Integration through communication tools

How design can facilitate social system integration processes

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Abstract

Combining the opportunity offered by the findings of the Complexity Science, that has provided a theoretical framework to understand and study Complex Systems, with the empirical and theoretical knowledge about integration processes, this research investigates where Communication Design artefacts can intervene to facilitate in designing integration processes. This paper presents the result of an on-field research in Emergency hospital in Cambodia. The on-field investigation has used a qualitative research methodology (Grounded-Theory) and has led to design a model of sustainable integration. This paper results from a design oriented qualitative study aiming to define social integration in the context of the Complexity science findings, construct a conceptual model and develop an empirically derived theory that explains how to facilitate sustainable integration.

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1. Introduction

In contemporary discussion the notion of integration has many different meanings and is used in many different contexts so much as to be defined as an *umbrella concept* which encompasses a large number of ways this idea can be understood and will be understood in the future (Hornemann Møller 2002).

In defining the word integration the dictionaries note its relation to *integrare* and then to *integer*. Integer means whole or undivided, in the sense of being untouched or unhurt, and the Latin verb *integrare,* related to the participle *integratus* means renewed or restored (Ritter 1922). Generally speaking, the word integration means combining parts so that they work together or form a whole and it is a fundamental concept in functionalist theory. It describes a mode of relation of the units of a system by virtue of which, on the one hand, they act so as collectively to avoid disrupting the system and making it impossible to maintain its stability, and, on the other hand, to *co-operate*, to promote its functioning as a unity (Parsons 1954).

It has been stated that the social science needs a variety of integration concepts to reflect the real complexity of society. The many different conceptions of integration and the many different connotations in which the concept is used should not be seen as some error to be avoided; nor should the goal be a single unitary conception of integration in society. **Society simply needs many different conceptions of integration at the same time** (Hornemann Møller 2002).

The British sociologist David Lockwood (1964) had distinguished between *social* integration and *system* integration. The first refers to the way individuals are related to one another in a society, while the second refers to the relationships between parts of a society or social system. In his essay, he criticised the two main approaches of sociologists: some theorists emphasize the relations between actors, while others downplay the role of actors and seek to emphasize the relationships between the institutions of society. For Lockwood neither of these two approaches is satisfying because the task of sociological theory is to overcome this dualism[2] examining both of those crucial features.

According to Lockwood idea that system integration is strictly related to social integration, in this paper a process of social system **integration is intended as the practise of structure a new configuration out of two social systems related one to the other or, in other words to form an interrelated whole by adding single actors or clusters to an existing system and maintaining and improve relationship within it**. In this framework social system integration can be seen both as a *state* of stable, cooperative relations within a social system, and as a *process* of introducing new actors and groups into a system and its institutions, and strengthening relationships within it.

The subject of social integration has long been a crucial concern of social sciences; it is a complex idea that means different things to different people and that do not have a unique denotation. The term can be made more concrete by specifying the elements, the resulting structures and their particular properties and they are applicable to any area of study. The interest in integration processes is actually increasing in different disciplines not only because of its wide applications - from the implementation of new infrastructure to the isolation in inner city communities - but also for its role in preventing situations of chronic conflict that can arise from an unsuccessful or bad designed integration process. Since the 1995 World Summit for Social Development, social integration has been considered a key point to forge agreement on social challenges and responses to them. The Social Summit, which was the largest gathering ever of world leaders at that time, reached a new consensus on the need to put people at the centre of

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[2] The debate surrounding the influence of structure and agency on human thought and behaviour is one of the central issues in sociology and other social sciences. "Agency" refers to the autonomy of an individual from both internal and external inclination. In short, it refers to purposeful action of the individual. This term implies that individuals are free to create, change, or influence events. "Structure," or patterns of organization and institutions of society which constrain and direct behavior, remain outside the authority of agency. Organizational and institutional activities are characterized as structural behaviors (Hassan and Kundu 2005).

development. It identified social integration as one of the three overriding objectives of development, together with poverty eradication and employment creation. In commitment 4 the UN Member States committed themselves to promote social integration by fostering societies that are stable, safe and just and that are based on the promotion and protection of all human rights, as well as on non-discrimination, tolerance, respect for diversity, equality of opportunity, solidarity, security, and participation of all people, including disadvantaged and vulnerable groups and persons (Hemmati 2007).

2. Sustainable integration

It has been observed that contemporary world present a peculiar combination of integration and disintegration circumstances; on one hand, technological innovations have connected people and cultures, groups and individuals and have reduced cultural and physical distances. International and local economies are now highly connected in complex networks and faraway social systems are intertwined with each other's. The almost instantaneous information flow among individuals and groups has become powerful forces for cultural integration, promoting common interests, values and aspirations among them.
Obviously, expanding the boundaries of exchange and cultural contact creates both opportunity and risk.Rapid elimination of cultural and economic barriers among nations and peoples has proceeded for the past 20 years within a context of stubborn and recurrent recession, as well as increasing indebtedness, over a considerable part of the developed and the developing world. Within such settings, **the question of how to promote just and equitable patterns of social integration takes on special meaning**; and knowledge of local society, combined with a willingness to engage in wide-ranging dialogue is essential (de Alcántara 1995).

It has been argued that in industrial society a specific agency for integration is not necessary any longer, because integration would come about of its own, by means of something like Adam Smith's hidden hand (Spencer 1862). Even if undoubtedly time by itself could eventually end up in a state of integration, a deeper knowledge about how to facilitate the process will lead to a more sustainable intervention model. Sustainability is here intended to reduce the probability of fatal error that could produce conflicts and controversies difficult to be handled. Increasing integration imply that the complexity of social relations increase and people are more linked and intertwined. Disintegration, in contrast, signifies the undo of existing relations. The relevant question for those who look at social integration in these terms is not how to increase integration *per se*, but **how to promote a kind of integration which can be define *sustainable integration***.

In defining the concept of sustainable integration, some of the different elements that partake of the process and that can lead to critical situations – **fatal erorr, inertia, cost** - must be taken into account. Designing a sustainable process of integration means mainly to minimize the chances that the process will incur in fatal error. The notion of system inertia can be of help in understanding what fatal error means in the framework of integration processes. When working on such a project as the integration of a new infrastructure – where the design is a relatively short term action, the impact on the environment is highly predictable and more generally the project has been planned and carefully evaluated – the system has a low level of inertia: conflicts could quickly arise and lead to the complete halt of the activity. The fatal error is related to the project failure and is therefore easily recognizable. Differently, when intervening in such a case as the migration of a group in a different nation – where the process has long term evolution, strongly unpredictable consequences and above all a bottom up features – the system inertia is very high: conflicts won't be able to stop the process but will affect the amount of time needed to reach a situation of integration; in this case the fatal error is function of time.

Given that self-organization and adaptability is one aspect of how complex behaviour arises, it would seem unnecessary to strive for designing integration processes. Here the emphasis should not be put on integration but should be given on the concept of sustainable integration and

its relation with the notion of cost. An integration process that will last for a long time in a situation of stagnation or micro-conflicts entails very high costs in term of instability and stress that reverberate on both the systems.

Furthermore if the sustainability discourse is about how to make human systems last longer and have less impact on ecological systems and the sustainable development is the one that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland 1987), than talking about sustainable integration means paying attention to comprehensive outcomes of events and actions insofar as they can be anticipated at present. Despite the general use of the word integration there is no assumption that the relationships so described are harmonious. The terms social integration and system integration can embrace both order and conflict. Giving value to **an investment in terms of awareness and knowledge of the integration processes phases can play a key role in impeding that conflicts, inevitably involved in the process, become chronic**. Furthermore to reduce the level of stress in the system, facilitating dialogue and consensus cut the cost in terms of human and economic resources and make the integration process sustainable.

Design emerges as the discipline that can play a more constructive role in the definition of such a model of intervention in order to produce a positive re-orientation in the practice of merging two systems.

Combining the opportunity offered by the findings of the Complexity Science, that has provided a theoretical framework to understand and study Complex Systems, with the empirical and theoretical knowledge about integration processes, this research investigates where Communication Design tools and artefacts can intervene to help and facilitate the designer in designing sustainable integration processes.

3. Complexity and human social system

Complexity theory was developed in the physic field of theory in the second half of the XX century. It was built around an interpretative paradigm based on the notion that in a system with a large quantity of agents a high number of interaction process are able to form more complex behaviours and to change the structural condition of the system itself. Internal to a Complex systems are agents; depending on the scale of analysis, an agent may represent an individual, a project team, a division, or an entire organization. With roots in numerous disciplines, modern theories and models of Complex Systems, or more specifically, Complex Adaptive Systems focus on the interplay between a system and its environment and the co-evolution of both. Complex Adaptive Systems models extend traditional systems theory by explicitly representing the dimension of time and its related concepts (Scagnetti et al. 2007).

The above theories can be summarised as five main areas of research on (a) complex adaptive systems at Santa Fe Institute and Europe; (b) dissipative structures by Ilya Prigogine and his co-authors; (c) autopoiesis based on the work of Maturana in biology and its application to social systems by Luhman; (d) chaos theory; and (e) increasing returns and path dependence by Brian Arthur and other economists (Mitleton-Kelly 2003).
Professor Eve Mitleton-Kelly and the Complexity Research group have make a step forward on developing a theory of complex *social* systems and an explanatory framework that helps us understand the behaviour of a complex social (human) system.

Certainly human social systems are, by their very nature, complex systems, but particular attention must be paid in applying the complexity framework to the human domain as humans are far more complex in their behaviours as actors of a system than any others non human agents. As Nicolis and Prigogine (1989) has stated "It is more natural, or at least less ambiguous, to speak of complex behaviour rather than Complex systems. The study of such behaviour will reveal certain common characteristics among different classes of systems and will allow us to arrive at a proper understanding of complexity."

4. Emergency and the research methodology

This paper presents the result of an on-field research experience in *Emergency* war hospital in Cambodia. Emergency is an NGO operating in war and post-war zones implementing high-quality rehabilitative care hospitals, designed to be handled back to local authorities when completely integrated in the territory. **The on-field investigation has used a qualitative research methodology (Grounded Theory)** [3] and has led to design a model of sustainable integration process. The two complex systems considered for this research has been the Emergency war hospital and the Cambodian social environment in which it was built.

This organization features suited the research interests. The structure of Emergency has two parallel realities: the organisation head quarter with its two offices in Milan and Rome that coordinate about 172 volunteers groups spread in all Italy and a network of cooperation projects in 13 countries around the world. This research focuses on how Emergency designs and implements its projects. Emergency interventions have specific characteristics:

- New project often originate in consequence of a **bottom-up process**. An emblematic case is the Emergency Sri Lanka project that was born in consequence of a significant private funding specifically addressed to the tsunami victims; the intervention resulted from a decision to use the many contributions on a project rather than give it back to the donors as the Emergency policy of intervention address only war and post war territories. This created a new knowhow in the organization of interventions in natural disaster areas

- Each project has specific characteristics due to the fact that the intervention conditions are always peculiar and different even if the intervention is carried out on a territory already known. Each intervention can be considered a *wicked problem* (Rittel and Webber 1973), always unique and novel in continuous evolution and with more than one resolution. This requires the system to be highly adaptive and reactive to the environment in which it operates.

- The result of each intervention is a self-sufficient and totally integrated structure designed to be given to local health authorities. This implies that each project has to foresee a **very subtle handover and withdrawal process**.

- A war territory is a highly complex environment, many agents are active and their **relationships are often hidden, unpredictable and non-linear**.

- The aim is the **integration** of the structure within the territory from the very first design phase.

The bottom up process, the wicked problem, the handover and withdrawal process, the complexity of a war territory and the value of integration have been one of the main reason to choose Emergency as a case study for this research.

The used methodology springs from the social research techniques framework and combines its methods in the so-called qualitative triangulation. In social research, at least four different meanings of the term triangulation based on a different reading of topographical metaphor coexist. The one this research refers to is the third reflective triangulation of the epistemological field of Hammersley e Atkinson (1995). In this framework the use of different techniques help the research to determine which conclusions can be derived by the empirical documentation delivered by each technique. Triangulation helps to identified and overcome the specific limits of each survey techniques. The use of joint methods allows to approach in a more efficient manner

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[3] It is a research method that operates almost in a reverse fashion to traditional research. Rather than beginning by researching & developing a hypothesis, a variety of data collection methods are the first step. From the data collected from this first step, the key points are marked with a series of codes. The codes are grouped into similar concepts, in order to make them more workable. From these concepts categories are formed, which are the basis for the creation of a theory, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the studied phenomenon. (Wikipedia)

the two parallel reality of Emergency. From on hand both free and structured interviews has been carried out so as to set a research relationship with the Italian head quarter operators, from the other Grounded Theory methods has been used in an on field research period in the *Ilaria Alpi* Hospital in Battambang, Cambodia[4].

There is a striking incongruence between on one hand patterns of social integration which bind people around the world more closely together than ever before and on the other the frailty of existing mechanisms for promoting joint action. But if different attempt to tracing the evolution of sociological theories about integration and community has been made, and very much attention has been paid on the process of integration between individual and society (Bosswick and Heckmann 2006, de Alcántara 1995, Hornemann Møller 2002, Delhey 2004), it seems there is a lack of studies providing tools for designing interventions in social integration processes between systems.

5. A model for sustainable integration

This paper results from a design oriented, qualitative study that aimed to define social integration in the context of the Complexity science findings, **construct a conceptual model depicting social integration processes**, and develop an empirically derived theory that explains how social integration can be facilitate suggesting which communication design artefacts can be use to facilitate the success of the step.

In this chapter, the model of sustainable integration developed in the research will be explain and described more in detail. Each phase is provided with a box that links the Emergency practical experience with the theoretical assumptions. Three keywords are also supplied to better orientate the reader in the understanding what happen in each phase.

An integration process between two systems can be synthesized in four phases: structural, cultural, interactive and identification integration. If we follow what happened to communication these four steps can also be defined as information, communication, dialog and knowledge phases.
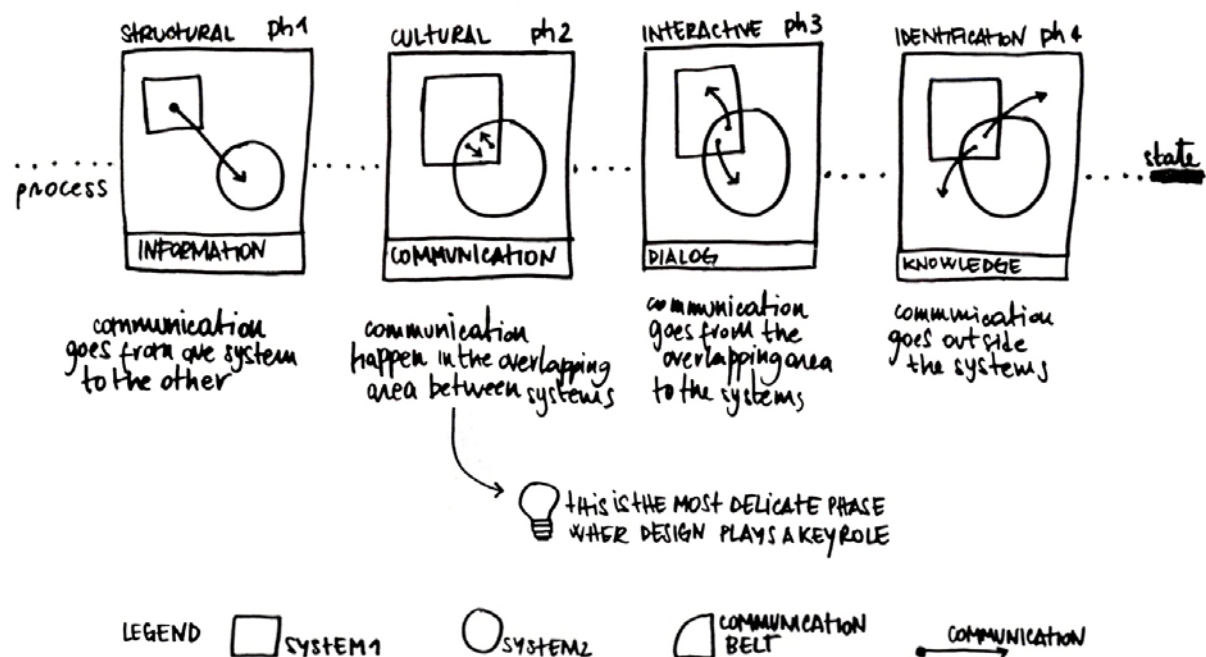

Fig. 1: Model of integration process

5.1 Information

ACCESS SPACE POSITION

The *structural integration* is the phase in which System1 approaches System2 creating relationships among their elements. In this phase, the information flow has a stated direction and communication moves mainly from System1 in order to introduce new actors into System2. This is the process by which an actor acquires cultural standards and competence needed to interact successfully in the other system. **Social integration works on the base of identity**. The partners do not have to identify with each other, but they must accept each other's right to mean what they mean (Hornemann Møller 2002).

The peculiar characteristics of the two systems should be made evident as the intentions of change and integration. The most of information about the approaching system should be provided in order to facilitate the first connection with the approached systems. Fear and rejection is very often rooted in lack of knowledge: the unknown generates anxiety and denial of other culture, nation or religions. This means it is very important to represent and convey the systems identity which its rule and values. Transparency of vision and intentions play a fundamental role in this phase and ensure recognisability of the identity of both systems. Identity comes in many different shapes and forms, but always carries with it the double function of signifying differentiation, as well as relationship. Regardless of language or semantic nuance, the former indicates singular character, is about the state of being oneself (and not another), and remaining distinctive under different conditions; the latter centers on kinship, oneness, and likeness. Identification, then, is the act or instance of - identifying both to differentiate and to relate (Peters 2005). Visual communication is the first alphabet for creating a sense of identity and participation and to understand that pictures, colours and signs create a code which is used to get together, to share objects and spaces (Brunelli 2005). In these phase all those artefact that communicate identity and share vision and values should be considered as strategic device able to start dialog between the two systems.

Emergency has a very strong identity and since the early stage of intervention has tried to make evident the rule at the basis of its philosophy in developing its projects. These rule work on the concept of space as a medium for integration. More in detail: the host nation must provide a plot of **green land** where Emergency can build a **free high qualitative care hospital** in which it will be guaranteed safety and **neutrality** by the unconditional personal **disarm** of each person entering the hospital. These features define the emergency projects plot and establish a set of rules that are shared and made evident at the beginning of every project.
At the same time, Emergency shows great **flexibility** in the project management and a great ability in **adapting** to the need of the host country and in embracing its rules. The success of this approach is due to the Emergency ability in communicate its core values.

5.2 Communication

COLLABORATION COOPERATION EXCHANGE

The *cultural integration* is the phase where the two systems overlap. In this phase, some part of the two systems intersects and occupies a shared area where communication between the two systems primarily happens. This area identifies a space - dense of interactions, connections and dialogues - and can be defined **C*ommunication belt***. This is the area where the communication design tools can play a key role in facilitate the integration process. In the communication belt the system peculiar characteristics, its languages and features become evident: different cultures, opinions, beliefs and viewpoints face each other's. In the cultural integration phase **the two systems start a dialogical process**, pillar of this phase is collaboration and cooperation. To collaborate means that both parties commit the required resources and time to provide support to

viewpoints, follow up on key actions, and jointly perform due diligence. For parties to collaborate, they must have adequate information so that data can be assimilated, processed, and combined to evaluate and react to the negotiation environment (Harris 2007). In the Communication belt the two systems work together to solve problems. Every actor defines the problem in reference to its own knowledge, resources, objectives, etc. Actors can differ in their standards as well as in their perceptions of the situation, and consequently in their problem definition. Therefore, the outcomes of the problem definition by different actors can be different and, in some cases, even conflicting (Dente et al. 1998). **To minimize the conflicts impact a common language is needed.** As a matter of fact every design intervention is a fundamentally social activity and is therefore based on dialogical process, integration happens through a dialogic process between the system and its environment. Habermas (1987) has shown that to start a dialogue, discourse is necessary. Discourse refers to a context whereby individuals begin to communicate with certain mutual understandings and normative expectations. To facilitate a process of integration the designer should give very much attention **to create a common language that match or near the systems features**. Commonality of language is the most powerful form of interaction that enhances cooperation. Shared symbols, meanings, and communication rules facilitate both economic exchanges and social cooperation (Kuran e Sandholm 2008). If this is not possible and the two systems identities are inevitably hostile, the approach should be a combination of interest-based negotiation and consensus building. Conflicts can develop in any situation where people interact, in every situation where two or more persons, or groups of people, perceive that their interests are opposing, and that these interests cannot be met to the satisfaction of all the parties involved. Because conflicts are an integral part of human interaction, one must learn to manage them, to deal with them in a way that will prevent escalation and destruction, and come up with innovative and creative ideas to resolve them (Shamir 2003). The challenge could lay in the use of the visual language abilities, utilized for the definition of the common objectives, to create pivots so as to work in a resourceful manner even in a multi-organizational or multi-lateral context. All those artefacts able to shape understanding and clarifying meaning that have the ability to communicate narrations and to enable a process of storytelling and sense-making are here fundamental. This kind of communication artefacts takes many forms and appears in many media. Some familiar forms include mood-boards, maps, storyboards and scenarios. They are interfaces between knowledge and experience. They are a picture of impressions and points of view, rather than descriptions. They can be studied and used to generate new metadata, in order to discover new chances of change and development of the system we operate in (Scagnetti e Ricci 2007).

The first stage of the on field research in Cambodia has lead to the definition of the peculiar characteristic of this territory. If we compare them with the Emergency identity and behaviours, we can find an interesting correspondence. Emergency actions, choices and values often respond to the needs and distinctiveness of Cambodian society. This correlation has been made more evident by moving on to a higher level of abstraction in categorising these emerging properties (following Grounded theory methodology). For example, Cambodian people are used to call dust the *Cambodian snow* and they hate it very much. In categorising this behaviour abstractly, it can be interpreted as a need of protection and defence. Emergency responds to this need providing in its hospital a green and very cared environment and putting strong effort in taking care of it – Emergency maintenances paint the hospital wall face in white every season in a very hard job against dust and rain!

Another example, Cambodia is a country of contrasts, between the wet and the dry season, between the jungle and the wetland, between a land that feeds people with its products but often kills them with landmines. Contrast is a sensible[5] concept that portrays Cambodian identity. Emergency identity, with its red on white logos, with its name that seems to indicate very quick and necessary interventions but then its patience in taking care of long-term patients[6] include in itself the concept of contrast.

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[5]   In Grounded theory methodology they are called *sensitizing concept*.
[6]   Traumas are very long time recovery injuries

5.3 Dialog

DEPENDENCE COEVOLUTION

In the *interactive integration* phase the two systems interaction results in a completely inclusive dialog and communication flow goes from the Communication Belt to both systems. **The generated knowhow reverberates within the systems themselves producing dependence and co-evolution**.The notion of co-evolution means empowerment, as it suggests that all actions and decisions affect the social environment. No individual or organisation is powerless—as each entity's actions reverberate through the intricate web of inter-relationships and affects the social ecosystem. But co-evolution also invites notions of responsibility, as once the ecosystem is influenced and affected it will in turn affect the entities (individuals, organisations, and institutions) within it (Mitleton-Kelly 2003).

Interactive integration means the acceptance and inclusion in the social networks of system2. Communicative competencies of the cultural integration phase are preconditions for the interactive integration stage. Complex systems have a history. Not only do they evolve through time, but also their past is co responsible for their present behaviour. In a complex system is very different to design for short term or for long term. That is because interactions are non-linear. A non-linear change is a change that is not based on a simple proportional relationship between cause and effect. Therefore, such changes are often abrupt, unexpected, and difficult to predict. A small change in the value of a driver could produce a disproportionate change in the outcome. When an organisation as a system is thus disturbed (e.g. after restructuring or a merger), it may reach a critical point and either degrade into disorder (loss of morale, loss of productivity, etc.) or create some new order and organisation—i.e. find new ways of working and relating—and thus create a new coherence (Mitleton-Kelly 2003). **To facilitate the creation of some new order and organisation designer should concentrate on the dynamic interaction among the elements**. The interaction does not have to be physical it can also be thought as a transference of information (Cilliers 1998). The process can begin by understanding the relationship that the system1 seeks to establish, then diagramming the relationships in which this strategic target is embedded, using a series of symbols comparable to a flow chart or organizational diagram. Once the diagram is complete, it is used to understand which relationship each tactic is expected to affect, and how. In the process of rearrange information it could be useful to look for driving forces converging and merging elements into meaningful clusters and relating the clusters to each other. Forming and studying these clusters helps to detect the driving forces of the system. Kees van der Heijden (1999) defines a driving force as a variable which has a relatively high level of explanatory power in relation to the data displayed in the cluster. By observing this rearranged diagram the systems criticality could be spotted, highlighting where the designer is required. This is an action of pinpointing able to suggest new directions for the design intervention. Visualizations clarify the relationships between the parties in a given situation. As an *abstract machine* a diagram goes beyond it own substance and representation to become an effective conceptual device. It is at the same time a tool for comprehension and design able to create significant relations between reality and its interpretation. This happens because the relations between forces, or power relations, are merely virtual, potential, unstable, vanishing and molecular, and define only possibilities of interaction, so long as they do not enter into a macroscopic whole capable of giving form to their fluid matter and their diffuse function (Deleuze 1981). Indeed diagrams effectiveness lays in the ability to act as go-between with explicative functions of the different correlated quantities, as a sort of graphic shortcut for the representation of complex phenomena. They can be used to identify which key relationships need to be affected to move your strategy forward, what tactics are currently being used or potentially available, how these tactics might affect key institutions, relationships, social groups and contexts that you want to target, which key groups, relationships or contexts are not affected by current tactics, what tactics might be brought into play to engage targets that are not currently affected, who are your potential allies for building a more comprehensive and effective strategy (Emerson 2008).

At one point when the hospital was fully implemented the Emergency staff noticed that the patient's relatives were feeling useless and uncomfortable in not giving anything in exchange for the free treatment the hospital was giving. This situation was engaging a feeling of distance between the hospital social system and the Cambodian people for whom the value of exchange and trade is central. This distance could have hindered the integration process and make the people feeling the hospital as something outside their territory social system. Emergency staff made the double choice of firstly ask the relatives to help in taking care of the patients - giving them free clean clothes and food and offering the possibility of take active part of the hospital system - and on the other hand donate blood for the hospital - even if the blood donation was something far from the Cambodian culture. Now in Battambang, Emergency has a blood bank that supply others hospital and NGOs. The interactive integration has successfully led to the we-feeling of the identification phase.

5.4 Knowledge

COSTANCY FUSION ENRICHMENT

In the *identification phase* the two systems form a new structure and produce knowledge that can be communicated outside. In this phase the two systems can be considered successfully integrated. The systems actors identify themselves with the new formed social system: they see themselves as part of a collective body. Identification has both cognitive and emotional aspects as Deutsch has argued: the populations of different territories might easily profess verbal attachment to the same set of values without having a sense of community that leads to integration. The kind of sense of community that is relevant for integration turned out to be rather a matter of mutual sympathy and loyalties; **of we-feeling, trust, and mutual consideration**; of identification in terms of self-images and interests; of mutually successful predictions of behaviour, and of co-operative action in accordance with it (Deutsch 1966). Inclusion in a new society on the subjective level – identification integration – is indicated by feelings of belonging to, and identification with, groups, particularly in ethnic, regional, local and/or national identification (Bosswick e Heckmann 2006). Social, moral, and emotional competencies are required to sustain interpersonal connectedness. Social competencies refer here to effective communication. Moral competencies are the basis of trust—for example, accountability, reliability, credibility, and honesty. Empathy and a capacity for commitment are examples of emotional competencies for connectedness. Connectedness also means identifying with a larger group. Connectedness in this sense is subjective—the feeling of being part of a whole. Identification is based on the perception of *having things in common with* others and leads to the sense that one has a stake in (is personally affected by) what happens in and to the group (Ware et al. 2007). The social integration at this stage **has to be maintained as it is potentially reversible even if successfully achieved**. The communication artefacts that help in maintaining and strengthening the mutual agreement between the two systems are very important for this phase. They are highly contingent on the context for which are designed, they convey the knowhow outside the systems and aim to share experiences, skills and knowledge. Report and article, publication and conferences are the typical example of these kinds of communication artefacts. This group also include those behaviours and performances able to narrate and make visible the systems knowledge resulting from the process of fusion: **knowledge itself is vehicle for communication of an enrich identity**.

Cambodian poor people in the countryside around Battambang were interviewed on their knowledge about Emergency. The results of the research were very interesting: even if Emergency did not communicate itself on the territory with the artefacts typically used in this phase as publications or ADV campaigns, the knowledge about the hospital had spread around the country. What people knew about Emergency was not that it is a free and international hospital, neither that it is an NGO project for land mines victims, but what they did clearly know was that if someone is victim of a trauma should go to Emergency facilities. At this point of the

integration process the kind of knowledge people have about the Emergency hospital had resulted be strictly related to their performance and their practical acting and partaking of the Cambodian society.

6. Limits and future work

The integration model described in this paper do not has to be considered exhaustive, it rather provide a theoretical framework that incorporates many communication artefacts suggesting a use of them with a special attention to improve the designer consciousness about what is happening within the system he is designing for. The Communication belt is a operational concept that help in giving a stated direction for facilitating integration processes, it is a *space* in which the two systems tell a story about themselves. It can be identified both as that physical space surrounding the hospital both as a space of communication and dialogue that evolve through the different phases of the process.

The next step of this on going research would be to prove the practical utility of this model especially from the early phases of integration processes. The output of this research focussing on the Communication Design abilities is now to be development in a project: a practical tools based on this sustainable integration model that could help practitioners in using communication artefacts to facilitate the process of social integration between Complex Systems.
Given the need of integration, taking experiences from the local level into account might help to transcend the difficulties that result from ignoring the hidden dynamics between two systems that are approaching each other's and the complexity of these systems, thus making an important contribution towards a sustainable framework for designing integration.

7. Acknowledgment

References

de Alcántara, C. H. 1995. Social integration: approaches and issues. Ed. United Nations Research Institute for Social Development. *UNRISD Briefing Paper* 5, no. 1: 61-63.

Bosswick, Wolfgang, and Friedrich Heckmann. 2006. *Integration of migrants: Contribution of local and regional authorities.* Dublin: European Foundation for the Improvement of Living and Working Conditions. www.eurofound.eu.int.

Brundtland, G. H. 1987. *Our Common Future: The World Commission on Environment and Development.* Oxford: Oxford University Press.

Brunelli, Pier Pietro. 2005. Segnaletiche pedagogiche. *Lineagrafica* 5, no. 359.

Cilliers, Paul. 1998. *Complexity and Postmodernism: Understanding Complex Systems.* London: Routledge.

Deleuze, Gill. 1981. *Focault*. Editions de Minuit. Paris.

Delhey, J. 2004. *European social integration. From convergence of countries to transnational relations between peoples*. Discussion Paper SP I 2004-201, Wissenschaftszentrum Berlin für Sozialforschung (WZB).

Dente, Bruno, Paolo Fareri, and Josee Ligteringen. 1998. A theoretical framework for case study analysis. In *The Waste and the Backyard: The Creation of Waste Facilities: Success Stories in Six European Countries*. Amsterdam: Kluwer Academic Publisher.

Deutsch, K. 1966. *International political communities*. New York: Garden City, Anchor Books.

Emerson, John . 2008. *Visualizing Information for Advocacy. An Introduction to Information Design.* India: Tactical Technology Collective. http://tacticaltech.org.

Habermas, J. 1987. *The Theory of Communicative Action*. Boston: Beacon Press.

Hammersley, M., and P. Atkinson. 1995. *Ethnography: Principles in Practice*. London: Routledge.

Harris, George L. 2007. Toward a Process View of Negotiations. *Journal of contract Management* 5, no. 1.

Hassan, S. M. M., and I. Kundu. 2005. Reaching Social Integration or Consensus: Bangladesh as a Case Study. *INTERNATIONAL SOCIAL SCIENCE REVIEW-KANSAS-* 80, no. 1/2: 29.

van der Heijden, K. 1999. *Scenarios: the art of strategic conversation*. London: John Wiley & Sons.

Hemmati, M. 2007. *Participatory Dialogue: Towards a Stable, Safe and Just Society for All.* United Nations Publications.

Hornemann Møller, I. 2002. Understanding Integration and Differentiation, Inclusion, Marginalisation and Exclusion. *Eurozine.*

Kuran, T., and WH Sandholm. 2008. Cultural Integration and Its Discontents. *Review of Economic Studies* 75, no. 1: 201-228.

Lockwood, D. 1964. Social Integration and System Integration. In *Explorations in Social Change*, ed. G. K. Zollschan and W. Hirsch, 244-257. Mifflin. Boston.

Mitleton-Kelly, E. 2003. Ten Principles of Complexity & Enabling Infrastructures. In *Complex Systems and Evolutionary Perspectives on Organisations: The Application of Complexity Theory to Organisations*, 23–50. Pergamon.

Nicolis, G., and I. Prigogine. 1989. *Exploring Complexity*. New York: W. H. Freeman and Company.

Parsons, T. 1954. *Essays in Sociological Theory*. New York: The Free Press.

Peters, Robert L. . 2005. Identity Matters. Article. *www.aiga.org*. http://www.aiga.org/content.cfm/identity-matters.

Rittel, Horst W. J., and Melvin M. Webber. 1973. Dilemmas in a general theory of planning. *Policy Sciences* 4, no. 2 (June 1): 155-169. doi:10.1007/BF01405730.

Ritter, William E. 1922. The Word Integration and a Few Remarks on the Paleontology of Words. *The Journal of Philosophy* 19, no. 10 (May 11): 266-270.

Scagnetti, Gaia, and Donato Ricci. 2007. Diagrammi generativi . *Linea Grafica*, no. 370 (April).

Scagnetti, Gaia, Donato Ricci, Giovanni Baule, and Paolo Ciuccarelli. 2007. Reshaping communication design tools. Complex systems structural features for design tools. In . Hong Kong: Sharon Poggenpohl, November 12. http://www.sd.polyu.edu.hk/iasdr/proceeding/papers/Reshaping%20tools.%20Complex%20Systems%20struct ural%20features%20for%20design%20tools.pdf.

Shamir, Yona. 2003. *Alternative dispute resolution approaches and their application*. Paris: UNESCO.

Spencer, H. 1862. *First Principles*. London: Williams and Norgate.

Ware, N. C., K. Hopper, T. Tugenberg, B. Dickey, and D. Fisher. 2007. Connectedness and Citizenship: Redefining Social Integration. *Psychiatric Services* 58, no. 4: 469.