fundamental in building the feeling that what they really want can be

achieved through their own abilities and resources. As well, it is one of the most efficient ways for people or organizations which work in the field of social development to connect their own mandates or aspirations with the actually perceived aspirations and needs felt by the people they wish to support, develop and sustain.

Likewise, it should be understood that in the new paradigm, support and social recognition is a fundamental factor that motivates people to continue to implement actions for improvement on their own; the stimulus given by their peers fulfilling a transcendent human need in that all people need to belong to a determined social group and to be recognized for what they are and what they do; this in itself being the very base of their social identity, self-confidence and driving force behind their enterprise and desire to lead.

Therefore, the process of empowerment people based on standards of integral development must be implemented by considering people as being part of a group within their own space or social cell in which they are involved on a daily basis (Family, Work Place, Study Center, Social Organization, Suburb, Community, etc.). In this sense, each social space constitutes itself in the "*Social Cell*", and is capable of replicating and producing that proposed, at the level of its standards of integral development, as an expression of its genetic code or social genome.

In this sense the methodology that implements this new paradigm has four processes that must be implemented in each *space o social cell* and a catalyzing motor of the said processes as part of a proposal of development based on the systemic and hologramatic model of improvement and continual apprenticeship.

The processes that must be implemented in each space or social cell are the following:

1. To boost the dreams and aspirations of people through goals or specific standards of integral development.
2. To promote people to self-evaluate through the standards proposed and to prioritize those that can be improved by their own means.
3. To motivate people to implement effective actions to improve the standards prioritized with the support of their own social networks.
4. To give social recognition to people for the actions and achievements gained in the improvement of their standards of integral development.

Additionally, the incorporation of the use of the Technologies of Information and Communication (TIC's) as part of the new strategy, nowadays comprises an indispensable tool that allows us to catalyze the process of modeling the social genome through the management of integral standards and the administration of the immense variety of processes and results that are produced through the action of people themselves and through their social networks in their desire to gain the said standards.

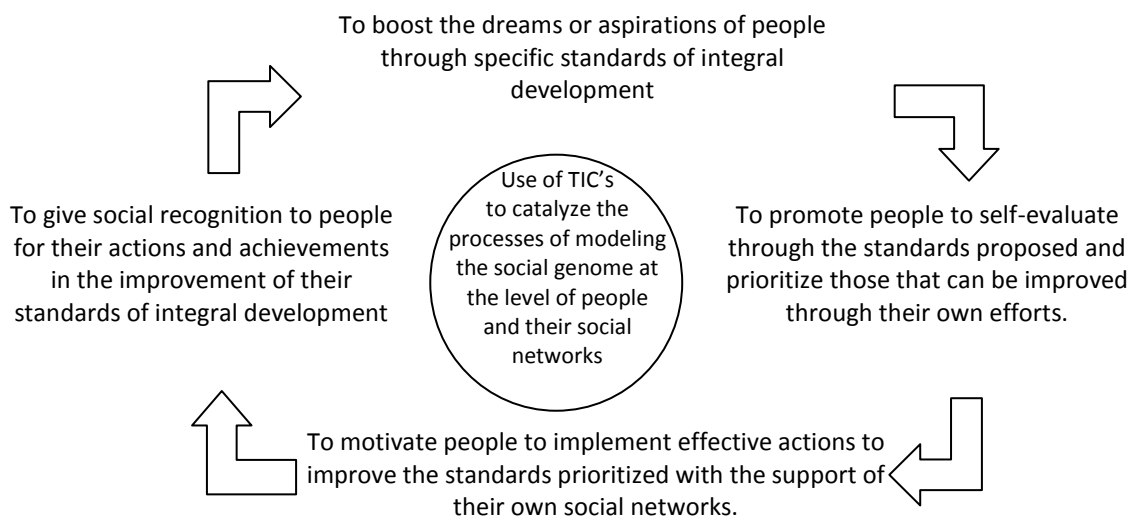
Additionally, the use of TIC's allows us to obtain greater efficiency, effectiveness and control over the implementation process of the new paradigm. In this sense we can affirm that: "The information that flows through TIC's is constituted in the genetic knowledge and apprenticeship that a social system develops and shares between its social cells". Just as the nervous and endocrine system permits the interchange of information and processes between all the organs and systems of the human body, TIC's permit the

interchange of information and processes between people and social organizations that form part of the social genome.

Therefore TIC's can be considered to be the vehicle through which the information of the social genome flows globally with the aim of permitting its evolution and development in a more systemic, synergetic, recursive and hologramatic way.

The following graph illustrates and systemizes the process of implementation of the new paradigm of the modeling of the social genome through standards of integral development:

Processes for the Modeling of the Social Genome through Standards of Integral Development.



A. To boost the dreams or aspirations of people through specific standards of integral development.

This process initiates the modeling of the social genome promoting people from within their respective social spaces to express their needs functionally through specific results (standards) and to enable the visualization of new standards of development beyond their own context or actual environment, which in turn facilitates the improvement of their own vision of the future and capacity to dream, and amplifies the variety of options they have in implementing the processes of improvement and realization in their lives.

People with great dreams, have more development possibilities than those who dream less or not at all. To dream about achieving things in life is in itself an intrinsic and very powerful motivating factor in promoting people to act. To stop dreaming is to stop growing, and limits action only to the context or to specific circumstances.

The greater or more visionary a dream is the greater the possibility of development and growth of a person or organization is. Nevertheless, if dreams don't have clear and feasible goals they only create a utopian world that can be counterproductive and breed an effect

of skepticism and frustration in people, reinforcing conformist and adverse conduct with regard to the dreaming of large concepts.

Therefore, to get people to traduce their dreams into specific goals or standards in all the fields of human endeavor (individual, social, cultural, economic, political, technological and environmental) which we denominate as *standards of integral development*, is a highly important aspect in the implementation of the process of molding or activation of the social genome in approaching the complexity of human development in an integral way.

Likewise, to have *standards of integral development* is part of a process that allows dreams to be traduced in specific terms which are feasible, achievable and measured, which overcomes the weakness of the current old paradigm whose major problem resides precisely in its lack of capacity and clarity in the measuring of the results of its interventions in the social field.

On the other hand, to have a group of *standards of integral development* is also a communication tool which permits people to amplify their vision of what integral development means and to be conscious of their contribution as subjects who form part of a society. Additionally, the power of self-evaluating their real situation in relation to the level of achievement reached, in respect to each one of the standards, determines therefore their own level of development within the society in which they have evolved.

Finally, *the standards of integral development*, are also a powerful tool that allows policies and development plans of governments to be traduced into understandable aspects that are feasible in their implementation and that can be sustained by people and social organizations themselves, generating in this manner a new form or paradigm of implementing policies, programs and public projects, making the processes of governability and synergic development of a territory more efficient and effective, whether this applies to community, district, province, region, country or the whole planet itself.

It is for this reason that the formulation of *standards of integral development* is constituted as the operative tool that in the new paradigm permits the positive modification of the social genome. This articulates in a hologramatic and recursive way the aspirations and perceived needs of people themselves, with the perceived needs and aspirations of development desired by social or political entrepreneurs, who seek to resolve problems and promote the development of their people.

Nevertheless, with the goal of allowing people to enlarge this vision of development, it is not enough that they are exposed to a set of written standards, but also essential that they can visualize standards of integral development that have already been achieved by people in social spaces with similar characteristics to theirs (peers).

Therefore, with the aim of implementing this stage of the process of modeling of the social genome, it is also recommended, that in an operative way people that social entrepreneurs wish to empower are exposed to the visualization of standards of integral development already achieved by their peers through techniques such as:

- Field visits to similar social spaces to observe standards of integral development already achieved.
- Revision of videos and photographs of the achievement of standards of integral development in similar social spaces.
- Testimonies of people from similar social spaces who have already achieved standards of development in an integral way.

We have to emphasize that the models shown, should be peers who have achieved levels of improvement in most of their standards of development in an integral way, and not only some of the standards proposed, given that it is the amplification of the vision of people that we want to empower in an holistic manner, and not only have them limited to some type of specific standard.

B. To promote people to self-evaluate through the standards proposed and to prioritize those that can be improved by their own means.

This second phase of the strategy of implementation of the new paradigm seeks to activate the codes of the social genome (standards) by challenging every person to contrast their dream or vision of the future with their own reality and become aware of their challenges.

To take a great leap forward, it is important to see where we want to land (dream or vision of the future) and to determine at the same time from which point in the past this leap should be taken from. In forming an overview of the effort the jumper is required to make, an assessment of their physical condition or capacity to do so is important. If the distance (dream or vision) is seen to be very great in relation to the physical condition (resources or capacities), or the platform from which we intend to leap (context or surroundings) is not firm enough, then we should seek a shorter distance or more feasible goal (short term standard), or look for support to help us achieve it (existent opportunity in our surroundings).

It is because of this that the process of making their own self-evaluation of the present and future, in relation to standards of integral development, is the most reflective and self-critical part of the process of the modeling of the social genome. It stresses the need for change or improvement on the one hand, as well as generating a level of awareness of their social role on the other. The result of this is traduced into an intrinsic motivating force that drives their desire to make the necessary leap to try and achieve one by one the components (standards) of their dream.

It is well-known in the administration, that to achieve development, people or organizations need to have clearly defined and prioritized their objectives and goals in the short, medium and long term. Therefore, the process of self-evaluation of standards must conclude with a process of selection or prioritization of the standards that will start to improve within time.

However, given that the process generates not only a reflexive component and a motivating force of an individual nature, but also a social process that offers feedback and boosts it, the process of prioritization of the standards to be improved must be initially focused in two directions from within the social space or cell of the people that social

entrepreneurs want to empower: that is, according to their own interests and needs, and according to their own resources and capacities.

Therefore, methodologically, the techniques that can be implemented to empower people during this process are:

- To facilitate processes of coordination of standards of integral development, according to existent social spaces that are traduced into checklists to promote the self-evaluation of people.
- To promote meetings about self-evaluation of the said standards between people within their own social spaces.
- To assess people in their own social space so that they can reflect on their present standards with regard to what they want to achieve in their own vision of the future.

C. To motivate people to implement effective actions to improve the standards prioritized with the support of their own social networks.

Once people have prioritized the standards that are the most feasible to be reached or improved in relation to their own interests, resources and capacities, the next step is to ensure that effective actions are implemented to achieve the improvement of the said standards.

Effective actions are understood to be those actions that are directly related to the improvement of the standard prioritized (efficacy) with the least quantity of resources possible (efficiency).

To achieve this, it is necessary again to overcome the limitations of the current old paradigm in which many activities that are implemented are actions that (if in fact they are related to the proposal before them) do not contribute to the achievement of concrete results and therefore are in effect activities that we have previously denominated in this book as being *activisms*.

The advantage of the new paradigm is that the proposal is specified as highly concrete results to be achieved (standards) and the likelihood of people implementing *activist* actions to achieve them is very low. Therefore, and with the aim of guaranteeing the implementation of effective actions it is recommended that people themselves or groups of people in charge of the process of improvement of standards be the ones to propose the activities which in turn can be traduced into an agenda of specific activities.

People who have a goal to improve a determined standard, who implement the necessary actions to achieve it, who look to take advantage of accessible opportunities in their surroundings or through their own social networks, are representative of the new paradigm and underline an important difference between it and the old paradigm.

This is why our social networks themselves are constituted in the most suitable space so as to enable members to find the opportunities that they are looking for. While they may not find the desired opportunity in their own immediate social network, the chances increase when the search is enlarged to include the social networks of other members of their own network. Therefore, the larger and more genuine a network is, the greater the possibility of finding an opportunity to lead them towards the realization of their dreams is.

In this sense and with the aim of motivating people to implement actions for the improvement of their prioritized standards, the techniques that have appeared within the new paradigm are:

- To promote people to enlarge their network of social contacts through their active participation in events or those of social networks within their reach
- To promote people to visit peers who have already implemented actions and improvements to the standard prioritized in order to learn from them.
- To advise people to access self-instruction courses for the implementation of their improvements; such as guides, manuals, videos etc, which quite often are available on Internet.
- To provide resources with no paternalism, like micro credits or loans, with warranty from people's social networks.

D. To give social recognition to people for actions and achievements in improving their standards of integral development.

This process makes people who want to change, reinforce their self-esteem and entrepreneurial attitude, as well as their self-confidence in seeing the fulfillment of the dream or vision of the future they have proposed.

Both the self-recognition of each person and the recognition of their social networks and of their promoters (state, ONG, company, etc) are the sources that reinforce the thought and winning attitude of people in the sense of, "If I have achieved this already, then I can achieve much more."

Another highly motivating factor that drives self-worth as part of the process of giving social recognition to people is the possibility that this can influence others to consider what they could have achieved, given that the need of transcendence; of our of being recognized for what we are and for what we do, is intrinsic to our nature.

And finally, the fulfillment of the above by publically offering the incentives with the aim of motivating people to realize actions to improve their prioritized standards consolidates an adequate process of social recognition.

Therefore, the techniques most recommended for implementing this stage of the process of modeling the social genome are:

- To promote people to let their own social cell and promoters be aware of their achievements with the aim of receiving social self-recognition.

- To give public recognition to people as much for initiating the processes of improvement as for the achievements gained in each one of the standards of development.
- To establish incentives that people and their social spaces will receive for achieving improvement in their prioritized standards (to change the old paradigm of gifting resources to beneficiaries for one of delivering resources as social recognition for their improvements.)
- To promote people to become promoting peers to others who want to initiate the same process (Yachachiqs).

E. Use of TIC's to catalyze the processes of modeling of the social genome at the level of people and their social networks.

If *to catalyze* is understood to mean to be able to accelerate a process of obtaining the results desired in less time, then the development of the Systems and Technologies of Information and Communication (TIC's) is nowadays a powerful catalyst in the processes of molding of the social genome through the use of standards of integral development.

The undoubted fact that TIC's are more accessible to everybody and the facility with which most of the information required can be found through Internet, added to the expansion of social networks through highly interactive virtual platforms as well as the possibility of being able to get to know the world through personal *blogs* and videos in portals like YouTube, Blogger, Google, etc. are opportunities that can be employed to catalyze all the stages of the process of empowerment.

In effect, all the processes that are proposed for the implementation of the new paradigm can be carried out by using TIC's which are available today. By way of example some of these possibilities are:

- To publish on the web the standards of integral development for their self-evaluation and to facilitate the search for and access to already existent self-instructive sources for their improvement.
- To provide facilities so that people show their processes and achievements in the improvement of their standards through photographs and videos published by themselves on the web.
- To promote people to expand their own social networks in a virtual way by sharing their achievements so that they are recognized better.
- To give public recognition to people through their virtual networks.
- To implement engines for processing the information placed by people on the web about their processes and results in the improvement of standards, with the purpose of monitoring, evaluation and social research.
- Etc.

If the whole cycle of the processes for the modeling of the social genome can be implemented successfully from the bottom up, starting from work in a determined social space, the greatest challenge is in how to take these processes up to the level of an entire territory, where the strategy is part of a policy of implementation of social programs that are more efficient, effective and sustainable. Below, a proposal in respect of this is presented.

THE CHALLENGE OF MODELING THE SOCIAL GENOME AT A TERRITORIAL AND GLOBAL LEVEL

To be successful in the implementation of this new paradigm of modeling of the social genome through standards of integral development on a grand scale, we must first understand that we are part of a supra-system comprising organizational sub-systems (Public Institutions, Non Government Organizations, Businesses, Socially-based Organizations, Suburbs, Communities, Families, etc.) all of which have a culture or organizational behavior which reproduces, sustains and defends the existing old paradigm.

Therefore, the challenge is not only to conceive a new paradigm which models and changes the social genome of people via implementation processes in some spaces or social cells, but also to generate a strategy of change and expansion which can implement this new paradigm on a major scale taking into account the resistance to change itself within the old paradigm.

Therefore, it is necessary first to unveil the deficiencies of the current paradigm in the approach to social problems at a territorial level, which is related to design and coordination of Public Policies, and the fact of wanting to implement them through Strategic or Sectorial Plans which take the form of National, Regional and Local Development Plans.

In reference to the design and coordination of Public Policies, the effort of State organizations to coordinate with the denominated Civil Society is recognized and is no doubt praiseworthy in trying to coordinate them based on problems considered to be of national, regional or local priority. Nevertheless, the lack of efficacy in implementing this change is well-known, which as a result converts this type of process into 'great political activism' which does not lead to concrete and effective results.

Experiences known as "Global or National Agreements" such as "Millennium Development Goals", "National Policies for Childhood, Adolescence and Youth" or "Plans against Infantile Malnutrition, HIV/AIDS, etc.", among an endless number of subscribed agreements signed by an endless number of participating agents, are in the end documents that lack effective mechanisms for the implementation and measuring of concrete results, regardless of what some individual participating agent manages to do as part of his or her own institutional mission.

Even within the ranks of politicians and civil society actors who participate in the processes of public policies, many of the priorities established are not shared but rather accepted so that the said public policies consider at least part of the interests and institutional mandates of the participating agents themselves.

All this aggravates the feasibility of implementation, when a new political authority takes over, even though the documents of agreement or the pacts were signed by all participating agents at the time.

On the other hand, it is well known that the effort of coordination which is made in the process of designing “Development Plans,” results in many of the documents finishing up being filed away in the cabinets of some Municipality, Regional Government or Ministry.

Among the main causes which explain this operational inefficacy, is the lack of a budget for many of the activities or projects proposed; the change of Authority or functionaries that technically or politically support the plan; the lack of technical capacity to implement the projects; among other existent explanations or “Butterfly Effects”.

In the best case the “Development Plans”, that manage to implement some of the activities, do so as a result of investment projects which for the most part are related to the construction of basic infrastructure. This is due to the fact that projects of this nature are highly valued by politicians as well as the public, although their construction doesn't have an important contribution to the solution of the social problem posed in the first place.

In other cases where some social development project is implemented which is not simply the construction of infrastructure, the projects tend to be orientated towards contributing to solve some social problem considered to be a priority at the time; the strategy is based on a set of activities formulated as part of the “Logical Framework”, established within the current old paradigm, which as we have seen does not approach the real complexity of the social problem that it sets out to resolve, resulting in activism that doesn't promote concrete results.

Therefore the great majority of social development projects are implemented in a centralist or decentralized way, and show no specific gains in reference to the solution of the complex problems posed. The expenditure being justified by the set of activities carried out (infrastructure constructed, workshops, discussions, radial spots, coordination meetings, etc.) and the administration and operational costs incurred (remuneration, travel, printing, meals, costs, etc.) being sheltered and justified under the banner of being long term social problems.

It is necessary to clarify that in the frame of the new paradigm of modeling the social genome proposed for the approach to complexity and chaos, all that expressed above are only justifications for the inefficiency and ineffectiveness of the current paradigm.

Although these programs have their respective budgets and political support even in a decentralized way at local level, they do not manage to resolve the problems prioritized, given that this form of simplistic and reductionist management of social development does not attempt to consider the administration of the variety of the processes necessary to resolve the complex problems presented.

Finally, to all these limitations of the current old paradigm to resolve complex social problems on a territorial scale, the majority existence of social paternalistic programs at all levels is added, those which reinforce the political and social paradigm about the need to depend on the capacities and resources of the state, international cooperation, the ONG's or socially responsible companies to be able to resolve the social problems of our people.

Therefore, it could be concluded that it is this last aspect which primarily sustains the validity of the current old paradigm, which despite showing its ineffectiveness and obsolete mechanisms of implementation is maintained and defended by the majority of political and social actors and by the population itself.

Additionally, it is necessary to observe that even the experiences or mechanisms of decentralized and participative management of social issues in public services as well as social programs and projects implemented by the state, suffer the same problem of a lack of efficiency and effectiveness when it comes to approaching complex problems in the old paradigm. They are however, efficient enough in implementing specific actions or solutions for more simple problems (resource management, construction of services, attention to claims, etc.)

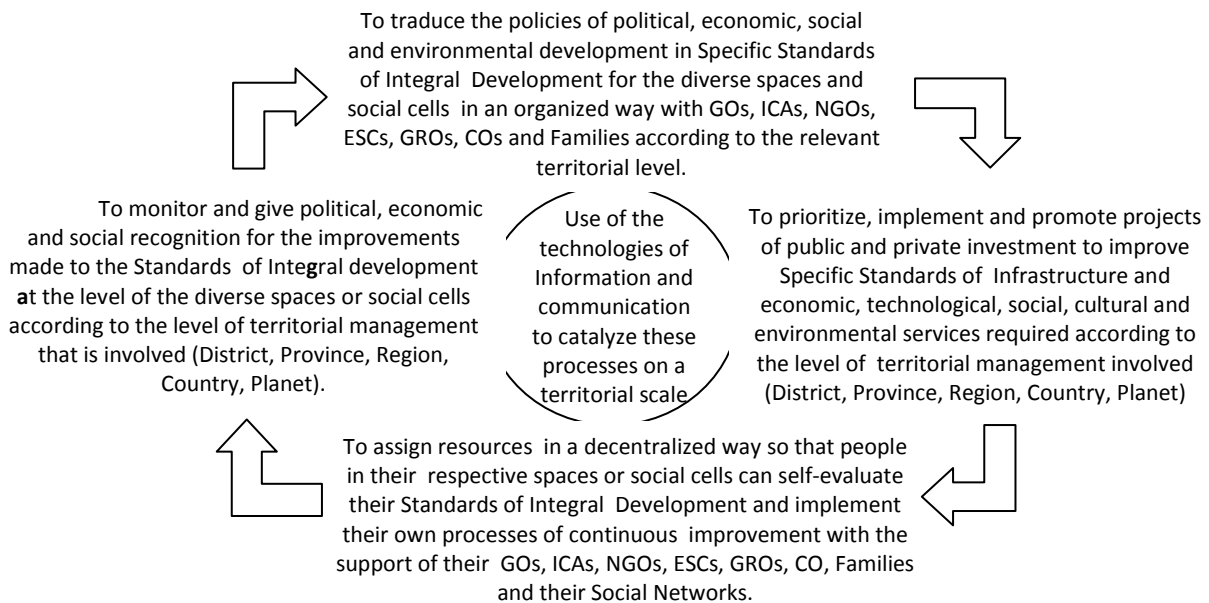
Nevertheless, it is also necessary to recognize that the more a state is decentralized the better the possibilities are that the units of decentralized management can administrate the necessary processes to approach the variety and complexity of the existent social problems and to obtain substantial improvement based on the new paradigm of modeling the social genome based on integral development standards.

With the objective of establishing a proposal of territorial expansion of the new paradigm, the inevitable presence of the process of *globalization* must be considered, which brings with it additional forms of interaction of individual, social, political, economic, technological and environmental determinates that lie behind complex problems; interaction which goes beyond the geographic or political frontiers established by countries. In this sense, the planet earth in all its globalism should be added as one more category of the concept of territory, including the existence of leaders who promote a *Global State*, which is increasingly evident in the political decisions that are made and which affect all countries and inhabitants of our planet.

In conclusion, it is necessary that we conceive a territorial proposal for the decentralized implementation for the new paradigm proposed based on the real needs perceived by people in a global context taking into account some of the strengths of the current old paradigm which include the tendency towards decentralization of the functioning and competence of the State and the predisposition of people to arrange and participate in the diverse levels of organization and management of integral human development at a territorial level, such as governmental organizations (GO's), International Cooperative Agencies (ICA's), non-governmental Organizations (NGO's), Socially Responsible Companies (SRC's), Grass Root Organizations (GRO's), Community Organizations (CO's) and the families themselves.

Proposal for the implementation of the new paradigm at a territorial level:

If a state is to be relied on to implement the new paradigm of modeling the social genome by means of standards of integral development from the top down, a reorientation of its current form of public management would be required based on the following processes to permit the territorial expansion of the new paradigm:



Below each process of this proposal for the implementation of the new paradigm at a territorial level will be described:

To traduce the policies of political, economic, social and environmental development in Specific Standards of Integral Development for the diverse spaces and social cells in an organized way

Social entrepreneurs are well aware of the effort required to fight for social policies that are more inclusive and equitable in the current paradigm, as more spaces of agreement are gradually won for their design. Nowadays, it is very common to hear about Global or National Agreements, Agreement Roundtables, Public consultation of policies, etc. as spaces promoted for the arranging of public social policies.

However, it is also known by all social entrepreneurs that the existent weakness in regard to the implementation of these agreements or arranged policies, is the repetitive justifications and obstacles that stem from a lack of interest on the part of the political class and changing governments to implement them, with the consequent lack of resources provided which are diverted to other priorities. Policies are also not traduced into real implementation plans, this being another negative particular to the current paradigm.

Additionally, if these processes are analyzed from the optic of the “Theory of Complexity and Chaos”, and allowing for the fact that the resources used allow some of the plans for the implementation of the policies agreed upon to be executed, the gains obtained fall short in regard to resolving the prioritized problems that drove the formation of the said policy. Examples of this type of initiative are “Policy of Fighting against Infantile Malnutrition”, “Policy of Citizen Security”, “Policy of the Prevention of Adolescent Pregnancy”, “Policy against Family Violence”, “Policy of prevention of HIV/AIDS”, etc. to quote but a few cases that have failed to achieve the hoped for results.

Therefore, in the new paradigm of modeling the social genome, the process of agreement is orientated more towards traducing the indicators of development and public policies in Standards of Integral Development, understanding integral as being all aspects or areas of human development at an individual, social, cultural, economic, technological, political and environmental level

On the other hand, the arranging of *integral standards of development* greatly facilitates the processes of agreement, given that all the Stakeholders or Groups of Interest can see their mandates or interests reflected in a set of standards that must be proposed by themselves. These standards must be accepted by all the agents of agreement, under the principle of the new, where the people themselves, families, suburbs, communities, service institutions, etc. are those who have the liberty of implement or not standards for their improvement or gain, in accordance with their real needs and aspirations.

In this sense, the major argument with the Agents of Agreement is centered on the pertinence of the standards proposed based on the context and cultural and social diversity of the population. Therefore, these standards must be formulated according to different levels of government, where the global standards must be common for the entire planet, the national standards for all the country, the regional standards pertinent to the environment and regional context and local standards pertinent to the socio-cultural reality existent in each district or local space.

For this, the processes of agreement of standards of integral development must take place at all levels of government, with the participation of their respective political authorities, NGOs, ESCs, GROs or whoever else is involved.

Another of the advantages of arranging standards of integral development is that despite the political changes that usually take place at all levels of territorial management, the programs, projects or processes of change are always linked to the achievement of the said standards, although changes of political priorities occur given that the changing interests or mandates bring with them new political actors who begin operating in a determined territory.

To prioritize, implement and promote projects of public and private investment to improve Specific Standards of Infrastructure and economic, technological, social, cultural and environmental services required according to the level of territorial management involved

In the new paradigm of modeling the social genome, the fact of counting on agreed standards in the diverse levels of government is a very strategic part of the prioritization, formulation and implementation of investment plans of a public and/or private nature orientated to the achieving of results that generate greater impact and development.

The fact of having arranged a set of standards for integral development at a territorial level, not only permits the prioritizing of investments on the part of governments for those standards, which because of their size and importance require greater investment, but also automatically generates synergies with International Cooperation; NGO's or SRC's for example, because these orientate their resources towards investment projects to achieve the arranged standards that are within their field of interest or social mandate. In this context, the public-private alliances for investments of great scale are more possible and effective.

By way of example, the standards that investment projects in infrastructure and technology at a Global, National or Regional level require are those that are related to access to mediums of transport and vial infrastructure, availability of means of communication, of highly developed health and education services, availability of energy sources and water resources, among others.

For the local level the investment projects are more focalized on the standards related to the availability and quality improvement of the local systems of basic sanitation, citizen security, irrigation systems, primary health care services, kindergartens, elementary and secondary schools, among others.

In this sense the new paradigm of modeling the social genome based on the management of integral standards will permit a better process of budgetary assignment of public spending orientated towards the obtaining of results (standards) and the consequent evaluation of the performance of public institutions as well as projects financed by International Cooperation, NGO's and SRC's.

To assign resources in a decentralized way so that people in their respective spaces or social cells can self-evaluate their Standards of Integral Development and implement their own processes of continuous improvement with the support of public and private organizations as well as their Social Networks.

To be able to make the paradigm of modeling the social genome really effective in its scope, it is also necessary that the State and Civil Society transfer power to the broader population so that the necessary changes required to resolve complex problems can be generated.

With the aim of guaranteeing results and gaining efficiency within the new paradigm, the transfer of power (competence and resources must be made in an individual way to each social actor (family, community, suburb, service institution, etc.), these in turn being properly organized or grouped in social support and inter-apprenticeship networks and having required the resources after a prior process of self-evaluation of their standards of integral development and the formulation of their own processes or plans of improvement with regard to their aspirations, priorities and real capacities.

To be able to achieve this both local governments as well as NGO's and SRC's form themselves into sources of empowerment given their capacity for technical assistance and availability of resources which have to be redirected to encourage each social actor to implement their own processes towards the achievement of their standards of integral development from the "bottom to up", leaving aside the "top to bottom" activist and paternalistic programs of social development currently implemented.

While it is necessary to recognize that even in the new paradigm of modeling the social genome at a territorial level there could be a certain initial assistance input, this is much less than that currently promoted in the paternalistic paradigm. An additional difference is that the new paradigm is directed towards the gaining of concrete results (standards) through the effort of each social actor, which encourages an attitude of success and greater self confidence through the concept that "one can achieve what one wants to achieve", generating in turn a "Cycle of Continual Improvement", which requires less and less support from external agents.

To monitor and give political, economic and social recognition for the improvements made to the Standards of Integral development at the level of the diverse spaces or social cells according to the level of territorial management that is involved

With the objective of achieving the political and social sustainability of the new paradigm at a territorial level, it is necessary in the first place to put processes of social recognition into place which center on the improvement and achievements reached on the part of each one of the social actors and also on the processes which continue to motivate them to improve and develop, as well as giving political recognition to the promoting agents of these changes, whether they be Government authorities, International Cooperation, NGO's or SRC's, so that this form of integral and sustainable development can be maintained.

With the aim of giving social recognition to the social actors, the new paradigm offers as many as three sources for its achievement: first, the self-recognition of each social actor towards himself for his gains and achievements; second, the recognition given by his social network in the measure that this evidences the said achievements in its integrants; and third the recognition that the promoting agents can give to the actors that they have been supporting.

As social self recognition is a natural consequence of the processes implemented under the new paradigm, one could think that this doesn't require the implementation of other methodologies or tools to achieve it. Nevertheless, the incentive that actors who have already improved their standards give in providing technical assistance to those who haven't is one of the most effective methodologies or ways of achieving high levels of internal motivation and in developing the natural leadership of every person or organization.

However, to gain this recognition from one's own social networks it is necessary to promote methodologies or tools that allow social actors to at least interact and share their experiences within their own networks. To do that, the organizations of events to share experiences or the creation of a website for this purpose are effective ways of achieving that end.

Additionally, to ensure that promoting agents are those who give some social recognition to those they are supporting, it is also important to catalyze the processes of empowerment as much on a social as political level, because this type of recognition not only generates motivation in its own social actors but also gives feedback to the social support that the actors give to their respective promoter, which can be validly channeled from the political point of view, according to the interest of each agent in this respect. To promote public award functions, and publish results in the press or in any medium of communication are methodologies that implement this process at a territorial level.

Finally, to give political recognition between the government agents themselves according to their levels of territorial management is also a very good practice in a decentralized and democratic system with the aim of generating greater synergies within the territorial development of the population. This can be implemented through joint inaugurations, joint announcement of projects and achievements, etc., although perhaps it must be recognized that this could be the most utopian process within the new paradigm but not however the most important given the power existent in the variety of people outside of the political class.

Use of the Technology of Information and Communication (TICs) to catalyze these processes on a territorial scale

The use of TIC's is also a highly important process of empowerment for the achievement of the maximum efficiency possible in the implementation and expansion of the new paradigm on the part of the state at a territorial level. Some of the examples of how TIC's in fact catalyze or drive the new paradigm at a territorial level are:

- To publish the standards agreed upon according to levels of territorial management through Internet, and that these are made more public through the communication media

- To monitor the advances in the projected implementation of investment via Internet improving the levels of transparency and presentation of accounts in that respect
- To make sources of information and on-line manuals available for the implementation of processes and improvement of standards on the part of social actors with the aim of reducing paternalistic activities and its related costs.
- To facilitate the processes of self evaluation and monitoring of the standards that each social actor achieves with the purpose of giving internal or external social recognition.
- To use a Web System of Management Information (WSMI) that monitors the improvement of standards and indicators of integral development at a territorial level.
- To allow people and their social networks to create and publish their own standards of integral development.
- To realize processes of external on-line evaluation with the aim of accreditation or certification of standards based on the data provided by social actors.
- Etc.

The way that the process of territorial expansion of the new paradigm of modeling the social genome through standards of integral development can be observed is similar to the process applied at the level of people and social spaces, reflecting in this way the hologramatic and recursive conception of the strategy proposed for the approach to complexity.

Role of International Cooperation, the NGO's and SRC's in the implementation of the new paradigm:

Without any doubt the resources provided by International Cooperation, the NGO's and Socially Responsible Companies (SRC's) are a source that can help to implement and drive the new paradigm of modeling the social genome through standards of integral development, redirecting many of the *paternalistic and activist* strategies which most of the time are directed towards the solution of specific problems based on projects designed through "Logical Framework" that reduce the power of variety.

It should be remembered that each organization that has as its objective the promotion of social development, has its own policies and mandates, linked to interests of diverse types through which the said interests are promoted and connected to the Standards of Integral Development desired. These can be obtained through the processes of agreement at the corresponding territorial level.

More than arranging priority problems, policies and development plans at a district, regional, national or global level which is done in the current paternalistic paradigm what must be agreed upon are the *Standards of Integral Development* to be achieved at the individual, familial, suburban, community, public and private service and institutional level.

After that each entity of International Cooperation or NGO or SRC can choose to support the improvement of determined standards specifically or in a group at the social or territorial space applicable to them (family, suburb, community, public service institution, district, region, country, planet, etc.), which different to the *activist* paradigm directed at problems, helps to create the necessary synergies to achieve a greater social development at a territorial level based upon results (standards) that are traduced into the improvement of indicators in an integral manner, being the product of the changes promoted in their variety.

Additionally, if a great part of the funds of these sources were channeled into promotion of integral standards improvement, regardless of whether it is the families themselves, suburbs, communities or public and private service institutions who are implementing the processes of improvement in their prioritized standards based upon their own perceived needs, the catalyzing effect of the changes and improvements at a territorial level would be much more efficient and effective, taking into account that the paternalistic component of the current interventions in the old paradigm would be as a consequence reduced.

Role of the Mass Media in the new paradigm:

The communication media is recognized as having the power to redirect public opinion and generate reactions of every type. The media has a strategic role within the new paradigm through which it can promote in a significant way many of the processes of implementation of standards of integral development.

To enlarge the vision of the future of the population and spread the specific standards required to achieve their dreams; to give social recognition to all the actors involved in implementing the process and gaining improvement in their standards; to highlight the real effectiveness on the part of the State and Civil Society in implementing programs or projects with this new approach, etc. These are only some of the actions that the mass media can implement through the extraordinary reach that it has.

Role of Universities and Technical Institutes within the new paradigm:

Universities and Technical Institutes are spaces where it is necessary to introduce the new paradigm with the aim of preparing human resources capable of implementing and transmitting, as well as improving and innovating the methodologies and tools for successful implementation of development programs in all the spaces or fields of human development.

Every professional who study at university or institute must be capable of differentiating the implications and possibilities of success in their way of intervening in society, under the approach of both new and old paradigm.

The incorporation of the study and analysis of the theories of the systems of chaos, complexity and quantum theory in the curricular structure are actions that help the implementation of this new paradigm.

The validity of the old paradigm directed towards the solution of problems.

Finally, and as a way of reflection, at this stage we can ask ourselves: Would it be ethical and socially responsible to continue financing and promoting projects conceived in the old *activist and paternalistic* paradigm? All social entrepreneurs have the answer to that question but it is necessary to point that the old paradigm maintains its validity when it comes to an immediate solution to specific and urgent social problems which are needs actually perceived by people.

Examples of this would be those problems that put people's safety or even lives at risk in those situations brought on by inclement conditions or natural disasters or those caused by man himself, such as hunger, the destruction of homes or public services, epidemics or pandemics, among others.

These cases require direct and effective assistance and the solution of an urgent problem there and then; the paradigm of modeling the social genome through standards is then introduced at a later and more appropriate time in a parallel way with the aim of promoting the integral development of these people.

“If we want to promote the greatest human integral
development possible, we won't give the fish as a present nor a
rod and instructions either . . .

It is only necessary to let people dream in a better world for
themselves and let them to do everything possible to achieve it”

Carlos Guarnizo

MODELING THE SOCIAL GENOME AND WORLD MEGA TENDENCIES

If the implementation of the new paradigm for modeling the social genome allows levels of integral development to be developed in the spaces and social networks where they are introduced, its implications in the medium and long term at a global level are even more promising, considering that this would also be a catalyst and organizer of the great processes or global mega tendencies given their recursive power and generation of negentropy.

Thinkers specializing in the matter of future trends, such as Peter Drucker, Alvin Toffler and John Naisbitt, make very precise predictions about the current mega tendencies that are being produced at a world level such as *Globalization, Liberalization, Creativity, Virtualization and Empowerment* which are expanding upon their current bases regardless of our ideological, political, social or religious beliefs regarding them.

Therefore with the aim of understanding the relationships and consequences of the interaction of the new paradigm of “modeling the social genome through standards of integral development” with world mega tendencies, the concept of each one of them should be established:

Globalization is understood to be the growing relationship and interchange of political, economic, social, cultural, technological and environmental processes between different countries and societies without considering current geographical or territorial limits. Free trade agreements, global electronic business, trading zones between countries and regions, virtual global social networks, access and interchange via Internet without worrying about where one happens to be, are some examples of what Globalization means.

Liberalization refers to the increasingly evident practice of human beings in exercising their autonomy or freedom of decision and expression regarding economic, spiritual, ideological, political, artistic, choices etc, independent of explicit or implicit laws that condition or restricts them. The liberalization of the world economy, the increasing social tolerance in matters of sexual options and greater freedom of expression are examples of these mega tendencies.

The trend of **Creativity** refers to the growing tendency of human beings to be able to create new systems and technologies which challenge and exceed the limits of the imagination on an almost daily basis. Computerization, robots, nano-technology, genetic engineering, cloning and biotechnology are some examples of this.

Virtualization or **Digitalization** refer to the mega tendency through which more structures and human processes are traduced into two digits (0 and 1) creating in this way new systems that simulate, synthesize, traduce, reproduce and recreate reality virtually. Electronic mail, computers and operating systems, multimedia

communication systems, 3D animations, process simulators, video games, including the development of Internet itself and social networks are examples of this.

Finally, **Empowerment** can be defined as the process of decentralization of resources and competence towards the individual in transference of power which sees a single person controlling and guiding his or her own destiny without having development decisions checked at a hierarchical level of greater power. The growing role of women in every field, the decentralization of the structures of state, the downsizing of businesses, the creation of self-servicing, including automatic tellers and Internet Banking, the development of blog spots, the self broadcasting process using web systems like YouTube, etc., are examples of this global process.

Under a systemic, hologramatic and recursive focus it is important to see the relationships and synergies that exist between all the mega tendencies which power themselves and each other. But, we can also establish the fact that the new paradigm of modeling the social genome through standards of integral development permits the mega tendencies to realize their potential allowing the variety of people on the planet to take advantage of positive aspects and control the negative ones that the mega tendencies produce themselves.

It is the interaction of all mega tendencies that are closing in a rapid, effective and sustainable way the significant gaps, exclusions and inequities on a world scale through the action of people themselves empowered at the level of their own spaces and social networks, something which could not have taken place if the processes of development only depended on the action of the state and civil society.

If to all of this the implementation of the new paradigm is added, the level of awareness that the said standards are being generated throughout humanity as an expression of a great global social genome would produce an enormous negentropy and positive synergy never before seen at a world level, one which would catalyze all the developmental processes in a harmonic way, achieving a process of human development and integral welfare never previously imagined although perhaps prophesized by many world visionaries.

Therefore, it is important that this new paradigm can be applied primarily in populations that are considered to be poor, marginalized or excluded with the purpose of allowing them to take advantage of the existent opportunities in their micro environment and in the processes themselves that are found behind world mega tendencies.

The paradigm of the social genome and the mega tendencies as a Plan of God

In a way corollary of the present book and only with the desire of philosophizing a little in this respect, if our earthly role as social entrepreneurs is seen from another angle and we try to analyze the great world mega tendencies from the Theological paradigm for those of us who are believers in the existence of God, or from the paradigm of the theory of Systems, Chaos and Complexity for those who are not, it works out in a

certain way surprising to see how these world mega tendencies are generating synergy, negentropics and recursive processes in the development of humanity in general, base on the following analysis.

As part of the new process of *Globalization* the new paradigm allows us to be aware of ourselves as human beings, giving us a hologramatical expression of our still unexplored and unknown universe which allows us to understand our existence as being an expression of our capacity of *Being Universal Beings*; the mega tendency of *Creativity* underlining our quality of *Being Creative Beings*; *Virtualization of Being Virtuous Beings and Empowerment* the capacity of *Being Powerful Beings*; then by way of summary it could be said that:

“To be Powerful, Virtuous, Creative, Free and Universal beings” that is to say, “To be the image and appearance of God”, principles which are constituted in the principle and aim of the Creative Plan of God for those who believe in his existence, or to be expressions of the hologramatic and recursiveness of the universe expressed in the Theories of Systems, Chaos and Complexity and from the new Quantum Theory as seen from a purely agnostic perspective.

So beyond this epistemological interpretation that is made of world mega tendencies, we must recognize that the interactions between all these processes are generating a world order whose consequences, established by futurologists would be an integral and harmonious human development never previously imagined. Which although we didn't create it is already starting to happen needing only our part so that it advances more quickly for our capacity of Modeling the Social Genome as part of our own space and network of social entrepreneurs can mark a great difference in catalyzing the development of humanity as a group such as a Butterfly Effect generating negentrophies and positive synergies for all humanity.

*“All I want to learn is how to think like God thinks...
other thinks are just details”.*

Albert Einstein.

*“Two things are infinite: the universe and human
stupidity; and I'm not sure about the universe
Albert Einstein.*

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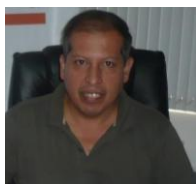
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