

UNIVERSIDAD OBERTA DE CATALUNYA (UOC)
PHD PROGRAMME ON THE INFORMATION AND KNOWLEDGE SOCIETY

**Networking for development:
a network analysis of a development programme
between Europe and Latin America**

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1. Introduction

1.1 Aim, starting hypothesis and research questions

The rationale of this work is based on the consideration that in the last decades development cooperation, defined as the set of actions put in place by the so-called developed countries in order to improve the economic and social situation of the so-called developing countries, has been losing ground in terms of relevance, effectiveness and impact (among others Sen 1999, Black 2002, Kingsbury 2004, Michel 2006, Carbonnier 2010). We believe that one of the reasons for this is the incapacity of the *development circus* to keep up with the change taking place in our world: while society is going through a deep change somehow moving towards a network society model (among others Distler 1995, Castells 2001, Benkler 2006), development cooperation still seems to adopt models and practices that were conceived for an industrial society. Despite many declarations of intentions by the major donors and multilateral development agencies, networking and knowledge sharing activities are in fact still often considered as ancillary dimensions of development cooperation and are not enough taken into account when designing, implementing and evaluating development actions.

Against this background, the present research aims at demonstrating that the relevance and impact of development cooperation can be improved by strengthening networking within development policies and programmes. Reinforcing networking within development calls to work at different levels. First, by embracing a new approach to development cooperation, able to put knowledge and knowledge sharing at the centre of the whole process, betting on the fact that development networking will succeed where a number of waves of development approaches have failed in the last sixty years. Second, by fully understand the impact of knowledge networks within development cooperation, and consequently to be capable of analysing, monitoring and

evaluating the way development networks work and interplay among themselves. Third, by being capable of managing development networks, through appropriate tools and strategies that can favour the desired growth of these networks and their impact on the target communities of the respective development actions.

The macro-hypothesis of the present research is that networking activities, if properly planned, applied and monitored, can strongly contribute to the long-term success of development cooperation actions, especially in terms of performance, capacity building and sustainability. We will validate this hypothesis first by proposing an innovative approach to development cooperation, called Networking for Development, and then by analysing a case study along the key dimensions of this approach. We have chosen to propose and validate a new approach hoping that this can be used to advocate for a stronger presence of networking and knowledge sharing activities within development actions.

Coherently with the three levels presented above when describing the concept of strengthening networking within development cooperation, we will work out this hypothesis along three main research questions:

1. Can the adoption of open, inclusive and collaborative networking practices generate an added value in the context of development cooperation, beyond the recognised efficiency-related impact of networking? Specifically, does networking influence the performance of development programmes and projects? Does networking improve capacity building within and around development actions? Does networking have an impact on the sustainability of development programmes and projects?
2. Is it possible to appreciate and quantify the added value of networking and knowledge sharing within development cooperation, by using professional networking techniques such as Social Network Analysis, complemented with participatory observation?
3. Can we influence the way a development network grows and the timing of its developments, so to maximise the involvement of its members and its impact on the target communities?

These three questions have been designed to tackle the problem presented within the macro-hypothesis, starting from a general and somehow theoretical perspective and moving towards a more practical and action-research oriented viewpoint. We have chosen to approach the problem in this way because we believe that in order to reach a stronger networking level within development cooperation we need work at three levels. The first level deals with the need to persuade decision makers in charge of designing and planning development cooperation actions of the added value of networking activities: that is why the first question breaks down the concept of added value of networking in the three practical and understandable dimensions of performance, capacity building and sustainability. The second level tackles the fact that, if we want networks to become essential elements of development practices, both decision makers and practitioners must be put in the position to appreciate the impact of network within their environments: we believe that this step is crucial if we want to move from the present stage of declarations of intent to a time of real application and investments in networking and knowledge sharing activities. For this reason, the second research question tackles the problem of the quantitative appreciation of the added values of networking activities. The third level regards networks support, and is based on the consideration that in order for knowledge networks to deploy their potential, development practitioners must be equipped with tools and methods to accompany the growth of networks within their projects and programmes. To tackle this level, we have answered the third research question by exploring within our case study a number of successful strategies in support of networking and we have analysed the conditions under which these support strategies might or might not work.

The present research aims at contributing to the advance of two fields of study. First, by demonstrating the added value of networking activities in development programmes and projects and by providing further evidence on the actual and potential impact of knowledge exchange in development settings, it contributes to the current debate within development studies on how to increase the relevance, impact and effectiveness of development cooperation. As we will depict in details in the dissertation, the importance of investing in

networking within development actions is increasingly recognised among donors as well as among development researchers, but most of the times recognition and acceptance are based on a “leap of faith” towards the positive impact of networking and are not grounded on research evidence. To contribute closing this gap, we will explore to which extent it is possible to provide quantitative and convincing evidence of the impact of networking and knowledge sharing activities within development cooperation. Second, the present research represents a rather unique case of application of Social Network Analysis techniques to a development cooperation programme, and therefore contributes to the advance of network studies by opening a rather unexplored area of application. We believe that, if properly mainstreamed, SNA could contribute to improving the self-analysis capacity of the *development circus* and at the same time that network researchers would find a very interesting set of possible cases within development programmes. Further in this direction, the research contributes to the advancement of monitoring and evaluation studies, since it specifically focuses on the evaluation phase of a development programme by applying a rather new approach. Typically, monitoring and evaluation practices in development settings are in fact not using professional network analysis techniques (Segone, 2010) and would benefit, as we will detail in the next pages, from including in their approaches a stronger attention to networking and from looking at knowledge sharing with specific network analysis tools, as we have done in analysing the case study.

1.2 Overview of the thesis

Following the present introduction, chapter 2 details the research methodology, developing the research hypothesis and describing the research phases and the process of analysis of the case study: the type of relational data that have been used, the information sources, how these data were acquired, the process of transformation of these data into visual graphs, and how they have been analysed. This methodology is also intended as a guideline for development programme analysts and evaluators that might want to add a social network dimension to their work. We reflect on how applying Social Network Analysis

methods has allowed appreciating some unusual dimensions of networking such as its impact on performance, capacity building and sustainability, beyond the typical aspects of evaluation such as effectiveness and efficiency. These new dimensions, normally not taken into account when networking is tackled as one of the many components of the analysis, emerge precisely when the analysis is focussed on the relations among the actors involved in a given cooperation action. In other words, if we look at networks the way we look at projects, that is through an input-output scheme, we will get data that are useful only to speculate if a network is working well or not; *while by applying specific network analysis methodologies over time it is possible to evaluate networks for what they are and to facilitate the emergence of tacit knowledge sharing processes and the appreciation of the real impact of networking activities.*

In chapter 3 we set the theoretical and conceptual context of the research, by defining development cooperation and by briefly looking at development dynamics in terms of state of play, actors, and main problems. From the vast literature on development cooperation¹, we extrapolate some reflections that are useful to the purpose of the present work, and we compare the societal paradigm shifts identified by Castells, Benkler and Distler with what is happening in the context of development cooperation, complementing these reflections with some observations from civil society elaborations. The chapter suggests that development cooperation, in order to better serve societal needs, should increase its attention and its funding towards networking and knowledge exchange, and represents the starting point for the approach proposed further in the dissertation.

In chapter 4, starting from some ideas that are gaining ground in the development debate, we introduce the concept of Networking for Development, a new way to consider networking activities as a central component within development cooperation. *Within this approach, development networks should be the pillars of any development actions and should have a primary role in defining, running and evaluating development activities; they should be conceived as primary elements of programmes and projects, making sure that the*

¹ See for example Black 2002, Lora et al. 2004, Michel 2006, Sen 1999 and 2002, Kingsbury 2004, Kingsbury et al., 2005.

knowledge sharing element is present throughout the whole cooperation action and represents the basis on which to build sustainability and transferability of the process and of the corresponding results. The approach is presented and debated in relation to other concepts, such as ICT for Development, and is analysed in terms of added values and possible pitfalls. Specifically, the well-known notion of digital divide is compared to the one of networking divide, defined as the difference of opportunities between the actors that are included into healthy and active development networks and the ones that are not. We claim that being part of a development network can provide better possibilities in terms of capacity building, employability, civic participation and social inclusion.

Chapter 5 presents a set of concepts that can allow researchers and practitioners without a social networks background to understand networks dynamics and terminology. Following an introduction on networks definitions, rationales and main characteristics, a brief overview of the history and state of play of network sciences and specifically of Social Network Analysis is presented, together with a set of general dynamics that seem to apply to most social and institutional networks. We then focus on value creation in social networks through information and knowledge management, stressing in particular the importance of relational and, through the idea of the *long tail of networking*, of non-formalised knowledge within social networks.

Chapter 6 presents the results of the analysis of the networking dimensions and dynamics of @LIS, a European Commission development programme which run from 2002 to 2006 focusing on Europe-Latin America cooperation in the area of information society. The analysis adopts Social Network Analysis techniques to explore the networking and collaboration activities that took place among the stakeholders of the programme and presents a number of real-life cases that explain the dynamics observed through SNA. The @LIS network is analysed dynamically, looking at it in four particularly important moments of its lifecycle and allowing an understanding of its development through four phases: network setup, network emergence, network consolidation and network sustainability planning. By exploring the impact of networking respectively on performance, capacity building and sustainability of the @LIS projects and of the programme as a whole, we reveal the added value of networking activities with respect to the programme development and

ultimately on its impact. The case study proves that, with respect to the typical evaluation activities that are run within development programmes, applying SNA methods allows appreciating some further networking dynamics and identifying some important impact dimensions.

Finally, chapter 7 draws some conclusions on the relation between the concept of Networking for Development and the experience presented in the case study, and tries to systematise the answers to the research questions with the data presented along the dissertation. We argue that in order for development cooperation to go through the change process that is needed for it to remain relevant and to increase its effectiveness, it is important to embed networking in all its phases: planning, implementation and evaluation. As suggested by Davies (2003), evaluation can help testing the theory of change that underpins a development action. In our case, having focussed on the evaluation phase of a typical development programme through a rather innovative methodology – at least within development cooperation - has allowed us to draw some conclusions not only on the added value dimensions of performance, capacity building, and sustainability that were at the centre of the first research question, but also on the possibility to appreciate the inner added value of networking within development actions and on how networking should be embedded and professionally supported within development programmes. At the end of the chapter we reflect on how further research on the impact of networking activities within development would facilitate mainstreaming the Networking for Development approach and on how this would ultimately benefit the target stakeholders of development cooperation actions.

2. Methodology

“I take networks very seriously. I think they have tremendous potential to help research contribute to development. But, networks are not simple.

They are dynamic collaborations that are complex and need careful understanding, engagement, and nurturing.”

Annette Work²

2.1 Approaching the research problem

In order to verify the main research hypothesis and to give an answer to the three research questions presented in the previous chapter, the research focus has been progressing from a general and theoretical level towards a more specific and analytical level of analysis.

We started by organising the investigation, further specifying the research questions in the frame of the existing literature, mainly in the field of development studies. The hypothesis connected to the first research question, that the adoption of networking practices can generate an added value in the context of development cooperation, was declined along three fundamental concerns of any development action: the performance of development programmes and projects, the capacity building effect that development actions are supposed to have on the involved stakeholders, and the sustainability of development programmes and projects. By tackling these three dimensions together and in a complementary way, we have been able to embrace the concept of *impact* in its broadest sense, in line with the “orientation towards

² Dr Annette Work (transliteration of “A network”) is a fictional character created by the International Development Research Centre (IDRC).

impacts” approach that is increasingly being used by development agencies. This approach considers impact as a combination of effectiveness, transparency and accountability, and takes into account the whole development cycle, from planning to implementation to evaluation of development projects (Neubert, 2004). By analysing the relations between collaboration patterns emerging in the case study and respectively the performance, capacity building and sustainability of the actions at the centre of our work, we have taken a critical approach, in the sense that we have been looking for the specific conditions under which the impact of networking can be proved, and we have tested these conditions against the development literature findings. The second research question is of a methodological kind, and is based on the hypothesis that it is possible to appreciate and quantify the added value of networking within development cooperation by using the appropriate tools, in our case a mix of Social Network Analysis and participatory observation. To prove this hypothesis right, we run the analysis of the case study looking for the “distance” between our approach and the more traditional approach that was used by the donor of our case study to evaluate the development programme we have focussed on. Measuring these distances has allowed us to identify the real practical added value of the mixed methodology we have embraced. Finally, we have checked the coherence of our findings against the existing literature on development programmes monitoring and evaluation, to place our work in a broader context than the one of our case study. The hypothesis behind the third research question is strongly related to the other two. What we tried to demonstrate is that, provided that we can prove that networking can have an impact on development practices and that this impact can be measured through appropriate methods, it is possible to influence the way development networks develop, so to maximise the community members’ engagement and ultimately the network impact on the target communities. Reasoning on the research questions and on their correspondence with the existing literature has allowed us to put the research problem in its context and to clarify what we had to search for within the case study analysis: this has been important since it has allowed us to remain focussed on the aim of the research work through a clear analysis framework encompassing complex concepts such as impact, intercultural capacity building and sustainability of development actions.

The research definition phase, apart from giving a general idea of the kind of data that were needed for a meaningful case study analysis, produced a set of specifications for the Networking for Development concept, which represented the starting point for the work presented in Chapter 4, and disclosed the need to further investigate the problematics of network studies and of Social Network Analysis as possible methods to analyse development cooperation actions. To ground the Networking for Development concept on existing research, we analysed the state of the art of development cooperation, specifically screening for existing authors advocating for a higher degree of networking within development settings. This was extremely useful to understand and break down the real-life problem we wanted to tackle and to produce an approach able to take into account all the components of the “networking problem” of development cooperation. Further, we explored network science and methods, to understand to which extent SNA could be used to analyse the selected case study. Subsequently, we looked for intersections and connections between findings from development studies and from network studies that would be useful for our purpose, to finally concentrate on the case study, which is the most substantial building block of the thesis.

This “gradual approximation” approach was adopted because, given the fact that network approaches and methods are not normally used within the evaluation of development programmes – at least to the extent we intended to reach within this work, we could not rely on previous examples of a similar research works. The research methodology had to be based on a clear understanding of both the specific problematic of development cooperation that we wanted to tackle - the scarce attention paid to networking in development cooperation settings - and of the extent to which network analysis tools could be useful for the purpose of evaluating collaboration and knowledge exchange within development networks. Since the objective of the research is broad and connected with more general issues, we had to carefully clarify and limit the subjects to be researched. Consequently we selected an investigation approach that was comprehensive enough to be meaningful at the “system level” of development cooperation and at the same time specific enough to be analysed as a real-life case study.

2.2 Collecting and selecting the data

The data collection took place during the @LIS Programme lifespan in the period 2004-2008, and was facilitated by the fact that we were part of the team that was coordinating the support and collaboration building project of @LIS, called @LIS-ISON³. This has permitted to obtain all publicly available data, such as reports, meetings proceedings, development plans or policy documents, and many informal and not publicly available data, such as emails or private communications among partners of the Programme. Thanks to this role that we played within the programme, we have been attending all the @LIS events and have been in constant contact with all the stakeholders involved in the programme, allowing us to grasp a number of fundamental qualitative components of the relations among the @LIS actors through punctual observation and participation. Having access to this kind of informal data is very important when analysing a system such as a development cooperation programme, which by nature is complex, multilateral, dynamic, and based on human interactions. Because of this privileged position, the object of the research, that is the @LIS Programme and its actors' interactions, has at the same time been an active subject of the research, since the results of the field analysis have been used to validate and improve the research methodology in a circular dynamic. In defining the research strategy on the case study, the fact that we had a good previous knowledge of the case study has in fact allowed defining a relevant sample and outlining the different levels of cooperation that have been guiding the empirical analysis.⁴

The quantitative data on the basis of which the case-study analysis has been run have been mainly collected through three surveys among the @LIS project coordinators. These surveys were run either by email or by phone, depending on the respondents' preference, on months 6, 20 and 30 of the @LIS programme lifecycle. These moments were selected because corresponded to some kind of

³ The @LIS programme as well as @LIS-ISON will be described in details in chapter 6.

⁴ The different levels of cooperation intensity that we have been using in the case-study analysis are detailed in paragraph 6.2.

phase transitions of the network and allowed the production of *snapshots* of the network development in three specific moments of its history. The survey questionnaires were targeting a broader spectrum of issues than networking, dealing with dimensions such as effectiveness and impact of the projects, but also tackled the projects' needs in terms of sustainability and the synergies with other @LIS actors and with external stakeholders. Through the surveys, the projects were asked for example with which other projects they had established a contact, which joint activities they were planning with other @LIS projects, or whether they were using some of the results produced by other projects. Since running such a survey among the entire community of the 261 @LIS project partners was not feasible, it was decided to target the project coordinators, therefore the data we have is reporting on the connections "among projects" and not "among project partners". Even if the information obtained through the questionnaires filled by the coordinators was complemented and enriched by contacts with a number of project partners, especially from Latin America, some connections might have escaped to the analysis. This might be the case of connections between two projects, which were passing through two Latin American partners without the involvement of the project coordinator. These cases, even if important as such, were mostly left out from the analysis since they refer to inter-institutional collaboration that was facilitated by @LIS but do not configure collaboration between @LIS projects, that is our level of analysis⁵.

Once the data was collected, it had to be properly organised in order to produce meaningful visualisations. When doing so, due to the typically high number of attributes of each node in the network, we had to pay attention to use a consistent identification name for each node and to make sure that the dimensions of analysis we wanted to adopt were consistent with the attributes that it was possible to assign to the nodes in the network. Finally, a specific mention should be made to data storage, since independently from what method is used for data collection or from what software is used for network visualisation, all data should be stored in a standardized way, to allow them to

⁵ Some specific partner-to-partner interactions of particular importance are reported in chapter 6.

be re-used for further research. Relational data do not normally need specific forms of storage: in our case they were recorded in spreadsheets such as Microsoft Excel files and as Comma Separated Values files.

The collection of quantitative data was complemented by field observation, which was run through continuous contact and bilateral meetings with the @LIS projects coordinators and partners. The events organised during the programme lifespan were relevant field observation moments. Eight workshops in Latin America were organised in order to facilitate aggregation of the @LIS actors at the national level: these events were significant because they allowed us to gather data on the relations between specific Latin American partners and their coordinators in Europe in a very open and transparent way, since they took place in the national environments of the local partners. This allowed us to observe the projects and their networking activities from the specific points of view of the local partners. In addition to these workshops, three Coordination Meetings were also organised, where all projects were represented by the coordinator and by some key partners, especially from Latin America. During these coordination gatherings, the networking activities that had been prepared at a distance emerged in the shape of more or less formal synergies and cooperation agreements. The fact that all these programme events were organised by @LIS-ISON, which is the project we have been involved in, has allowed being part not only of the events themselves, but of all the preparation activities, where many relevant informal contacts took place among the involved actors. Finally, we have been in contact, with different intensity depending on the perceived importance of a specific partner in a given moment, with all the project coordinators and with most of the partners in a rather continuous way during the four years of the programme. It is important to notice that, at the time when we were coordinating the @LIS-ISON project, we did not know that the data collected would have been used for the present research: the quantitative data we gathered during the programme lifecycle was not specifically tailored to the needs of SNA, but was rather intended to identify the projects' needs, outcomes and potential sustainability dynamics. Luckily, the survey questionnaires had some relational components that have allowed drawing some meaningful graphs of the @LIS network along its lifecycle.

Similarly, since the projects were coordinated by European institutions as in most of European Commission's multilateral cooperation programmes, the quantitative data mostly reflect the perceptions of the "European side" of the @LIS network: to balance this, we have complemented this data with direct observation representing as much as possible the point of view of the Latin American partners of the programme. Finally, in order to validate some results of the analysis, complementary data has been collected during and at the end of the programme through the websites of the projects and of some project partners, especially looking for links to other actions of the programme and for information on synergies.

2.3 Drawing graphs and visualising networks

To visually build the networks that are presented and analysed in chapter 6, we have used an open source software application for networks visualisation and interpretation called "Gephi"⁶. Among the many existing software solutions for network visualisation⁷, we opted for Gephi mainly because of its capacity to perform network analysis and network visualization at the same time, avoiding the need to use more than one software platform. This feature allows running *what-if* analysis, providing insights on how the network would develop – or would have developed – if a specific change is – or would have been – applied, such as the removal of a node or the adding of a number of relations. This feature is very useful to monitor development networks during their lifecycle, since it can tell us how the whole network would develop in case some specific external action would be taken. The software gives the possibility to *play* with the network you are working on, and this is, at least in our experience, the only way to really understand the many facets of a network and the many perspectives that it can be looked at from. Further, Gephi is a free software application, and therefore very suitable to be used by NGOs and other typical

⁶ The graphs have been built with version 0.7 beta and refined with version 0.8.1 beta.

⁷ An overview of SNA softwares can be found in the section on Computer Programs for Social Network Analysis of the International Network for Social Network Analysis, INSNA at www.insna.org. See also Huisman and Van Duijn, 2003.

development actors and is rather simple to use: in our case, we have been able to import data, prepare the networks to be visualised and exported, and calculated all the respective metrics without the need of a professional training in SNA modelling⁸. The software was in fact conceived to be used by non-specialists (Bastian et al., 2009) and is well suited for non-professional network analyst to apply SNA methods in a rather intuitive way⁹.

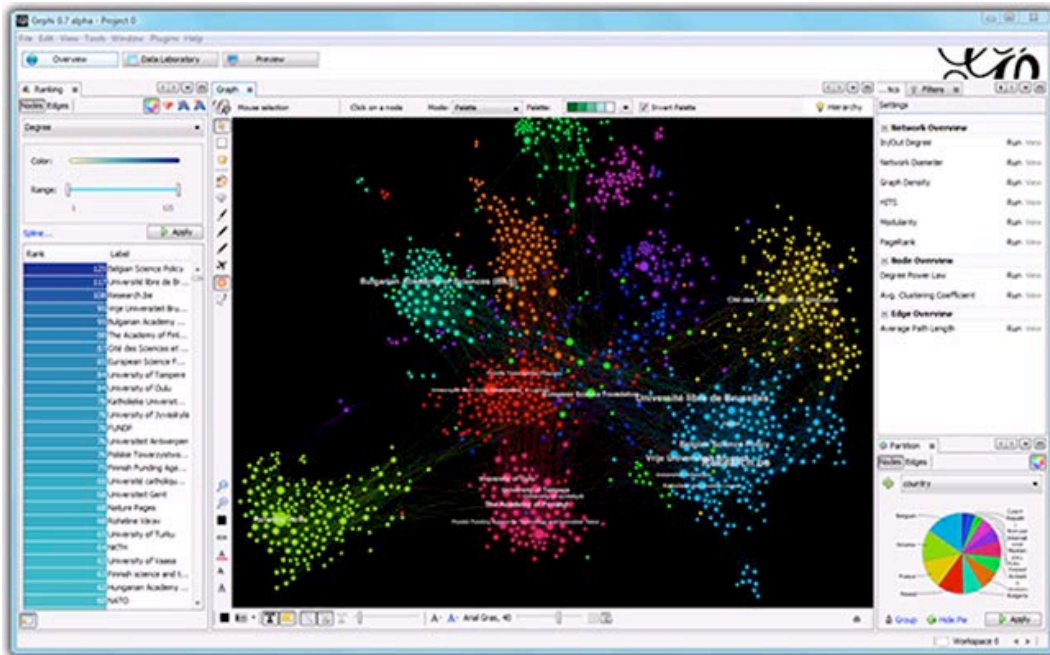


Figure 1 – Typical Gephi screenshot (Source: <http://gephi.org>)

The editor of Gephi looks as the picture in Figure 1: both the network data and the network visualisation are available in the same screen, facilitating the understanding of how the network would change if any specific change is applied to the data. As said before, we believe that being able to *play* with the network through a SNA software is a fundamental condition to deeply understand the different dimensions and dynamics of the network itself.

⁸ We will not enter into the technical details on how to import and export data in the visualisation system, also because the process differs depending on the software used. For all technical details on how to move from data to visualisation, please see the tutorials at <http://gephi.org>.

⁹ We agree with Davies who claims (2007) that the main challenge with using SNA tools is the high quantity of available software packages and the excess of options for analysing and visualising networks: in our case selecting an appropriate software tool took almost as much time as learning to use the chosen one.

During the process, a rather high number of graphs are produced, changed, improved, modified, and this gives a first-hand understanding of the *many possible developments* that the network we are analysing could take, depending on the conditions we might want to put in place.

2.4 Scopes and dimensions of analysis

Wasserman and Faust (1994) distinguish among three levels of analysis of social networks: the network level, based on the parameters of connectedness, diameter, centralization and density, the subset level, where the relevant components are cliques and subgroups and where importance is given to distance, reachability and reciprocity, and the actor level, where the crucial parameter are centrality and prestige. We decided to work mainly at the network level, analysing the dynamics of the @LIS network as a whole, and to move to the project and actors levels when relevant, for example when specific dynamics would emerge among actors or when some clustering patterns would be appearing across the network¹⁰. We have chosen to consider the projects and not the partners as nodes for a few reasons. First, this was the level of analysis of the @LIS Programme evaluation run by the European Commission and by working at this level we were able to draw some comparisons between the results of the two approaches; second, by focusing primarily at the network level we have been able to appreciate the evolution and the dynamics of the whole development action¹¹; third, the programme level is the one that donors are normally interested in to judge the degree of success of development actions.

¹⁰ For a programme such as @LIS, as it is the case for many development programmes funded by the European Commission as well as by other donors, we advice to take both the *programme* and the *project* dimensions into account, since the comparison of the data obtained at the two levels can be very interesting. Bebbington and Kothari (2005) define this as “the challenge of addressing both “part” and “whole” at the same time, akin to a sort of simultaneous equation problem in which the individual equation and the system of equations each need resolving” (p. 15).

¹¹ Sometimes during the analysis, when some dynamics at the level of the single projects were be useful to understand the behaviour of the whole network, we have focused on the level of the projects. Provan and Milward (1995) suggest that determination of a network’s effectiveness requires several levels of analysis including the community, the network, and the organizations that participate in the network.

To allow comparative analysis on the networking developments of the different nodes, those have been assigned with four categories of attributes.

- *Sector*. Each @LIS projects belonged to one of the following sectors: e-Health, e-Learning, e-Government, e-Inclusion. As we will see later, some projects were more transversal than other with respect to these sectors, as in the case of the HealthForAall project, from the e-Health sector, that dealt with creating an e-Learning platform for public health.
- *Nature of the consortium*. Even if the @LIS consortia were rather heterogeneous and included universities, research centres, civil society actors, local and national authorities, and private sector actors, most of the projects had a rather clear *imprinting* related to a specific stakeholders' category. Within our analysis, we have distinguished projects with a strong research nature, that were typically composed by universities and other research actors, projects with a stronger implementation/demonstration nature, normally composed by civil society actors and local authorities, and projects with a balanced composition, where the two categories coexisted.
- *Level of pre-existing networking*, distinguishing between projects that were proposed by a network that was working together even before the @LIS Programme and consortia that were put together specifically for the @LIS call for proposal. This distinction is important since it has allowed validating the Networking for Development concept presented in chapter 4.
- *Europe-Latin America balance*, distinguishing between projects with a high amount of activities assigned to the Latin American partners, including some local coordination, and projects with a stronger European balance.

In analysing the @LIS Programme, we have been searching for virtuous circles of multistakeholder dialogue, collective ownership and valorisation of results. Social Network Analysis has been used to identify network dynamics and patterns, looking at the network as a whole, and to spot individual elements such as clusters and hubs, looking at some parts of the network, which had an impact on the three dimensions of performance, capacity-building and sustainability.

To do so, we have calculated a number of *network metrics*, corresponding to specific dimensions of analysis of the network. For each metric, a whole network measure as well as a score for each node has been calculated. We have specifically selected a number of metrics that can reveal something both regarding the network as a whole and its development and regarding a specific node within the network: “awareness”, measuring how likely is it that nodes throughout the network knows what is happening in other parts of the network, “density”, measuring how connected is the network and which are the nodes that are linking other nodes that wouldn’t otherwise be connected, “resilience”, measuring how dependent is the network on a small number of nodes, “diversity”, measuring how much heterogeneity is contained in the network and showing whether nodes are interacting primarily with nodes like them or different from them. These metrics have provided important information about the shape taken by the network as well as about its dynamics, and have facilitated the identification of patterns that would not have been visible otherwise. Think of keeping under control a network of 19 projects composed of 261 organisations of different geographical and sectoral background working at the same time in different but overlapping sectors, on different but complementary tasks, across two continents. Nevertheless, tackling all the questions presented above only with these metrics would not have given us a complete picture of the impact of networking activities on the programme; that is why the results of the SNA analysis have been be enriched and explained through field observation data, the only kind of data that is able to capture the perception of the participants on their collaboration activities (Frechtling and Sharp, 1997)¹².

In order to be able to quantify the impact of networking activities within the programme, we have analysed a number of relational dynamics and have then checked them against three dimensions of networking added value, to see if and how much some specific networking patterns were related to positive dynamics within the programme.

¹² As we will see in chapter 6, combining quantitative metrics with field observation as allowed appreciating a number of networking dynamics that would not be evident otherwise.

The impact dimensions we have been looking at are¹³:

- *Impact of networking on performance.* This correlates the level of networking achieved by a project with its success, considered both as effectiveness and efficiency¹⁴. We have been looking for correlations between the networking patterns that have transversally emerged at the programme level and the positive impacts that these might have caused. The rationale for this dimension is that through networking a project can mobilise existing additional resources within its environment, and that therefore networking can directly impact on the programme efficacy, defined as the sum of effectiveness and efficiency (Acevedo, 2005).
- *Impact of networking on capacity building.* Considering the @LIS network as a learning community, meaning a group of actors with a common broad objective - in our case the development of an equal and effective Information Society in Latin America through cooperation with Europe - and with specific competences of technical and of transversal nature, we have been searching for correlations between emerging networking patterns and capacity building dynamics within the network, both at the project and at the partners level. This concept, echoing Ellerman's decentralised social learning idea (2006), is a very powerful mean to push for a paradigm change in development cooperation, as advocated in chapter 3.
- *Impact of networking on sustainability.* We have been exploring the correlations between networking dynamics and sustainability of both the projects and the overall programme. In other words, we have been searching for a link between the level of collaboration within and among projects and the sustainability possibilities after the end of the programme funding¹⁵.

¹³ These dimensions have been chosen following the analysis of development cooperation presented in chapter 3 and are consistent with the Networking for Development approach presented in chapter 4.

¹⁴ To measure the success of the projects in a neutral way, we have used the results of the European Commission @LIS evaluation, which looked at the effectiveness (level of success of the project in reaching its objectives) and efficiency (best use of the project resources to reach its objectives) of the different projects.

¹⁵ The main data on the @LIS sustainability refer to an analysis run in 2010, meaning two years after the end of the funding; we believe that two years is a reasonable time to analyse if the results of an action have given birth to something sustainable beyond the funding.

2.5 Methodological lessons learnt

During our work, we have drawn some lessons that can be useful for development practitioners that would like to adopt network-based evaluation methods.

A first point deals with what kind of data should be used in such an analysis. The answer is straightforward: in any research focusing on relations, all those data that can tell us something on the relations between actors are meaningful. While selecting these data is rather easy in case one would adopt a pure SNA approach, when mixed methods are applied - such as in our case, where SNA was complemented with field observation - the situation can be more complicated since for example quantitative and qualitative data can provide divergent results (Burt and Minor, 1983). In our case, we can say that the quantitative and qualitative data collection processes did go in parallel and in a rather synergetic way and that the field observation has been extremely useful to help selecting data that were meaningful for the quantitative analysis. For example, only by working with different stakeholders in a continuous way we could appreciate that the understanding of the very concept of “collaboration” differs from one kind of stakeholder to another. To simplify, for a European research institution receiving a newsletter or meeting another stakeholder once per year is enough to say that they are in contact with the counterpart, claiming that they could activate this contact when needed. On the other hand, civil society actors such as NGOs seem to have a different understanding of “being in contact with”, which encompasses working together and sharing views on a rather stable basis. Only by having observed these two stakeholders categories in multiple occasions it has been possible to filter their replies and therefore to harmonize the available quantitative data, towards a picture that reflects better the networking reality of the programme. As said before, when collecting data we have been in the privileged position to be in constant contact with the stakeholders that were providing the quantitative data, and furthermore we collected these data in three consequent moments. This provided a double verification mean: on the one hand field observation was used to verify the correctness of our understanding of the data, on the other previously analysed data was useful to calibrate the subsequent analysis.

Another important *caveat* deals with the fact that, when analysing networks, we encounter vast amounts of data that are not useful to the analysis, even if they are very appropriate for other forms of research; on the other hand, many techniques used to process and summarize quantitative data tend to remove the necessary relational details. The guiding principle that was adopted is that for a piece of data to be useful for network analysis, it must be possible to know to whom the data belongs or from whom it came from; being able to link the information to a specific actor is more important than quantifying that data¹⁶. For example, a spreadsheet that gives totals for how much money each organization has spent during the programme is interesting, but not helpful for constructing a network. To build a network, it is necessary to know to whom each actor transferred money to, and if two or more actors did exchange money, not just how much they spent in the same project. Non-relational data, even if not useful to “visualise” the networking dynamics through SNA, can be important to facilitate the understanding of the network dynamics.

Finally, it is important to note that, although SNA represents a very powerful technique able to visualise complex relations that would otherwise escape the analysis, this methodology is characterised by a number of limitations and challenges. First, relational data are normally difficult to gather and compare. When using data coming from interactions such as e-mail traffic or telephone conversations, the risk is to miss the qualitative aspect; when using interviews or surveys, respondents can answer in a not accurate way because they get confused on issues like roles or tacit communication (Snowden, 2005). Further, it can be hard to come up with a common definition of concepts such as support or power; and even when a common definition is agreed, the concept may not be directly measurable. Other challenges of using SNA refer to choosing among the multiple kinds of relationships to measure, defining boundaries – including where the network ends and who should be included, and getting enough data to make the network sufficiently accurate (Bender-de Moll, 2008).

¹⁶ See also Hanneman and Riddle, 2005.

3. Development Cooperation in the Network Society

“In an extreme view, the world can be seen as only connections, nothing else. We think of a dictionary as the repository of meaning, but it defines words only in terms of other words...

What matters is the connections.”

Tim Berners-Lee, 1999

3.1 Emerging network societies

The concept of network, in all its facets, fully embodies the capacity to describe our present world as well as our perception of it: in both developed and growing economies, we more and more use transport networks, rely on energy networks, communicate through ICT networks, collaborate in social networks, work in enterprises networks, and so on. “A new divinity has settled in the Olympus of our representations, a technical divinity, or hypertechnical, of which the internet is only one of the clearest manifestations: the Network”¹⁷ (Musso, 2007, p. 1). Concepts such as information society and knowledge society are used by sociology, economics and other disciplines as a way to describe and understand our world and its dynamics built on connections, nodes, and communication fluxes; in a word, networks¹⁸. In particular, the term “network society”, put forward by Manuel Castells in 1996, describes a social endeavour where the internet is becoming a critical technical and social infrastructure of everyday life, crucially enabling individuals to communicate in new ways that reconfigure and enhance their interaction capacity (Castells,

¹⁷ Translation by the author.

¹⁸ Of course, networks have always existed, “what is different is the density, extension and complexity of contemporary global networks and their propensity to channel increasingly diverse flows” (Bebington and Kothari, 2005, p. 863).

1996). Quoting Kevin Kelly, "The symbol for the next century is the net. The net is the archetype displayed to represent all circuits, all intelligence, all interdependence, all things economic, social, or ecological, all communications, all democracy, all families, all large systems" (Kelly, 1998, p. 9).

Among the vast literature that describes the rising importance of networks in all spheres of our societies, we will refer to three fundamental authors, who provide different but convergent views on the raise of importance of networks in our societies: Manuel Castells, Jochai Benkler and Catherine Distler. Castells (2001) claims that the new central role that information and knowledge play in all human activities with respect to the previous era to what he calls the "information revolution", are defining the emergence of the "information society" and, in terms of economic systems, of the "networked information economy". In four conferences given by Castells in Milan, Rome, New York and Boston, whose text are collected in the Italian *La città delle Reti* (2004), the author presents his view on this network societal paradigm focusing on education, enterprise, and urban planning and notes that in these fields the focus of policies and practices is moving from the actors, being institutions or individuals, to the relations among the actors, and on the networking dynamics among them, and discusses the importance of the multistakeholder nature of modern networks: not only networks are built among similar actors, but among actors of different nature, adding complexity and presenting new challenges to social studies. Castells (2001) also describes the properties of the network society: it expands on a global scale, with networked organizations out-competing all other forms of organization, with political institutions using networking to respond to the identity crisis suffered by nation states in a supranational world, with civil society being reconstructed at the local and global level through networks of activists, and with networked individualism emerging as the synthesis between the affirmation of an individual-centred culture and the need for sharing and co-experiencing. Benkler, one of the most relevant observers of economic and social networks in post-modern society, gives another important contribution to understand this networks-driven change process. In *The wealth of networks*, the author (2006) claims that networks are not only substituting most of the basic structures of the industrial society, but also that the presence of these networks is changing the inner

nature of human activities, impacting on concepts like property, time and space. In line with the concepts of “Wikinomics” (Tapscott and Williams, 2006), he suggests that if we put the accent on the multiplicity of relations taking place through these networks, the whole value system is affected and needs to be analysed through different lenses. Catherine Distler, in her work with Albert Bressand focusing on social networks, claims that the focus of modern societies has moved, with strong differences depending on geographical and economical contexts, from the individual to a technology-mediated relationship between individuals and between the individual and the world. This is true for relations among people, among companies, among countries. “Most of what is called information technology today has already outgrown the name and is now relationship technology” (Distler and Bressand, 1995).

When looking at this change process from a societal model where individual actors interact mainly bilaterally on a punctual basis to a model based on a multiplicity of actors who continuously interact in a multilateral facet, one important aspect to be taken into account is the speed of change. Not only change towards network-based models is happening, but also it is happening much faster than ever before. A global survey conducted by the Institute for Development Studies (Haddad, 2006) reports that development researchers from all over the world perceive that global economic, political and social phenomena follow some kind of Moore’s law, meaning that their speed of change doubles every 18 months. The adoption of networking and relational models proceeds at different paces in different areas of the world and in different spheres of human activity (Wellman and Haythornthwaite, 2002) and is deeply connected with the different mind-sets of stakeholders (Appadurai, 1996); for example, business is rapidly and smoothly adopting network-based practices, while sectors like education and public administration are much more resistant in adopting networking models.

At the same time, it is crucial to identify and critically reflect on the way these dynamics are gaining ground: not all networking activities are good per se; as every major change in human history, the emerging networking paradigm is facilitating at the same time positive developments and dangerous dynamics.

To make an example in the field of the present research, applying networking models to development cooperation can definitely improve certain dynamics but can also produce further exclusion of the actors that are left outside these networks. As noted by Castells (1998), networks tend to create, beyond the old-fashioned third world, a sort of a “fourth world”: networks link valuable functions, people and places, but at the same time disconnect other people and places of no interest for the global mainstream dynamics. If the problem of the third world during the cold war was to be excluded by the global geopolitical dynamics, the issue with the fourth world is to be excluded from global economic and social networks, therefore increasing the economic irrelevance and the social exclusion of a number of people and regions. “Networks are no panacea for the world’s problems, but using them wisely will no doubt improve our ability to cope with the difficult challenges posed by rapid global liberalization, technological change, and the complexity these trends have brought to our lives” (Reinicke et al., 2000 p. 4).

3.2 Development cooperation and resistance to change

Development cooperation can be defined as the set of policies, programmes, and projects put in place by the so-called developed countries and by existing multilateral organizations, such as the United Nations or the World Bank, with the aim of improving the economic and social situation of the so-called developing countries. In terms of funding, in the last ten years Official Development Assistance (ODA) has been on the rise in most of the countries where it is mostly needed, meaning the least developed countries and the lower and middle-income countries. Both donors and recipient countries have made considerable efforts to improve the quality and effectiveness of development assistance – for example in the way aid is delivered and managed in the health and basic education sectors. Nevertheless this dynamic is not homogeneous: the OECD (2007) claims that in 2006 the total Official Development Assistance provided by the members of the OECD Development Aid Committee (DAC) fell to USD 104.4 billion, 4.5% lower than in 2005, this being the first fall since 1997. In relation to the future, although most donors plan to continue increasing

their aid, a growing number of them is not keeping their promises, also due to the global financial crisis: the OECD 2010 Report estimates an overall expected Official Development Assistance level for 2010 of USD 107 billion, showing that a real increase is not taking place (OECD, 2010). The actors populating the development cooperation arena are many¹⁹ and of extremely different natures. A very incomplete list of the main development actors would begin, at least in terms of size and political influence, with the World Bank and its regional development banks, one each for Africa, Latin America, Asia, and the Caribbean. Other key actors are the major bilateral government agencies such as the US Agency for External Aid, the German Federal Ministry of Economic Cooperation and Development, or the Japanese International Cooperation Agency. The European Union has a specific development office called EuropeAid and a specific fund, the European Development Fund; the United Nations work through a range of aid organizations²⁰. In the non-governmental sector, a full spectrum of NGOs, think tanks, consultancies, academic institutes, technical support and training organizations are part of the development community. All these stakeholders bring different visions, value-sets, practices and expectations into the collaboration and networking process²¹.

The issue of aid effectiveness has been debated especially in the last decade, along a number of international conferences and declarations²², and is still the object of many discussions (Riddell, 2007). The perception is that the many past and running initiatives did have and are having an impact on their target groups, but do not seem to work in a sufficiently articulated nor synergetic

¹⁹ Two data can give an idea of the magnitude of the development cooperation sector: in 2008 the UNDP has estimated a total of more than 37.000 institutions working in the development cooperation field; the John Hopkins University has calculated that if all the international organisations working on development aid would unite their budget, they would represent the fifth world economy.

²⁰ The United Nations Development Programme (UNDP), the Food and Agriculture Organization (FAO), the World Food Programme (WFP), the International Fund for Agricultural Development (IFAD), the United Nations International Children Emergency Fund (UNICEF), and the United Nations Educational, Social, and Cultural Organization (UNESCO).

²¹ This characteristic of development cooperation – often referred to as multistakeholder participation – will be further explored in chapter 4, since the case study that we will present is a typical case of multistakeholder partnership.

²² The United Nations International Conference on Financing for Development in 2002 in Monterrey, Mexico, the OECD High Level Forum on Harmonization in 2003 Rome, Italy, the High Level Fora on Aid Effectiveness in 2005 in Paris, France and in 2008 in Accra, Ghana.

way, neither at local nor at international level (Reinick et al., 2000). It is common, at the local level, that several concurrent development actions target the same community with the same objective, without a real coordination among them, or, at the international level, that two or more donors run programs with the same objectives and the same target regions without keeping in constant contact. It seems that the development community is not able to work in a networked way. Some important developments such as the definition in 2001 of the United Nations Millennium Development Goals, the 2005 Paris Declaration on Aid Effectiveness and the 2008 Accra Agenda for Action have contributed to reach shared commitments and clear indicators, showing convergence among donor countries and agencies, but the way to reach a real transparent cooperation practice able to improve the effectiveness and impact of development aid still seems to be a long off (Wathne and Hedger, 2009). The Paris Declaration on Aid Effectiveness, for example, states that development aid should be based on cornerstones such as recipients' ownership of results, alignment with countries strategies, harmonization of development procedures, managing of aid results and mutual accountability among donors and recipients. Although these are fundamental aspects that should drive future development cooperation initiatives, the impression is that what the Declaration pushes for are more efficient practices under the usual paradigm, and not a new development way.

We claim that development cooperation has not been able to adapt to the societal changes described in the previous paragraph²³. To demonstrate this, we will briefly analyse some common critique levelled against development cooperation, arguing that adopting networking and relational based models could contribute to solve these problems. An analysis of the critical literature on

²³ "Most development projects are designed in ways that have not changed in decades. They seek the achievement of a set of objectives in a given physical location and time, and most of the participants are local staff, from the implementing organization together with some specifically hired to work in the project. The involvement of outside personnel (national or foreign) is minimal, often for training or evaluation purposes, including also a programme officer at the donor agency. The projects act in relative isolation, with sparse contact with other projects even within the same country or supported by the same donor agency. The results and knowledge gained in the projects are rarely applied outside of them" (Acevedo, 2009, p. 5).

development aid²⁴ shows that the problems are of three main kinds: ideological, when the object of the critics is the very concept of development aid and its starting assumptions; political, when the objective of the critics is the way priorities are decided and funding is assigned, and technical, when the objective of the critics is the way development programmes are managed in terms of actors involved, processes and dynamics.

The critics of the first kind touch upon the very concept of development aid, and claim that the whole *development circus*, meaning the vast group of development professionals active since the end of World War II in development aid, does nothing more than pushing a dominant western development model in a non-scientific-grounded and antidemocratic way. These criticisms, supported by the fact that the number of poor people in the world has proportionally increased since the very creation of the development concept (Black, 2002), are typically put forward by activist groups. Most of the times these critics find fertile ground due to the low communication capacity of development actors, which prevents them to show their results beyond professional circles and to change this negative perception, and to the insufficient accountability of the development cooperation system, which protects governments and development decision-makers from being monitored and punctually judged (Rhodes, 1997). *Moving towards a networked development cooperation model would help in both these directions, since it would facilitate open flowing of information both by governments and by development actors, therefore increasing accountability and correct communication of the results of development programmes, in the last instance improving the generalised perception of development activities.*

The critics of the political kind mainly focus on the agenda-making process of development cooperation: common claims are that most of the decisions related to development policies and funding are driven by the donors' economic and political agendas, that the decisions of multilateral organisation tend to be self-referential and self-oriented, and ultimately that the whole development aid system is not effective in reaching its goals (Easterly, 2006). The typical case is

²⁴ See Amin 2001, Zupi 2003, Black 2004, Reinert 2004, Accuosto and Johnson 2004, Carrino 2005, Haynes 2005, Escobar 2005, Mosse 2005.

the correspondence between the money lent by the World Bank or by the International Monetary Fund to a specific country and the liberalization policies that this country must put in place in the sectors where this money would be used. Additionally, it is undeniable that some kind of competition among donors exists – even if the situation is improving, mainly thanks to the articulation work of the OECD Office for Development Aid – and that the development policy community has not been able to put the general issue of development cooperation at the top of the policy agendas of donor’s countries. Finally, the effort put in by donor countries is generally not enough or at least not enough with respect to the ambitious objectives set at international level²⁵. Adopting a network based approach in the process of defining the development agendas both of donor countries and of multilateral organisations, even if it might not solve the problem, would contribute to transparency and accountability since it would facilitate feedback circles and general agendas alignment among donor countries and multilateral organisations²⁶ Further, this would allow to better listen to the needs of the recipients communities; “for real, sustainable development to take place we need to look at long-term changes in the social constrains which hold groups of people in poverty and exclude them from the benefits of development” (Mebrahtu Pratt and Lönnqvist, 2007). Finally, effective knowledge sharing dynamics would help to move beyond the classical project-based logic into a logic made of integrated programmes and actions and to cure the well-known *reinventing the wheel* syndrome of many development projects and policies, fostering a real dialogue on the priorities of the different agencies and stakeholders.

The critics of the technical kind emphasises the way development actions are planned, implemented, evaluated, and sustained. Some recognised problems are the atomisation of projects, with the deriving overlapping and redundancy, the lack of continuity and sustainability of development actions and the frequent adoption of actions based on a technology transfer paradigm. In terms

²⁵ To make an example, in 2002 Italy has committed to devote 0,5% of its GDP to development aid, but the assigned figure for 2008 is 0,2% and the revision for 2009 is 0,1%.

²⁶ An example of multilateral and networking-based agenda setting exercise has been the World Summit on Information Society, which is presented in paragraph 1.6.

of evaluation, the focus is normally put on the results and not so much on the impact of projects, with cultural differences and adaptation needs not taken enough into account or at least not in a long-term perspective. Sustainability is a recurrent problem: sustainable actions after the funding period are rare exceptions, repetition seems to be the norm; evaluation based on long-term impact data is most of the times missing or extremely weak. Adopting a scheme based on networking would improve this situation, helping to avoid redundancy and duplication and facilitating the involvement of the actors that might guarantee that projects do not get lost when the funding ends. Further, stronger networking would contribute to overcome the so-called micro-macro paradox of international aid. This paradox deals with the fact that, although most of the times ex-post evaluation of development projects is able to prove that individual actions are reaching their objectives, the aggregate impact of aid on the economic growth of the target countries is normally much lower than expected (Mosely 1986). Picciotto (2009), after analysing data from 55 countries, suggests that the paradox is partly created by the difficulty of managing and processing development data; that is why improving networking and consequently knowledge sharing would contribute to solve the paradox.

A number of reasons can be given for the lack of attention towards networking within development cooperation. First, networking is considered as an integral part of the donors' development discourse, even if we have seen that in their practices the situation is different, and is therefore often taken for granted. Second, networking is often analysed under different labels and analytical categories such as globalisation, reciprocity and advocacy. As noted by Henry, "Different researchers may well label a variety of relationships as networks and this is particularly problematic for Development Studies, as many agents of development are aware that they are participating in networks. The limited conceptualisation of the relationships between networks and development may reflect a more general lack of theoretical rigour in Development Studies" (Henry et al, 2004). To find some more sensitivity about the importance of networking in development cooperation we must refer to the area of social capital studies, where researchers increasingly claim that social capital should be considered as a main component of development projects. For example,

Esman and Uphoff state that “where poor communities have direct input into the design, implementation, management, and evaluation of projects, returns on investments and the sustainability of the project are enhanced (Esman and Uphoff, 1984, quoted by Woolcock and Narayan, 2000, p. 19). Even if research-grounded examples are not many, a consensus is emerging on the importance of social relations and networking in development, as a fundamental resource to mobilise other growth-enhancing resources and as a way to facilitate the interactions between development communities and donor institutions (Woolcock and Narayan, 2000).

3.3 Ideas in support of networking in development cooperation

The idea that adopting a new networking-based vision in development practices could increase the meaningfulness and effectiveness of development cooperation is gaining ground in development research²⁷. Nath (2000) indicates that knowledge networks can become an alternative development model since they can overcome the limitations of the technical Assistance and the North-South models, through knowledge sharing, good and bad practices identification and support to individual collaboration. Acevedo (2009) advocates for a significant transformation of the whole development system to respond to the changes brought by the network society and to improve the whole performance, and specifies that this transformation should both affect the architecture of development cooperation, that should be “reticulated on variable geometries of nodes, links and systems, oriented towards collaboration and the use of knowledge” and imply a re-engineering process of development practices “applying networks dynamics and tools to projects, management, strategies” (Acevedo, 2009, p. 4). Lastly, a strong claim for change comes from Ellerman, who claims (2006): “With the widespread discrediting of centralized development agencies and the rise of the new web-based technologies for horizontal networking, there is a revolution underway comparable to the

²⁷ See Nath 2000, Denning 2002, Fukuda-Parr and Hill 2002, Davies 2005, Acevedo 2009.

printing revolution in early modern Europe. A genuinely alternative approach to development assistance is more feasible today than it ever was before" (p. 34). In 2006, the Brighton Institute for Development Studies carried organised 45 roundtables around the world to discuss the state and problems of development research. These gatherings reflected on many development-related issues and confirmed (Haddad, 2006) that the concerns on development cooperation described above are shared by most of researchers in the field. Strangely enough, the networking dimension of development, although appearing underneath many of the discussions of the Brighton research, does not find a relevant place in the conclusions of the study, showing once more that, even in the cases when it is considered, networking is perceived as an instrumental dimension to other development issues and not as a key leverage for development *per se*.

From these considerations it appears that "as networks provide new modalities for information access, capacity building and knowledge acquisition, they help to overcome some of the failures of conventional development cooperation, like depending on donors-established channels for knowledge access and the faulty notion of the expert-counterpart model from North to South" (Acevedo, 2009, p. 5). For this to happen, it would be necessary to introduce networking mechanisms in a gradual and context-sensitive way, accompanying the process with a continuous and sound monitoring of the effects of these dynamics on development practices. It must also be noted, especially when we discuss problems of ideological or political nature, that introducing networking practices would have to be done very carefully, since the power of networking could, as well as improve some dimensions of development cooperation, worsen some aspects of it. As any powerful tool, networking and knowledge sharing could in fact be used, for example, by rival factions in developing countries to spread propaganda and misleading information.

This vision is in line with the positions of Castells, Benkler and Distler presented at the beginning of the chapter. Castells²⁸ suggests that transnational advocacy networks can act as counterhegemonic actors to the neo-liberal orthodoxy of globalised capitalism. Rejecting the notion that donors should decide how other societies should develop, the author proposes a radically new vision for development cooperation that is strongly based on networks. Adding up to these opinions, a research group at the UK Open University claims that many of the characteristics of networks are coherent with the process of international development and focus on the typical attributes of flexibility, fluidity, collaboration and trust, as elements of networking that would contribute to improve the self-image of the development industry, through “transnational linkages to enable people to become agents of their own development at the micro and meso levels” (Henry et al., 2004, p. 17). Benkler (2006) stresses the importance of non proprietary processes for a knowledge-based development vision: “Non-proprietary strategies have always been more important in information production than they were in the production of steel or automobiles, even when the economics of communication weighed in favour of industrial models” (p. 16). Finally, Distler (1995) notes the importance of ICT-mediated relations as ways to reach a higher transparency, accountability and openness of the whole development process, therefore improving the efficiency and effectiveness of ICT and network-based cooperation processes. The question is: to which extent the development community is taking into account the introduction of networking practices? In terms of general paradigm, the concept of Human Development put forward by Nobel Prize Amartya Sen (1999, 2002) and adopted by the United Nations Development Programme (UNDP) somehow supports the proposed change. The strength of the concept stands in the fact that it grounds human development on the basis of the degrees of freedom, which he calls *functionings*, of a specific target individual and not only on the satisfaction of basic needs. This means that the opportunities that an individual has are the ones that can uplift her/him to a better life and to other opportunities that derive from these. This paradigm

²⁸ As reported by Henry, Mohan and Yanacopulos (2004).

assigns importance to the networking aspects of development, since networking is about “empowering people”, a step forward with respect to – of course not a substitute of – basic needs, for instance “feeding people”. To describe Sen’s theory from a network perspective, we could say that the sum of the degrees of freedoms of a quantity of individuals in a network is higher than the sum of these degrees when those individuals do not constitute a network. This is because knowledge, as the good normally exchanged through social networks, is a non-exclusive good that can be transferred from one individual to another without having to maintain the same total quantity; knowledge, when channelled into a social network, tends to expand in an exponential way.

A few ideas have been emerging in the last decades and are having an important impact on the capacity of development cooperation to change toward networking-intensive models.

The concept of *partnership for development* advocates for a vision that puts more emphasis on concepts such as communication, involvement of stakeholders and trust. As the World Bank states: “[we should] treat partnerships as an organic process, in which trust is built over time, in which steps are taken to weave a “fabric of sustainability”; and consider how mutual accountability may be built” (Maxwell and Conway, 2000, p. viii). Examples of development schemes based on this concept are local development enterprises where the company shareholders work in cooperation with the development professionals, the local governments and the local development actors, and community development practices. For the latter, Gilchrist (2004) provides a detailed description of the importance of networking practices, showing that the more the members of a community are encouraged to build networks among themselves, the more the community is able to face new challenges. This change of paradigm is even more evident in a specific and somehow more dynamic sector of development cooperation, which is the one of Technical Assistance. Formally invented at the end of World War II around the concept of capacity building, Technical Assistance works to provide expert advice to countries that require assistance. As noted by Wilson (2007), the further paradigmatic move from the concept of Technical Assistance to the one of Technical Cooperation is signalling a more equal relationship between donor and beneficiary countries, including concepts

as stakeholders' participation, knowledge management and innovation systems. This shift of vision was the focus of a UNDP programme called "Reforming Technical Cooperation for Capacity Development", which aimed to propose a new paradigm for capacity building within development cooperation. Within this Programme, the UNDP recognised that "an extraordinary sociological transformation over the last decade has been the rise of networks—formal and informal, in almost all areas of life. [...] These networks and many others offer a striking alternative to the old model of one-way North-South information flows." (Fukuda-Parr et al., 2002, p. 25).

Another important concept is *South-South cooperation*, a modality dealing with development cooperation schemes among developing countries, started in the 70s as a way to push "south-south solidarity" for collectively influencing the international political and economic order and to show different possible development models (Schumacher, 1973). The model is now gaining a new momentum, mainly thanks to the rapid development of economies such as China, Brazil, India and South Africa²⁹. Probably due to the cultural proximity among donors and receivers, or because of the fact that the scheme started quite recently, the model adopted in South-South development cooperation schemes, as for example the relation between Brazil and Angola, seems to be more attentive to innovation, knowledge-sharing and networking (Jansen and Pimienta, 2006). Lundsgaarde (2011) notes that these new donors share some principles in the way they approach development cooperation, which are different from the OECD donors, including non-interference in internal affairs of the receiving countries, a higher attention to equal partnerships, and a commitment to set up win-win outcomes for mutual benefits.

In line with this change of paradigm, some agencies in charge of development cooperation are adopting a strategic change towards a network-based model that puts knowledge and networking at the centre of the development process. "Coordination and aid harmonisation initiatives are high on the agenda.

²⁹ The data on the actual scale of South-South development cooperation are still fragmentary. However one example may give an idea of the phenomenon reach. Over the last ten years developing countries have been increasingly investing in each others' economies, reaching a total of USD 47 billion (OECD, 2011). It is worth mentioning that the United Nations Development Program created a Special Unit for South-South Cooperation (SU-SSC), with the aim to create a platform to strengthen sustained intra-South business collaboration and technology exchanges.

Combined together these increase the complexity of the environment within which aid interventions have to be planned and monitored. There are a multitude of actors whose interactions need to be taken into account. A network perspective is increasingly relevant at this level" (Davies, 2003, p. 12). An interesting case, somehow in countertendency at least with respect to Southern European countries, is the one of Spain, where the concept of *Development Cooperation 2.0* is gaining ground, defined as a new way to manage development actions by giving more relevance and support to networking among all involved actors. This strategy proposes a new development cooperation architecture and engineering in line with the Network Society paradigm strongly based on the use of ICT and on Web2.0 tools and is presently being discussed by the Spanish External Development Agency as the results of a couple of Conferences held in the last years where this concept has been discussed among government officers, researchers and civil society development experts. Reading from the conclusions of the first "*Cooperación 2.0*" Event held in Gijon in 2008, "The reticulation of cooperation is the answer to its evolutive adaptation to the environment of the Web Society. These are gradual processes that arise bottom-up, whether within an organisation or within huge international systems of cooperation. In such processes structures and dynamics of the cooperation evolve, fostering horizontal relationships, collaboration, and access to shared resources as well as to knowledge management" (Personal notes, Cooperation 2.0 Conference, Gijon 2008). During the Gijon conference, it was stated that "empowering networks models" are probably those that offer the best possibilities for working in development cooperation since they foster the strengthening of nodes, their collaborative capacity as well as their operational autonomy. It was also recognized that for a network to be successful an adequate design and a confident management with appropriate levels of leadership is key, and that the skills related to the management of networks are just starting to being developed. The emergence of the Web 2.0 and of a number of ICT tools aimed at facilitating participation and collaboration offers interesting opportunities for reticulating development cooperation work, which deserve to be included as much as possible in development cooperation initiatives. As it was stated during the Conference: "We should start thinking of the networks of tomorrow, because there are

already here today” (Personal notes, Cooperation 2.0 Conference, Gijon 2008). The recently published Evaluation Report of the Paris Declaration (Wood et al., 2011) states that the Declaration has had an impact in creating both formal and informal networks through the participation of stakeholders and has facilitated aid coordination mechanisms, even if progress has been uneven among countries and stakeholders categories. Interestingly, the Report claims that in some countries the implementation of the Paris Declaration has worked against the spontaneous creation of social ties since it has emphasized the importance of formalised structures.

4. Networking for development

“What they do not understand is that our network was there before the project and will be still there when the project will be over, and that the project is at the service of the network, not viceversa. That is why our network is our main concern.”

@LIS partner, 2005

4.1 Introducing the concept of Networking for Development

In order to systematize these inputs and to facilitate the full integration of knowledge-based networking practices in development cooperation, we propose the concept of *Networking for Development*³⁰, which aims at putting knowledge sharing at the centre of the development process, therefore increasing the impact of development actions in terms of performance, capacity building and sustainability (Nascimbeni, 2008). In the Networking for Development approach, networks come first: development should not be built on development projects but rather on *development networks*, which shall be in charge of running projects and development activities. The novelty with respect to the present situation stands in the fact that development networks must be built before the definition of the projects, and not as ancillary elements to development actions, making sure that the knowledge sharing element is present throughout the whole cooperation action and is the starting point to build sustainability and transferability of the development process and of its results.

³⁰ See also Nascimbeni, 2007 and Nascimbeni, 2010.

Networks within development settings have been described by a number of authors and institutions. Böerzel (1998) claims that networks include private and public organizations and individuals with common interests, which commit to exchange processes to pursue a common aim, acknowledging that cooperation is the best way to achieve this aim. The International Development Research Centre defines networks as social arrangements of organizations or individuals linked together around a common theme or purpose, working jointly but allowing members to maintain their autonomy as participants (Wilson-Grau, 2006). In this definition, networks promote knowledge sharing, facilitate communication, and foster a culture of innovation and change. The concept of developmental networks was reviewed, from a theoretical perspective, by Henry, Mohan and Yanacopulos, who define them as aggregations that “have the potential to provide a more flexible and non-hierarchical means of exchange and interaction that is also more innovative, responsive and dynamic whilst overcoming spatial separation and providing scale economies” (Henry et al., 2004, p. 2). Wilson-Grau (2006) defines networks in development settings as groups of autonomous organizations and individuals in two or more countries or continents who share a purpose and voluntarily contribute knowledge, experience, staff time, finances and other resources to achieve common goals. All these definitions are built around the importance of knowledge in development cooperation settings, and call for a paradigm shift, using Kuhn well-known concept (1996). If we want to substantially improve the way development cooperation works as well as the way it is perceived by society, we need to move towards a paradigm that puts knowledge exchange and therefore networking at the centre as the main asset produced by development actions. This shift is strongly advocated by Acevedo: “Development cooperation should itself transform towards networked cooperation models to best fulfil its purpose to stimulate and catalyse Human Development progress in the socio-economic and technological context of the Network Society” (Acevedo, 2009, p. 3). In full agreement, we consider that, in a knowledge-based paradigm of development cooperation able to follow the development of the knowledge society, networking is to be considered as essential resources for both personal and social development. The key condition for this shift to happen is to recognise that knowledge has an inner value for

both the target participants and for the professionals of any development action, and that the value of introducing and supporting networking activities is proportional to the value that the knowledge produced, shared and documented has for all the participants in a given development action. In order to fully uncap the potential of the knowledge revolution, networks capable of fostering information flowing and appropriation should be built and maintained to facilitate transformation of information into shared knowledge (Nascimbeni, 2011). The idea is that information is transformed into knowledge through a sharing and networking process that is able to generate a sense of ownership among all the actors who take part in the development process.

Against this background, we can define development networks as multistakeholder aggregations including donors, receivers and intermediaries as well as other involved actors, open to new members, in charge of defining their own priorities and of monitoring and evaluating the impact of development actions they are concerned with. These networks shall be the drivers, the monitors, and finally the *owners* of all the development cooperation process, and should be based on concepts such as trust, ownership of results, and continuous involvement of users. The model is strongly based and relying on ICT-supported social networks which give priority to knowledge management, canalisation of social capital in and through the internet and implementation of multilateral actions with the participation of policy actors, civil society, companies, universities and other agents (Nascimbeni, 2011).

Networking for Development can refer to four broad typologies, each one bringing specific benefits to the development process, as shown in Table 1.

First, *networking among donors and multilateral agencies* refers to fostering contacts and dialogue among the actors that draw and follow the different development agendas and that decide the priorities of specific development programmes. With respect to the existing dialogue schemes made of meetings and agreements, the model introduces a continuous flow of information and a number of validation and sense-making actions.

Second, *networking and knowledge sharing among development professionals* refers to fostering knowledge sharing and professional development on a global scale, regardless of the institution the professionals belong. Some efforts in this sense

exist, such as the Development Gateway³¹ or the Global Knowledge Partnership³², and should be strengthened and enlarged both horizontally, meaning fostering cross-fertilization among them, and vertically, involving all relevant stakeholders, from policy makers to professionals on the ground.

Level of networking	Reach	Benefits
Networking among donors and multilateral agencies	Global Regional	Agenda simplification Overlaps minimisation Higher efficiency Better monitoring of global performance
Networking among development cooperation professionals	Global	Knowledge sharing Expertise consolidation Professional development Experts placement
Programme-related networking	Global Regional Local	Higher efficiency and effectiveness Stronger sustainability Knowledge sharing Higher coherence
Project-related networking	Local	Local community strengthening Higher efficiency in project management Ownership of results Stronger sustainability

Table 1: Different typologies of networking for development.

Third, *programme-related networking* calls for including a strong networking component at the level of the many existing development programmes, which can be of global or local nature, and which normally suffer from problems of atomization and lack of sustainability of their actions and results; adding a sound networking component able to involve all possible stakeholders from the very conception of these programmes would contribute solving these problems. “Development programs of all kinds can be easily conceptualised as networks. (...) All development programs involve people and relationships, operating at different levels of scale and formality” (Davies, 2007, p. 4).

³¹ See www.developmentgateway.org.

³² See www.globalknowledge.org.

Fourth, *project-related networking* refers to creating, enlarging and strengthening networks of local actors in virtually any development project. “Development projects around the world sometimes incorporate network functions, but in ad-hoc fashion and without specific network approach” (Acevedo, 2009, p.6).

Indeed in a number of development projects, typically of local nature, networks do exist, but most of the time they are informal and not recognized, bearing the risk that at the end of the funding period the networks that have been created disappear. The idea is not that that these networks should be maintained as they are, but rather that they should openly adapt and be ready to work on other development projects as active aggregations of stakeholders. Using network approaches and analysis tools would also increase the capacity to communicate with the final projects’ stakeholders: “The sociograms or visual graphics are able to capture the attention and imagination of rural actors whose literacy levels are sometimes very low, which may act as a disincentive to participate in research projects or read written reports” (Clarke, 2006).

In all these cases, Networking for Development is about recognizing the fundamental role of social capital³³ in development processes: we claim that the most important long-term added value of networking activities has to do with its capacity to increase the social capital of a group a stakeholders, intended as the sum of the relations that grants access to a set of resources. Social relations must get at the centre of development cooperation, since modern societies call for “a more sophisticated appraisal of the virtues, vices, and vicissitudes of the social dimension as it pertains to the wealth and poverty of nations” (Woolcock and Narayan, 2000, p. 5). The concept of social capital is fundamental since it can help quantifying the impact of networking activities: to measure the level of

³³ In his early contributions to the concept of social capital where he was working on the concept of family as social network, Coleman (1988) was able to determine the existence of social capital in all kinds of social networks. Further, he claimed that authority, trust and norms contribute to the creation of social capital and identified four factors that have an impact on the growth of social capital that are valid also in development cooperation settings: the density of the relations in the network, the stability and durability of the relations, the ideological orientation and the dependency among actors. Putnam (2000) defines these as relational assets that add value to networks: values like reciprocity, trust, communication and cooperation are valuable both for the individual and for the community.

social capital that a development action is able to mobilize, professional ad-hoc network analysis methodologies such as Social Network Analysis (SNA) should be applied to all the phases of a development process, from the agenda definition, to the planning and budgeting, to the programs and projects definition, implementation, evaluation and sustainability building³⁴.

4.2 Recognising the added value of networking in development settings

In order for the concept of Networking for Development to be accepted at all the levels of the development cooperation process, a problem to be overcome is the natural volatility of networking activity and the perception of information and communication activities as ancillary to classic development actions. "Computers are useless if one doesn't have electricity, having the option to text from one's cell phone is of little use when one is illiterate, and the existence of the internet in urban centres is worthless if one is isolated in rural poverty" (Knowles, 2011, p. 2). This perception exists not only among decision makers, who are slowly but increasingly accepting the idea that investing in networking activities has a return, but also among grassroots actors, who tend to prefer actions that produce immediately tangible outcomes. Furthermore, making sure that all actors perceive networking activities as valuable is fundamental in order for the networks themselves to flourish and grow. Most of network studies literature (Jackson and Wolinsky 1996, Bala and Goyal 2000) assume in fact that actors make a discrete decision on whether or not to connect to other agents and how much to invest in pursuing and maintaining a specific link depending on the value that they assign to being part of the specific network.

³⁴ Davies (2003) proposes to focus on the types of relationship among the different stakeholders involved in a development action and their potential impact on the project. The author suggests that, in order to be able to give importance to the *ecological relationships* and not only to the *temporal relationships*, the Logical Framework model should be substituted by a Relational Framework approach, able to uncover the existing relations among activities, outputs and actors. "In the network perspective the focus is on identifiable actors and the structure of the relationships between them" (Davies, 2003, p. 22).

The justification of networking activities within development cooperation settings starts from the fact that in present societies the focus of the value in any productive chain, this being valid for business as well as for development cooperation, does no longer stand either in labour or capital, but in the collaboration and exchange process among individuals that produce knowledge, goods and services. The concepts of reciprocity and exchange, which are at the very basis of the most ancient modalities of social regulation that were there before the State and the Market, and that have been relegated to a marginal role in industrial society, seem to be acquiring again a fundamental value in social innovation and dynamics (Benkler, 2006). In other words, *value creation is deeply embedded in extended social relations*. Due to the fact that knowledge is a non-exclusive good, knowledge networks are in principle capable of multiplying the knowledge – and therefore the value – of the individual agents by facilitating information sharing and dialogue in a collective way³⁵.

The added value of networking within development cooperation activities can be further expanded in three directions (Nascimbeni, 2010).

First, networking is a way to overcome market logics, intended in their broader sense. Development actions respond to a quite similar logic to the one of commercial markets, since they derive from open or tacit negotiations and do work under a limited resources scheme. Networks facilitate exchanges (market model of social reproduction), redistribution (non-monetary model of social reproduction) and reciprocity (non monetary collaboration-based exchange). In this last mechanism the focus is on the actors rather than on the relations, since they are the ones who drive the process, not the market or an external authority. Axelrod (2006) demonstrates that, given that market reciprocity cannot explain a number of high-value experiences that are based on pure

³⁵ Minsky (1986) describes collective intelligence as a complex function of many little parts, each mindless by itself, which, when they join, create intelligence. In this light, working as a network benefits each and every node, since by joining it gets access to the network knowledge.

collaboration principles³⁶, the capacity of constructing relations built on trust and reciprocity is the basis for cooperation practices that are durable and valuable. He distinguishes between asset, positional and generative value. Asset value stands in the talent and resources of the network members, positional value stands in the awareness of the network and in its potential access to assets, while generative value stands in the ability and willingness to engage in trust building and collaboration activities. In development settings, generative value deals with deepening the relations level and with increasing the level of inclusion and connectedness of the network members.

Second, networking is a way to better predict peers' moves based on open knowledge sharing. This is particularly important in development settings since it can help avoiding projects failures due the different understandings that diverse stakeholders – typically the development cooperation experts and the target actors – have of a projects' objectives and expected impact. Adapting the work by James Coleman, who claims that authority, trust and norms contribute to the creation of social capital (Coleman, 1988), we can say that in the frame of a network, the individual members optimise their choices following their preferences, impacting on the social capital, that is both an individual and a common resource: normally it increases its common value thanks to the actions that individual members carry on for their own interest. Along this reasoning, we can identify three factors having a direct effect on the growth of a network value: the density of the relations in the network, the stability and durability of the relations, the ideological orientation.

Third, networking facilitates both cooperation among all involved actors, therefore increasing the efficiency of the system, and transparent competition among different stakeholders. Donors and aid recipients share the same objectives, but – in a system on incomplete information – risk to run overlapping actions and to compete for the same resources. Sawhney and Parikh (2001) identify four value sources in the network age: value at the ends of a network, value in common infrastructure, value in modularity, and value

³⁶ An example is *SETI@home*, a scientific experiment that uses Internet-connected computers to search for extra-terrestrial intelligence, where users voluntarily share their computational power by running a program on their computer that downloads and analyses radio telescope data (<http://setiathome.berkeley.edu>).

in orchestration. We would add that there seems to be a Metcalfe-style correlation between the growth dynamics of a network and its added value³⁷.

A normally neglected value dimension of networking stands in what we define as the *long tail of networking*. Actors such as individuals or organisations actively participate in a network to do more efficiently, more effectively and with less effort what they would normally do alone; this is indicated by the dark part in Figure 2, an area of normally high intensity of collaboration and of high thematic concentration.

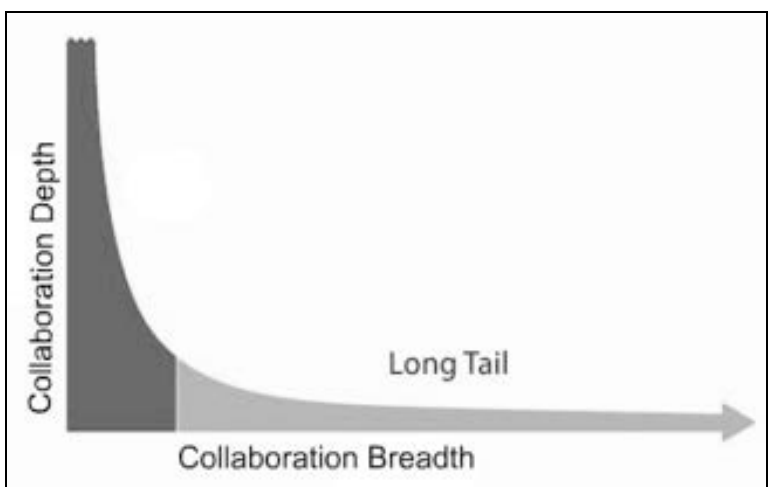


Figure 2 – The long tail of networking

By participating in a network, an actor is also exposed to a number of other stimulations, meaning that she/he gets access to new ideas and activities that are being developed within the network around her/his specific areas of interest. This is the light part in the picture: here the cooperation intensity is lower, but the potential reach of the cooperation is much broader. Think of a development consultant working in water sanitation projects in Africa who joins an international network of experts: she/he will collaborate intensively with peers working in the same thematic field and in the same geographic region, but she/he will also get in contact with actors working on other sectors

³⁷ Metcalfe's law states that the value of a network is proportional to the square of the number of users of the system. The law has often been illustrated using the example of fax machines: a single fax machine is useless, but the value of every fax machine increases with the total number of fax machines in the network, because the total number of people with whom each user may send and receive documents increases.

and he will be exposed to a number of other practices, such as for example how common problems are solved in other contexts or how a development action should be managed. These knowledge externalities are normally not among the objectives of an actor entering a new network, but represent a very important source of usable knowledge.

Networks multiply the reach and the impact of the work of their members. Because of this, in a number of cases and conditions, fostering networking in a problematic development situation can have a negative effect. For example, a development network set up by well-intended development agents could convert into a resource for the local *big men* and affect negatively the whole development process. To solve these potential problems, it is important to keep different stakeholders' categories involved in the network. "Describing a development intervention in terms of changes within a social network automatically brings in a multi-stakeholder perspective" (Davies, 2003, p. 5). The concept of multistakeholder partnership has become, in the last years, an extremely important and somehow politically correct condition of most development projects: in order to maximize the impact of a development operation, continuous collaboration among all the actors involved in the project shall be put in place. The justification stands in the fact that each stakeholder category brings its own vision to the project and therefore affects the whole operation with its own peculiarities and following its mission. To make an ideal and oversimplified example, the government can assign priority to an action, civil society can provide users' needs and feedback, academia can contribute with research input and analysis, and the private sector can provide technical solutions and contribute to sustainable take-up and sponsoring. Virtually all the major donors agree with the importance of implementing multistakeholder partnerships and some of them consider the concept as a flagship of their policies. Nevertheless, few documented cases of success can be found, if by success we mean that the involvement of stakeholders has had a real impact on the whole process. The Report "Multistakeholder Partnerships and Digital Technology for Development in Latin America and the Caribbean" by the Omar Dengo Foundation, concludes that "multistakeholder partnerships need to have an objective shared by the parties; they must be kept from searching in different directions" (Omar Dengo Foundation, 2007, p. 31). Success factors of

multistakeholder partnerships are related to acknowledgment of mutual needs, transparency, clarity of roles, equality in decision-making processes, trust, and openness to review and renegotiate agreements. All these factors are fundamental within the Networking for Development approach; still, multistakeholder networking, even in the few documented cases of success, is normally limited to the project level, while the Networking for Development concept advocates for applying this approaches at all the levels of development cooperation.

4.3 The debate on ICT and networking for development

ICT for development (ICTD) is probably the area within development cooperation where the highest sensibility for networking practices can be found. The reason for this is that ICTD puts information and communication at the centre of the development process and therefore encompasses a strong networking nature both in terms of information networks, which means connecting computers to facilitate communication and information sharing among development professionals and stakeholders, and in terms of social and networks. ICT for Development is today a rather established area of intervention: from the beginning of the 90s a number of reports, case studies, and discussion papers on ICTD started to be produced by academia, civil society and research units of donor institutions, with the effect to push a number of international organizations and donors to invest in the issue. The logic of ICT for development is a rather simple one³⁸. Starting from the socioeconomic impact that the introduction of ICT³⁹ has had and is having in high-income countries, the ICTD movement⁴⁰ is suggesting that less developed

³⁸ A recent work by Tim Unwin presents the issue of ICT for development in all its perspectives (Unwin, 2009).

³⁹ Information and Communication Technologies encompasses the vast group of technologies that allow users to produce, process, document, distribute, share and access information, including digital media such as PCs, the internet, email, databases, mobile phones and analogue media such as telephone, radio and TV.

⁴⁰ The movement of ICTD has seen its peak in the organization of the World Summit on Information Society (2003-2005) and in the subsequent creation of the Global Alliance for ICT and Development (GAID) in 2005. The World Summit on Information Society (WSIS) was part of a series of Summits organised by the UN in the last 15 years. The WSIS has held, under the coordination of the UN's International Telecommunications Union (ITU), in December 2003 in Geneva

countries and regions should also adopt and implement ICT initiatives in order to accelerate their development processes. The concept is based on the flow of knowledge through ICTs: countries in the South can take advantage and make use of this knowledge in order to improve their economic status providing to their citizens a broader spectrum of choices (Sen's functionings) and therefore increasing their Human Development potential. Some of the theories went as far as to declare that with the help of ICT, low-income countries could leapfrog many of the problems of development (Gore 1999 and Finkelievich 2007). Labelle speaks about "empowerment through information": the value of the introduction of ICT seems directly proportional to the value that the information produced, shared and documented through ICT has for the participants in the development programme (Labelle, 2005).

But information alone is not enough. On the other hand, producing a high quantity of information and data without clear mechanisms and strategies to use them can be counterproductive and create a feeling of overloading, especially when dealing with individuals – as in the case of the typical targets of development cooperation actions – that are not prepared nor educated to deal with such an amount of information. Another component is needed to fully uncap the potential of this knowledge revolution and to better justify the use of ICT in development settings: networks capable of facilitating information

and in November 2005 in Tunis, and was prepared through two parallel sets of meetings: preparatory committee meetings (*Prepcoms*, held every 6 months in Geneva) and regional meetings (organized in Africa, Latin America, Asia, and Europe/North America). During the Geneva summit in 2003 heads of state ratified the collective documents produced over the preceding two years, and produced a Political Declaration and an Action Plan, that provided the basis for the intermediate work (three more *Prepcoms* and another set of regional meeting) that led to the second and final event, organized in Tunis in November 2005. The Summit produced a number of results, such as a political commitment and an action plan, but most importantly it put the attention of the development community on the importance of ICT in development processes and practices, opening at the same time a number of debates around the concept of development cooperation. "In Geneva and Tunis, side by side with discussions on connectivity, e-learning and telemedicine, people discussed about participation, accountability and new forms of international development cooperation" (Nascimbeni, 2006). The Global Alliance for ICT and Development (GAID), which somehow brings forward the commitment taken by the WSIS representatives, was launched in 2005 and represents an open multi-stakeholder platform that wants to promote effective use of ICT in development activities. The GAID seems to start tackling the issue of rethinking the way development cooperation works; more and more in the discussions around ICTD the issue of innovating the whole development cooperation system is strongly raised as one of the most important issues, together with more technical themes such as intellectual property, cultural diversity and internet governance (De la Chapelle 2002, Rossiter 2004, Klein 2003, Alegre and O'Siochru, 2005).

flowing and appropriation – and as last instance transformation of information into knowledge – should be built and maintained. The accent should not be put in the T (technology) of ICT, as it was in the first ICTD applications which were mainly dealing with connectivity and infrastructures, and neither on the I (information), as is now starting to be commonly accepted, but rather on the C (communication), since the value of ICT is directly related to the value of the collaboration among the participants in the development programme. Putting the accent on the C of ICT, of course without undermining the importance of information, that is the basic “good” of the whole process, enables all the actors to participate in the development action as information producers and evaluators, and creates a sense of ownership of the information that is shared. Simplifying to the extreme, the Networking for Development approach can be explained using the well-known Chinese metaphor of the fishermen. Development cooperation is based on the idea that if you give people fish, you feed them for a day, but if you train them how to use a fishing rod they can be fed for a lifetime. ICT for development claims that if you give them a rod and additionally some ICT, they will be able to get information on fish market prices, on weather forecast, and on where to buy a better rod. Networking for Development proposes to give them a rod and some ICT, and to help them to build a fishermen club where they can exchange experiences and information, solve common problems, jointly prepare their requests to the government, think of future fishing techniques, and eat some fish together.

Networking for Development and ICT for Development are both strategies to include knowledge sharing in development practices, in terms of projects development and in terms of efficiency and transparency of development cooperation processes. Where they differ is that while ICTD focuses on fostering the use of Information and Communication Technologies in development actions both in on-the-ground projects and among development professionals, Networking for Development considers the introduction of ICT as instrumental to improve networking, focusing rather on social, cultural and institutional communication among stakeholders. We argue that while introducing ICT does not *per se* affect the principles of development cooperation, the effect of introducing networking components can change the

very logic of a development action; as stated by Acevedo, “the notion of network cooperation goes beyond the integration of ICT” (Acevedo, 2009, p. 3). ICT plays a fundamental role in supporting networking and knowledge sharing and is therefore a key component of any Networking for Development policy and practice. Giarchi (2001) points out that networking refers to a formal, systemic kind of organization and communication and is “something more” – or at least something different – than a mere aggregation of actors using ICT for communicating and collaborating. In our definition of development networks, in addition to these formal networks, we claim that the informal dimension of networking is very important. A development network typically created around a core of actors that have a formal agreement to cooperate for a certain time on a specific project, should reach out also to the many other partners that each of the project actors is working with. In the same way as ICT is a major component of Networking for Development practices, the opposite should also be valid. ICTD practices have in fact been accused in some cases to be too focussed on technologies and on applications – considering the tools able to instil socio-economic development in development contexts– undermining the social and cultural components of the process; we believe that the Networking for Development approach can help some ICTD policies and practices in being more attentive to these aspects and, ultimately, more efficient in their implementation.

As we have seen before, the importance of introducing ICT and networking in development settings is being increasingly accepted by the mainstream discourse and adopted by most donors as a key element in their policies and programs. Still, some critical voices exist, which refer both to the introduction of ICT and – either directly or indirectly – to the increased presence of communication, knowledge-based and networking activities in development settings. A first critical view refers to the impact of ICT and networking in development contexts. A number of observers are claiming that the positive effect of ICT and networking activities on poverty is not statistically proved, in other words the “productivity paradox” – that is the absence of evidence of a

direct impact of ICT in economic growth – applies also to development cooperation policies and actions⁴¹. Luyt (2004) observes that the promotion of ICT and networking for development are policy issues that tend to benefit four major groups: the “information capitalists”, the developing countries governments, the development industry and the global civil society. He also notes that “the fact that the gap between ICT access in the developed and developing countries is now on the agenda at international conferences and summits around the world does not necessarily reflect the intrinsic importance of that gap to world affairs. What it does reflect is a particular convergence of interests and their ability to collectively set the political agenda in such a way that the digital divide is now seen as a serious and important social problem” (Luyt, 2004). A second critical view concerns the side effects of ICT and networking on development practices, and claims that the real agenda for the vigorous promotion of development programmes in fields such as e-governance is to shift decision-making power from the national governments to the private sector multinationals which are interested primarily in the exploitation of resources (among others Powell 1994). This view echoes the post-development theory of exploitation of the South by the North for economic benefits, and calls for approaches which, to be successful and sustainable, should be more attentive to the context of the operations: the goal should be to give people in development countries the ICT solutions they need and not the ones that we think they need (Knowles, 2011). A third critic, of a deeper social nature, can be summarized in the view of Sorj, who claims that “the introduction of ICT increases social exclusion and inequality” and that “the richest sectors of society are the first to have access to new products, they have the benefits of a decisive competitive advantage when they master using them. Those that are excluded face new, or greater, disadvantages” (Sorj, 2004, p. 3). This happens with each technological and social innovation: innovation waves create a new divide upon existing divides and at the same time a fight to close this divide, together with some new market segmentation dynamics. If on the

⁴¹ This argument is similar to the 1987 claim by economist Robert Solow that the effect of the “computer revolution” was not visible in the US productivity statistics: for a detailed description of the productivity paradox debate see Dedrick et al., 2003.

one hand it is true that each social innovation can open new divides, on the other hand the situation seems to be more positive when we refer to knowledge-based innovations, due to the non-exclusive economic nature of knowledge. In general terms, this means that barriers to social sharing of knowledge do exist, especially but not only in developing countries, but they seem to be easier to overcome with respect to material barriers. In line with this reasoning and moving back to the institutional side of the picture, the UNDP (2005) proposes three levels of utility for ICT and networking for development. Concerning knowledge, the claim is that ICT can bring down barriers and improve equitable access to education and information for all; nevertheless many researches⁴² show that the ones that benefit the most from ICT use are the ones that need it the less, or in other words that ICT improves the access to services of the ones that already have access, and does not allow massive access of excluded groups. Concerning participation, the advantage would be that through ICT remote communities can participate in collective actions; on the contrary it could be claimed that even when they participate they do so by respecting the linguistic and cultural rules of the ones who set up the participation system. Concerning economic opportunity, the UNDP claims that ICT improves the capacities of excluded groups to access new markets and to be better equipped for competition; at the same time data show that the gap between the rich and the poor at global as well as at local level is generally increasing. The truth is that, as any powerful means, ICT and networking can be used to close or to widen divides: what is important is the consideration that policy makers and development practitioners have of these tools. The view that most of the development problems can be solved by injecting further information and communication into the system is far from being true, but so is the view that ICT and networking are potentially capable of widening existing divides. A balanced attitude is increasingly beginning to appear both in research and in policy communities, which considers ICT and networking as fundamental support schemes for development policies that can be extremely useful if applied in the frame of well-planned actions. Along this vision, some

⁴² See for example Aceto et al., 2006.

of the major donors are to a certain extent including networking and ICT within their development cooperation strategies, even if, as we will see later, in a number of cases they seem to do so more because they follow the trend than because they really believe in the potential impact of networking. “Networking [...] has become central to the self-image of most development agencies” (Henry et al., 2004, p. 5).

Looking at the way donors consider networking and ICT in their strategic developments is useful to understand the actual level of embeddness of these activities in both the development discourse and in the actual programmes implementation. The World Bank has created a set of units and programs devoted to networking, ICT and knowledge sharing for development, practically in all sectors and regions. These all have inspiring names and go from the Development Gateway, “a development web portal, for users to gain access to information, resources, and tools and to contribute their knowledge and experience”, to the Global Knowledge Partnership, “an evolving informal partnership of public, private, and not-for-profit organizations in both developing and industrial countries”, to the World Links for Development, “providing Internet connectivity and training for teachers, teacher trainers and students in developing countries in the use of technology in secondary education”, to the Global Development Learning Network, “linking decision-makers around the globe, through telecommunications systems, as participants in global learning activities”. These actions intend to build what Stone defines as “global knowledge networks”, meaning global aggregations of professional associations and experts, academic research groups and scientific communities that focus on specific issues, with the main aim of sharing and spreading knowledge (Stone, 2002). Nevertheless, the majority of these initiatives target development professionals and do not directly involve – if not in a rather limited way – aid beneficiaries. Other development organizations have also been investing in networking, mostly under the ICT for development slogan, as part of their operations and programs. The Canadian International Development Agency defines information and knowledge as the fundamental resources of the development process and states that “Access to information and knowledge, other than strengthening civil society, contributes to poverty reduction by allowing individuals and communities to expand their choices”

(Canadian International Development Agency, <http://www.acdi-cida.gc.ca/ict>). Similarly, the Asian Development Bank has declared that: “ICT has become a powerful tool in the fight against world poverty, providing developing countries with an unprecedented opportunity to meet vital development goals, such as poverty reduction, basic health care, and education, far more effectively than before. The countries that succeed in bridging the digital divide by harnessing the potential of ICT can look forward to enhancing economic growth, and improving human welfare and good governance practices” (Asian Development Bank, 2003, p. 4). As a fourth example, the PNUD affirms that networks composed of development actors, if embedded in an open knowledge environment, can substitute the current development cooperation models (Fukuda-Parr and Hill, 2002) and that knowledge networks can represent the axis along which to build new international cooperation strategies (Browne, 2002). Civil society seems to have been learning the lesson on the importance of working with networks better than the donors community (Nascimbeni, 2010), and is increasingly advocating for a stronger dimension of knowledge sharing to be included in development actions, mostly focusing on the concept of multistakeholder partnerships⁴³. “For many decades, the overriding organizing principle of the social-change sector, as with business and government, has been the stand-alone organization. [...] But hierarchical, organization-centric is losing its way. Many people, even in the largest, most venerable organizations, recognize now that to gain greater impact they have to let go organization-centric ideas about how the world works, and they are adopting network-centric thinking” (Plastrik and Taylor, 2006, p. 5).

⁴³ Some reports produced by civil society organisations in the last years have been focussing on the importance of multistakeholder networking. *Keys to Sustaining ICT-enabled Development Activities* (Ballantyne, 2003) by the International Institute for communication and development, looks at how ICT empowers those in the developing world encouraging them to take a hold of their own development and then development of their country. *Multi-stakeholder Partnerships and Digital Technologies for Development in Latin America and the Caribbean* (Omar Dengo Foundation, 2007) concludes that multistakeholder partnerships are a powerful tool to further development projects and that they have become particularly critical to initiatives that promote the fruitful use of digital technologies to improve people’s quality of life and development perspectives. *Multi-Stakeholder Partnerships* (Global Knowledge Partnership, 2003) aims to increase the availability of information and knowledge on various issues in the area of ICTD, looking at Multi-Stakeholder Partnerships in general and then how they can aid ICTs globally particularly in the developing world. Finally, *Multistakeholder Partnerships: ICT for Development (ICT4D)*, 2007) discusses the relevance of multi-stakeholder partnerships where ICTs are concerned together with the current trends and improvements for the future.

From the above considerations, it appears that ICT and networking are increasingly been considered as central assets for development in virtually all fields of action of both donors and civil society stakeholders. Nevertheless, if we take a closer look to how these donors put in practice the principle that networking shall be applied to development actions, the reality is different. We can consider the process of applying networking and knowledge sharing to development actions as composed by three steps: a decision taken, followed by an implementation moment and by an evaluation process. In terms of decision-making process, in most cases the deliberation to apply a networking component to a development programmes is made, even if we are far from a situation where networks represent the main actors and the originating partners of development programmes. In terms of implementation, the way networking is implemented ultimately depends on the priority and on the funding allocated to the specific networking activities. In today's practices, when specific networking funding is allocated, it is normally linked to collaboration among experts and consultants and not to donors-intermediaries-recipients collaboration. In terms of monitoring and evaluation⁴⁴, we agree with Axelrod: "In the aid community, the evaluation process is intended to serve two functions: institutional credibility and organizational learning. For institutional credibility, the acid test is performance on the ground. For this reason, accountability for result-based assistance has become a fundamental imperative. For organizational learning, the goal is not only to improve individual programs, but to make the results available to the global evaluation community" (Axelrod, 2004, p. 9).

A possible strategy to advocate for a stronger attention to networking in development activities would be to focus on the divide that networking should tackle, that is the *networking divide*. To do this, it is useful to start from the concept of digital divide. This refers to the divide, typical of the information society, between the persons or communities that can benefit from the use of ICT and the ones that cannot. Many definitions have been given, moving from

⁴⁴ In paragraph 4.4 a review of theories and practices for evaluating networks in development settings is presented.

the original ones focusing on infrastructure connectivity along the adagio *to be or not to be connected*, to the most recent focusing on ICT use, claiming that being connected without motivation or capacity to use technology in a meaningful way is useless or even dangerous. If we look at the digital divide through Sen's human development lens, we can define it as the difference between the communities and individuals that can take advantage of the choices provided by ICT and the ones that cannot. The digital divide depends on, and at the same time influences, the economic, social, educational divides, and is a dynamic and changing problem, difficult to measure and to address (Robinson 2001, Sorj and Guedes 2004). Using the words of the Okinawa Charter on Global Information Society, "the challenge of bridging the international information and knowledge divide cannot be underestimated. [...] Indeed, those developing countries which fail to keep up with the accelerating pace of IT innovation may not have the opportunity to participate fully in the information society and economy. This is particularly so where the existing gaps in terms of basic economic and social infrastructures, such as electricity, telecommunications and education, deter the diffusion of IT" (Government of Japan, 2000, p. 4). The digital divide is a multifaceted and sometimes controversial issue⁴⁵. "The more important the services that ICT provides, and the more central its role in the lives of citizens, the more important it is in a just society that people get sufficient access to ICT to play their part in the democratic organisation of their society, to be able to achieve their reasonable preferences and pursue their conception of the good, and to avoid their voices being drown out by the richer and more powerful" (O'Hara and Stevens, 2006, p. 283). The debate around the digital divide has allowed the development community to reflect on both the many dimensions of deprivation and inequalities that stand around the impossibility to take advantage of ICT, and on the many divides that have to be

⁴⁵ Among the many attempts to measure the phenomenon, the one by the international NGO *Bridges.org* deserves attention, since they have examined the divide starting from analysing ICTD projects, differentiating between what has proved to have an impact and what has not, and have come up with a measuring strategy called Real Access/Real Impact (RA/RI). This strategy is able to determine whether the Real Access to ICT goes beyond computers and connections so that technology use makes a Real Impact on socio-economic development. The RA/RI framework represents a typical initiative aiming at understanding the digital divide in relations with the other existing divides, in sectors such as healthcare, education, small business development, government services.

taken into account in development policies and actions. Mossberger, Tolbert and Stansbury (2003) relate for example the use of ICT with existing dimensions of social and economic development, and conclude that the concept of digital divide as such is going to disappear when the use of ICT will be embedded in all human activities: that is why they suggest to focus on the real and most urgent divides such as the information, skills, economic opportunities and democratic divides of our societies.

Moving one step further with respect to the digital divide, an interesting concept is the one of paradigmatic divide, described as the divide between the different development paradigms, or visions, that exist and guide development policies (Pimienta, 2007). For example, the mainstream paradigm of many ICTD policies of the 80s and 90s was based on the assumption that the most urgent thing was to connect anybody anywhere, in the belief that once connectivity would have been there, services and applications – but also capacity to use ICT – would have followed. This vision, mainly driven by the private sector interests, has proved to be far from working, and has been heavily criticized by the promoters of a completely different paradigm, mostly arising from civil society movements, which puts forward ICT-based knowledge sharing dynamics, with attention to social appropriation of technology and to the human side of development. The distance between these two visions represents a paradigmatic divide that has affected many ICTD policies in the last years.

Building on the distance between these two development paradigms can help us identifying, along with the concept of Networking for Development, a new kind of divide, that is the networking divide. This can be defined as the difference of opportunity between the actors that are included into healthy and active development networks and actors that are not. Being part of a network, especially in developing countries, can provide opportunities in terms of capacity building, employability, civic participation and social inclusion. The existence of this divide has to do with the structural absence of a networking culture among development actors, and can result in paradoxical situations in which, in a same community, two or more development projects are active but do not share knowledge nor cooperate, and sometimes even compete. The networking divide can be bridged, but in a different way than simply wiring communities. This bridging must be done with promoting a networking culture

not only among the decision makers who drive the development agendas and who can decide to support development networks within their range of action, but also among those stakeholders that for a number of reason are not part of any healthy and active network. Even if applying the Networking for Development concept would need some system changes that are obviously not easy to happen, a first step can be identified, which has to do with convincing the actors in charge of defining development policies of the value of networking, in terms of present and future opportunities and in terms of direct and indirect effects. Normally the best way to do so is through pilot actions that are able to show the effect of networking on people's lives, but some capacity building on the importance of networking both towards recipients and donors would also be important.

4.4 The place of networking in development evaluation practices

The Networking for Development concept calls for a change in the whole process of development cooperation, from the planning phase of development actions, to the implementation of programmes and projects, to the evaluation of the actions' results and impact. Among these phases, evaluation is extremely important, since it provides development cooperation decision makers with evidence and considerations on the actual success of a development action and therefore facilitates a reflection on what should be changed in the planning and in the implementation strategies to improve the effectiveness and the impact of the whole mechanism⁴⁶. Today the attention of researchers seem to be devoted to the changes that should happen in the planning phase⁴⁷ and in the implementation phase⁴⁸, while the evaluation phase is seldom tackled. To be

⁴⁶ Segone, claims (2010) that evidence-based policy making strongly depends on the quality of evidence produced by evaluation and that a few points should be kept in mind when evaluating development policies and programmes: selecting topics of mutual interest, implement evaluations jointly with governments, hiring local experts to the maximum extent possible, not assuming there are weak evaluation capacities, and coordinating with other agencies and international stakeholders.

⁴⁷ See Nath 2000, Fukuda-Parr and Hill 2002, Acevedo 2009.

⁴⁸ See Plastrik and Taylor 2006, Acevedo 2009.

more precise, the debate on how to innovate monitoring and evaluation practices in development settings⁴⁹ seems not to consider networking as a one of the possible solutions to the problems that the evaluation community is facing. On the other hand, network analysis methods are indeed used in programme evaluation practices, but not extensively enough within development settings. Durland and Fredericks (2005) claim that “as evaluators have begun to describe and understand the complexity of organisations better, [they] have been looking for tools to help both describe organisations and their programmes and make sense of, understand, and evaluate their components” (p. 33). On the same line, Introcaso claims that due to the present level of complexity within development settings, the key to understanding and evaluating programmes is in the patterns of relationships and interactions among the actors of the network (Introcaso, 2005), while Gregson claims that evaluators still have not defined common objectives around which network performance can be assessed (Gregson, 1998). The monitoring and evaluation community working on development actions seems to have understood the importance of looking at relations and network, but this is still far from being commonly applied in development evaluation practices. Still, the conditions seem to be there to start evaluating development programs beyond the short-term capacity to deliver results, as well as to facilitate the understanding of the stakeholders’ networks that work within development cooperation settings.

Evaluating development cooperation actions is a complex exercise that encompasses a number of dimensions and challenges. In 1991, the *Network on Development Evaluation* was created by OECD as subsidiary body of the Development Assistance Committee (DAC), with the purpose of increasing the effectiveness of international development programmes through informed and independent evaluation, and to facilitate the emergence of common evaluation practices⁵⁰: the norms set by this network can today be considered a standard⁵¹.

⁴⁹ The debate on how to innovate monitoring and evaluation practices in development cooperation is presented in Mebrathu, Pratt and Lönnqvist, 2007.

⁵⁰ Until the beginning of the nineties, each major donor used to adopt its own evaluation approach.

⁵¹ These norms, which are summarised in the DAC section of the www.oecd.org website, are adopted by more than 30 bilateral donors (including Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland,

In order to understand the extent to which networking is considered in existing development evaluation frameworks, a review of the way networking activities are treated by a number of international agencies and organisations is here proposed. The InfoDev programme, a World Bank global development financing programme, has produced a report titled “Framework for the assessment of ICT pilot projects”, which proposes a framework for assessing the effectiveness of ICT pilot projects in developing countries. Within this report, which explicitly aims at improving existing practices of monitoring and evaluation within development settings through forward-looking and evidence-based tools, the concept of networking rarely appears. Further, if we look at what the report proposes in terms of evaluation methods, the idea of evaluating networks and of using networks as tools for programme evaluation is completely absent. The Canadian International Institute for Sustainable Development has supported the preparation of a report with the aim of including network assessment in development programmes, starting from the consideration that “a consistent discipline or framework for the monitoring, assessment and evaluation of knowledge networks does not exist” (Creech and Ramji, 2004, p. 1). The report observes that network evaluations is often based on networks’ members original expectations and observations about whether their particular network accomplished those, and proposes a method focusing on five principal areas of evaluation: effectiveness, structure and governance, efficiency, resources and sustainability, life-cycle. Although the approach is quite comprehensive and able to grasp the importance of networking activities, the methods used to evaluate networks are limited to members consultation, documentation review, interviews with stakeholders, discussions at network plenary sessions; no mention to the way in which these data could be analysed is made. The evaluation strategy of the International Institute for Communication and Development (IICD), a non-profit foundation specialised in ICT in development contexts, is presented in the extensive report

Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States) and by the major multilateral development agencies (World Bank, Asian Development Bank, African Development Bank, Inter-American Development Bank, European Bank for Reconstruction and Development, UNDP, IMF).

“Monitoring and Evaluation at IICD”, which tackles many of the key issues dealing with networking, such as knowledge sharing and capacity development (Wieman et al., 2001). Surprisingly, in the whole report the word networking never appears, showing a case in which, although IICD is based in the Netherlands, hometown of many strong research groups in network studies and SNA, the evaluation of networks is seen as something that can be absent from programmes and projects evaluation. Finally, the Swedish International Development Cooperation Agency has produced an Evaluation Manual with the inspiring title “Looking back, Moving Forward”, where the Agency approach is presented underlying the importance of involving local partners and development actors in the evaluation process, but still with a focus on evaluating the results and the impact of development projects, without looking at the collaboration and networking processes which lay beyond the projects results. The importance of looking at the networking dynamics of projects only comes within one of the four criteria for evaluation of humanitarian assistance, under the name of connectedness, defined as “the extent to which short-term emergency activities take into account longer-terms needs and the interconnectedness of humanitarian problems” (Molund and Schill, 2007, p. 31).

These approaches suggests to different extents that looking into the collaboration and networking activities of a development action would be important to properly evaluate its impact as well as its developments, but do not present suggestions and recommendations on how to do this. Similarly as we saw earlier when analysing the strategies of the main donors and multilateral agencies, the importance of networking is in theory taken into account, but it is almost totally absent in practical terms, and when it is considered, no specifications on how to deal with it are provided⁵². The reasons for this might be that more time is needed to fully embed a new approach into methodologies that have been created more than fifty years ago, or that networking activities are so difficult to analyse due to their intrinsic informal and volatile character that donors prefer not to tackle the problem to its depth.

⁵² This is confirmed by the fact that the OECD DAC Glossary (2002) defines 74 terms that are important for evaluating development actions without a single mention to the concepts of *networking* or *collaboration*.

This trend seems to exist also within the International Development Evaluation Association⁵³: although one of the objectives of the association is to enhance conceptual thinking in development evaluation and even if the association works rather successfully with evaluation practitioners to advance the way evaluation is run in development contexts, the association is not clearly advocating for networking to be adopted as a pillar for evaluation within development cooperation. Mebrahtu, Pratt and Lönnqvist (2007) suggests that the many challenges that the monitoring and evaluation community is facing today “come down to a single debate over the nature of what we think we are trying to monitor and evaluate in terms of our approach to development” (p. 141).

⁵³ The International Development Evaluation Association (IDEAS) was established in 2002 with the mission improving the practice of development evaluation by refining knowledge, strengthen capacity, and expanding networks for development evaluation, particularly in developing and transition countries.

5. Understanding networks

*"I read somewhere that everybody on this planet is separated by only six other people.
Six degrees of separation between us and everyone else on this planet.
The President of the United States, a gondolier in Venice, just fill in the names.
I am bound, you are bound, to everyone on this planet by a trail of six people."*
John Guare, 1990

5.1 Networks: why? How? What for?

A sort of *network thinking* is emerging both in science and in society at large, through which we are starting to understand the characteristics of our world by focussing not only on the elements of the systems, but also on the relations among those elements. "Network thinking is poised to invade all domains of human activity and most field of human inquiry" (Barabási, 2002, p. 222). "In the connected age, what happens and how it happens depends on the network. And the network in turn depends on what has happened previously. It is this view of a network – as an integral part of an evolving and self-constituting system – that is truly new about the science of networks" (Watts, 2003, p. 29). On the one hand it is still early to say if we are witnessing the beginning of a knowledge revolution and if this will urge humanity to radically change current social paradigms; on the other hand it is difficult not to agree that, to properly understand an increasingly network-based societies, we need to get equipped with tools and approaches able to professionally look into the networks we are increasingly immersed in. The intriguing concept of network thinking, meaning the capacity to grasp the inner network nature of virtually all biological and social phenomena, is here to stay, and can bring serious benefits to many areas of society, including development cooperation.

Networks are complex and dynamic systems, whose understanding calls for a collaboration effort among different disciplines, being fundamental the mediation between humanistic and technological approaches. In line with this, the literature on networks is rather complex and multidisciplinary, with contributions from physics, management, political sciences, social sciences, computer sciences, innovation studies, telecommunication studies, and communication sciences⁵⁴. Networks definitions abound in literature, from the broad view of Sawhney and Parikh: “A network is a conduit for information; it can be as simple as two tin cans tied together with a string or as complicated as the Internet” (Sawhney and Parikh, 2001, p. 80) to the more pragmatic one of Castells, who states that a network “is constituted by the intersection of segments of autonomous systems of goals” (Castells, 1996, p. 171). For the purposes of this work, a network can be defined as, “a set of autonomous

⁵⁴ Literature from the *management field* suggests that the design and structure of an organization must reflect the complexity of its operating environment. Resource-dependence theory focuses on the process through which organizations reduce their environmental dependencies by using various strategies to enhance their own power within the system, for example by joining a network. Often, businesses will be forced to partner due to market pressures or environmental pressures; however, network theorists maintain that networks are voluntary organizations. Literature suggests that when cooperation is high and competition low, partners are pressed to merge; in some ways, organisations come together through networking to fulfil their common vision, but they still exist as separate autonomous entities. Thus, networks allow organizations to cooperate and co-develop while at the same time they keep the door open for competition (Child and Faulkner, 1998). *Economic perspectives* also contribute to network theory, especially in relation to change theory. Market-power theory suggests that organizations may collaborate to improve their position within their sector and thereby increase their market power, transaction-cost economics suggests that cooperation may lower transaction costs (Amalaya and Ebers, 1998). In contrast, agency-theory focuses on the relationship between agents, and more specifically, on the ability of the agents to reach their objectives. Finally, increasing-returns theorists suggest that the development of alliances and webs or systems enables some organizations to lock-in their consumers creating increasing-returns (Child and Faulkner, 1998). *Systems theory* suggests that a system must have sufficient variety to match the variety present in its environment, and that the relation between the parts is more important than the parts themselves (Capra, 1996). Self-organising systems are flexible structures able to reorganise into whatever structure best suits the environment around them, working on the development of self-knowledge, self-reference, and stability over time (Wheatley, 1999). *Political science* is another discipline that contributes to understanding networks. Bardach identifies networking as “activities by agencies intended to increase public value by having the agencies work together rather than separately” (Bardach, 1998, p. 8). Other contributions are Robert Putnam’s concept of social capital (Putnam, 1993) and the work by Gray and Wood on networks within international relations (Gray and Wood, 1991). *Community development studies* is another field where networks are increasingly considered. Gilchrist, who has done considerable work on networks and networking as aspects of community development, claims (2000) that networks “can be re-defined as enhancing people’s capacity to network both individually, collectively, and through social institutions” (p. 268). She also defines networking as the process by which relationships and contacts between people or organizations are established, nurtured, and utilized for mutual benefit within a community (Gilchrist, 1995).

organizations that come together to reach goals that none of them can reach separately” (Chisholm, 1998, p. xxi). Wellmann, one of the fathers of Social Network Analysis, argues (2002) that what is fundamental about networks is that the social relations⁵⁵ among the members are more important than the members themselves. Even if our work is concerned with social networks, meaning connected aggregations of individuals, groups and institutions, it is worth remembering that networks can be composed of any kind of “unity”, such as cells, persons, organizations, countries. Networks are assembled for a variety of reasons. First and foremost, since many current problems involve interconnected dilemmas that are difficult to conceptualize, analyse or solve, networks represent a response to complexity (Chisholm, 1998). Networks can enable organizations to cope with the turbulence and complexity of their environments as well as provide means to preserve individual or organizational autonomy while acquiring needed resources (Gray and Wood, 1991), and are facilitated by the increasing availability of ICT as well as the growth of available knowledge (Chisholm, 1998). On other grounds, microeconomic theories offer efficiency and reduction of transaction costs as a rationale for network creation, institutional theory consider networks as a means for gaining legitimacy and institutional influences, political theories provide power and resources as reasons for collaboration and networking.

To the simplest extreme, what networks do is collaborating. Some researchers refer to networks as collaborative partnerships defining these as “alliances among people and organizations from multiple sectors, such as schools and businesses, working together to achieve a common purpose” (Roussos and Fawcett, 2000, p. 360). Gray and Wood (1991) define collaboration as a process that allows different actors to understand different aspects of a specific problem and to constructively discuss their different views, searching for common

⁵⁵ Max Weber (1962) defines social relation as a reciprocal behaviour of a set of individuals with a social intention. Social relations may be classified in the following four types according to their mode of orientation: rational orientation to a system of discrete individual ends – that is, through expectations as to the behaviour of objects in the external situation and of other human individuals, rational orientation to an absolute value – involving a conscious belief in the absolute value of some ethical, aesthetic, religious, or other form of behaviour, entirely for its own sake and independently of any prospect of external success, affective orientation, especially emotional, determined by the specific affects and states of feeling of the actor, and traditional orientation, through the habituation of long practice.

solutions that can go beyond their limited visions. Chisholm (1998) identifies four network functions: creating and maintaining a vision binding partner organizations together, serving as a forum for dealing with complex development issues, identifying the importance of attitudes and perceptions for broad development, and providing ways of communicating. Bender-deMoll (2008), in his review of network studies, listing the different activities that networks run, distinguished among transmission networks which deal with material or immaterial flows, interaction networks which facilitate contacts and discussions, attributional networks which are based on statements and relationships, and affiliation networks, which deal with representation of actors in different groups. In terms of networks' organisational structures, while some researchers tend to emphasize the informal structures of interorganisational models of networks and partnerships, others identify formalized and centralized models. Nevertheless, a certain agreement exist on the fact that networks are horizontal rather than vertical organizations, in the sense that normally no member is superior nor subordinate to another, and that they are controlled and regulated by their members. In terms of networks evolution, networks are defined, to different extents, as self-regulating, responsive, and active to input from their surroundings. Several authors⁵⁶ have identified network life cycles, generally converging on the phases of network expansion, maintenance, formalization, migration, evaluation, and termination. Further, they suggest that networks can be successful if they identify a boundary spanner, secure attention of key stakeholders, respond to participation constraints, keep the structure simple, ensure incentives compatibility, ensure effective communication and information flows, develop an explicit evaluation strategy, and maintain momentum. An interesting conceptualisation of network evolution strategies is provided by Novak, who claims (2011) that collaboration is an additional mechanism for life evolution – along with natural selection and mutation – and therefore that the extent to which a network is able to collaborate can tell us how it will be able to evolve and prosper.

⁵⁶ See for example Mays et al. 1998, Dorogovtsev and Mendes 2003.

5.2 The science of networks

5.2.1 Starting points and definitions

The scientific community is paying increasing attention to the study of networks⁵⁷. “Very few people realize, however, that the rapidly unfolding science of networks is uncovering phenomena that are far more exciting and revealing than the casual use of the word network could ever convey. Some of these discoveries [...] open up a novel perspective on the interconnected world around us, indicating that networks will dominate the new century to a greater degree than most people are ready to acknowledge” (Barabási, 2002, p. 7).

Researchers agree that the beginning of the science of networks coincides with the Euler demonstration of the impossibility to cross the Königsberg’s seven bridges without passing twice by any bridge⁵⁸. More than the demonstration itself, what is important is the method used by Euler, since he represented the four land areas of Königsberg as four nodes, and the seven bridges as seven links between these nodes. *Graph Theory* was born: representing reality as a scheme made of nodes and links facilitated the demonstration in mathematical term of a general property of reality. Mathematicians followed Euler’s method until the middle of the 20th century to discover and catalogue common properties of different graphs and to solve problems including how to escape from a labyrinth or how to win chess games without passing twice by any square. In Graph Theory, entities such as persons, organizations, documents or concepts are usually referred to as nodes and the relationships between the nodes are called links, or ties, or edges. Sometimes links have directionality, sometimes not. For example, if node A gives money to node B, the *gives money*

⁵⁷ A collection of some of the most influential papers on networks is available in the 2006 volume “The structure and dynamic of networks”, by Newman, Barabási and Watts.

⁵⁸ In the 18th century in the German town of Königsberg, a favourite pastime was walking on the town's seven bridges on the Pregel river, and a recurrent question among intellectuals was: is it possible to walk on all the bridges by crossing each bridge only once? This question was solved by the Swiss mathematician Leonard Euler, who, looking at the bridge as a network of links among nodes, discovered that whether a network is traversable (meaning that we can move through all the nodes by touching them only once) depends on the number of odd vertices. Euler found that the only traversable networks are those that have either no odd vertices or exactly two odd vertices; since the Königsberg network has four odd vertices, it is not traversable. Therefore, it is not possible to take a walk over the bridges of Königsberg by crossing each bridge only once.

to relation would usually be considered a directional tie as it describes some sort of one-way flow. If two nodes are engaged in some kind of mutual exchange, as in *A collaborates with B*, the tie is bidirectional. In some situations, it is useful to describe relationships as having different strengths: some people give more money than others, some friendships are closer than others. When the links of a network have weights assigned to them, the network is called a weighted or valued network. In some cases, it is useful to assign names or labels to the nodes and links of a network: these are usually referred to as attributes. Regarding the way networks are represented, two distinct forms of display are mostly used: one based on matrices and one on points and lines.

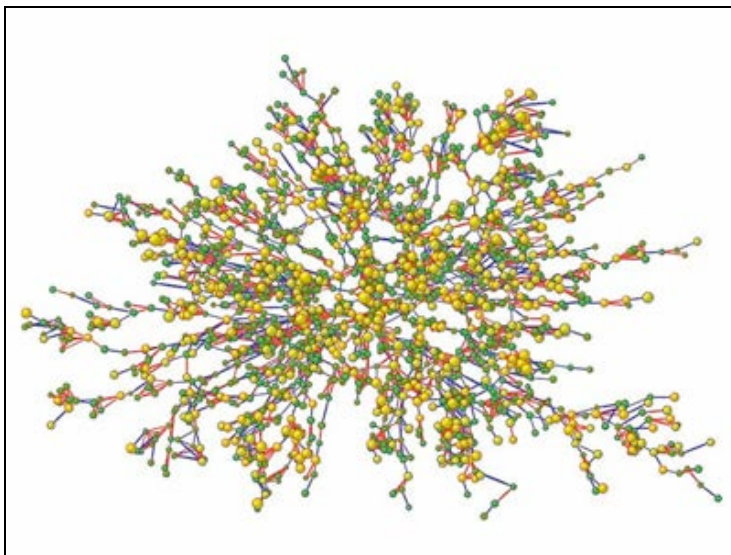


Figure 3 – Representation of a complex network⁵⁹ (Source: www.visualcomplexity.com)

Matrices display in rows and columns the connections among the different social actors and their characteristics, such as intensity or direction, while points and lines graphically represent the nodes and the connections among them. Starting from the 1950s, researchers began to use computer software to produce networks images; nowadays, thanks to the constantly increasing computational capacity, very detailed and dynamic visualisations are possible (see Figure 3), that show networks' distinctive properties and how they evolve over time⁶⁰.

⁵⁹ The graph represents the spread of obesity in a large social network and was developed by Christakis and Fowler.

⁶⁰ A review of the history of network visualisation techniques and tools is provided in Freeman, 2010.

5.2.2 Social Network Analysis: a short history of a young discipline

Network-based approaches can be used to analyse and understand many phenomena, from the human cell to the internet, from transport system to epidemic diseases. When network methodologies refer to relations among individuals and organisations we speak of “Social Network Analysis”, often shortened to SNA. Breiger defines Social Network Analysis as “the disciplined inquiry into the patterning of relations among social actors, as well as the patterning of relationships among actors at different levels of analysis, such as persons and groups” (Breiger, 2004, p. 1). SNA is a multidisciplinary approach that encompasses sociologists, psychologists and anthropologists as well as mathematicians and physicists. What SNA does is to make quantitative investigations of behavioural patterns, focusing on relational aspects of society, with less attention on individuals’ attributes (Scott 1992, Wasserman and Faust 1994). In other words, social network analysis is focused on uncovering the patterning of social actors’ interaction (Freeman, 2004).

Social Network Analysis took its first steps in the 20s out of the work of two very different intellectuals: Jacob Moreno, father of sociometry and of psychodrama⁶¹, and Alfred Reginald Radcliffe-Brown, initiator of the social structuralism school⁶². In the period going from the 30s to the 60s, the discipline entered into what Freeman (2004) describes as the dark age of SNA, a period in which, despite the activities of a number of research groups, network research was not able to reach a scientific audience broad enough to provide a generalized paradigm for social network analysis. In this period the discipline developed through two parallel research strands. In the Manchester school of anthropology, a group of researchers directed by Max Gluckman started to pay attention to the properties of the relations among actors in their fieldworks; in the Massachusetts Institute of Technology, where Ithiel De Sola Pool started introducing concepts that a few years later would have been at the centre of the

⁶¹ Freeman (2004) claims that there is practically no idea or practice in contemporary Social Network Analysis that is not present in some form in Moreno's *Who Shall Survive* (1953).

⁶² Radcliffe-Brown and his school were the first to look at society from a relational perspective. See Radcliffe-Brown, 1940.

SNA debate, such as the one of small worlds. The discipline lived a sort of *renaissance* in the 70s in Harvard, where a group of scholars under the guide of Harrison White started to focus on the structure of networks rather than on their content. Abbott describes White “as a man who has started sociological revolutions, introduced new techniques, and trained one of the finest groups of students in the discipline” (Abbot 1994, quoted by Freeman, 2004, p. 139), including Berry Wellman, who later on founded the International Network of Social Network Analysis (ISNA). According to White’s research group, the structure of social relations largely determines their contents, while individual behaviour is interpreted in terms of structural constraints on action rather than in terms of initiative, all of this being analysed with strong mathematical sophistication. Freeman (2004) claims that thanks to the work of this group, by the end of the 1970s Social Network Analysis was universally recognized as an independent field within social sciences.

A few milestone contributions have made the history of SNA. Paul Erdős, in cooperation with his fellow Renyi, contributed a first radical input by trying to answer to the probably most fundamental question about networks: *how do networks form?* His theory, of which we will omit the mathematical demonstration, is that networks, despite of the complexity that they might reach, are formed in the simplest possible way, that is randomly. The “random network theory”, introduced in 1959, dominated scientific thinking for a couple of decades: if a network is too complex to be captured in simple terms, the only way to possibly describe it as random. Moreover, Erdős noted something important on the dynamic of random networks: if we start adding connections within a large network where just a few nodes are connected to each other, we will reach a “phase transition” towards a situation where most of the nodes are linked into a connected network, or “giant component”. Phase transitions, as we will see later, are fundamental moments in the development of any network. Experience shows that real-life social networks are far from being purely random, therefore some criticisms to the random network theory started to emerge. An important contribution came from Anatol Rapoport, who, building on the concept of homophily, that is the human tendency to associate with similar peers, demonstrated that social networks tend to evolve in such a way

that groups of connected nodes will tend to *close the circle* among themselves (Rapoport, 1957). This model, called “random-biased network”, showed that networks do grow by following some predictable properties. Watts notes (2003) that “the more context people share, the closer they are, and the more likely to be connected. Social beings, in other words, never actually start out on a *tabula rasa* [...] because they possess social identities. By belonging to certain groups and playing certain roles, individuals acquire characteristics that make them more or less likely to interact with one another. Identity, in other words, drives the creation of social networks” (p. 116).

Another fundamental contribution was provided in 1967 by Stanley Milgram, the father of the well-known theory of the six degrees of separation. Milgram affirmed that most of existing networks are *small world networks*, where nodes are separated from each other just by a few links. This theory, which was grounded on a famous experiment which was aimed to find the “distance” between any two people in the United States and which re-took the idea of the “cliques” developed in the 1950s by the Harvard school (Scott, 1992), was proved true by a number of empirical experiments in different contexts⁶³. Amazingly enough, virtually every network seems to obey to the “small world rule”: molecules in the cell are separated by an average distance of three chemical reactions, university professors in different fields are separated by four to six paper co-authorship links. The small world theory is as interesting as highly misleading, since it suggests that nodes that are relatively close are easy to find; this is not the case if you do not know which is the path to follow in order to reach the desired node. The same methodology was applied by Barabási in 1999 to the World Wide Web, with the impressive results that every

⁶³ “By studying billions of electronic messages, scientists worked out that any two strangers are, on average, distanced by precisely 6.6 degrees of separation. In other words, putting fractions to one side, you are linked by a string of seven or fewer acquaintances to Madonna, the Dalai Lama and the Queen. [...] Researchers at Microsoft studied records of 30 billion electronic conversations among 180 million people in various countries, according to the Washington Post. This was ‘the first time a planetary-scale social network has been available,’ they observed. The database covered the entire Microsoft Messenger instant-messaging network in June 2006, equivalent to roughly half the world’s instant-messaging traffic at that time. Eric Horvitz and fellow researcher Jure Leskovec considered two people to be acquaintances if they had sent one another a message. They looked at the minimum chain lengths it would take to connect 180 billion different pairs of users in the database. They found that the average length was 6.6 hops, and that 78 per cent of the pairs could be connected in seven steps or fewer. But some were separated by as many as 29 steps” (Smith, 2008).

single of the more than 800 million existing webpages was linked to any other page by just nineteen degrees of separation. “While surfing you might have a different impression, in reality the web is a small world. Any document is on average only nineteen clicks away from any other” (Barabási, 2002, p. 34).

A further important input came from Mark Granovetter, who demonstrated, in its 1977 paper “The strength of weak ties”, that in many situations, such as news spreading or job search, acquaintances or “weak links” are more important than or closest friends or strong links⁶⁴. By proposing this theory, Granovetter designed a completely different networking model with respect to the random network proposed by Erdős: he envisaged a society made of clusters weakly connected among each other, where nodes are therefore not connected randomly.

It took almost thirty years for the random networks theory and the weak ties theories to be reconciled. Duncan Watts, starting from the problem of crickets chirping synchronisation, was able to propose a way to measure the level of clustering of a network (Watts and Steven, 1998). Also in this case, a number of empirical experiments, supported by the improved computational capacity with respect to Erdős times, showed that clustering seems to be a common property across social networks. This theory adds to the small world model the existence of some few mathematically calculated long links, which somehow connect clusters of nodes and are therefore able to radically cut the distance between every node in the network. Watts proved (2003) that adding just five long-distance links could reduce the average nodes distance of one-half, regardless of the dimension of the network.

This model, combining the random logic of Erdős with the realistic existence of few weakly connected clusters, was soon enriched through the concept of network hubs: by analysing the existing connections among a number of webpages with massive use of computer calculation, Albert-Laszlo Barabási demonstrated (2002) that most of the analysed webpages were referenced by an average of other ten pages, while a very small number of them (three out of 203 millions) were referenced by almost a million other pages. These pages, such as

⁶⁴ The principle below this theory is that our friends are often friends with each other as well, and therefore tend to create clusters, while weaker ties are able to create connections beyond existing clusters.

Google or Amazon, represent the hubs of the network. This presence of hubs was proved in many different kinds of networks⁶⁵ as “ubiquitous, a generic building block of our complex, interconnected world” (Barabási, 2002, p. 63). Networks characterized by the presence of hubs are defined “scale-free networks”, and seem to obey to different laws with respect to random networks. As shown in Figure 3, the degree distribution of random networks follows a bell curve, where most of the nodes have the same number of links and no node has a large number of links, while scale-free networks follow a power-law distribution, where most of the nodes have a few links and a few hubs have many. “Connectors [...] are fundamental property of most networks. This discovery has turned everything we thought we knew about networks on its head. [...] Accounting for these highly connected nodes requires abandoning once and for all the random worldview” (Barabási, 2002, p. 56).

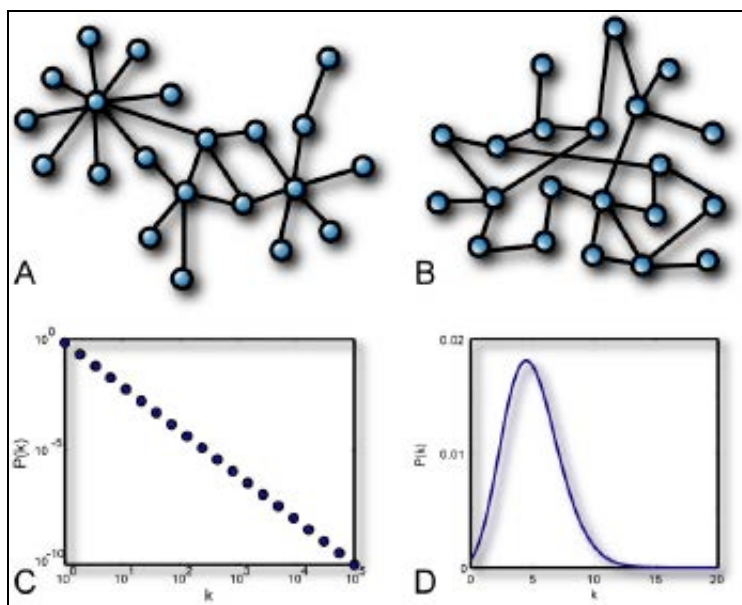


Figure 4 – Random networks (A and C) vs. scale-free networks (B and D).

(Source: <https://nwb.slis.indiana.edu/community>).

⁶⁵ Such as the network of Hollywood actors through the famous Kevin Bacon game that tried to show that Kevin Bacon was at the centre of the Hollywood universe, see <http://oracleofbacon.org>.

The two distributions in Figure 4 can be considered not only as representing different kinds of networks, but also different moments in the life of the same network. This intuition, which won to Kenneth Wilson the Nobel Prize in 1982, reveals something about the behaviour of networks. Wilson demonstrated, through his theory of normalisation, that when a network is forced to undergo a phase transition, for example with the creation of some hubs, inevitably its distribution turns from a bell curve into a power law curve (Wilson, 1979). If we consider that virtually all systems in nature obey to bell curves⁶⁶, this theory suggests a way through which networks move from chaos to order by organising themselves. All networks can be brought to a critical point at which they start to self-organise, abandoning random behaviour and starting to follow power-laws (Strogatz, 2003). An example is again the World Wide Web, which started as a network of servers randomly connected to move, with the creation of a number of highly connected hubs, into a system that responds to a power law. Empirical evidence shows that economic, biological, mathematical networks tend to respond to this transition phase law (Barabási, 2010).

A last important contribution comes from Nowak (2001) who, looking at networks from a biology evolution perspective aiming at demonstrating the importance of cooperation for life reproduction, has discovered a few properties that define how networks evolve in relation to their structure. He went as far as defining a single coefficient that specifies the relative rate at which like-minded players tend to meet within a network, and therefore the probability that cooperation can flourish or that competition can appear. These discoveries in terms of cooperation mechanism tell us what is behind the decision by a member of a network on whether to adopt a cooperative or a non-cooperative behaviour, and put these decisions in relation to the network structure and properties, opening the way for further research in the field of “evolutionary graph theory”. This research line focuses on developing empirical models that, “using observations from a single network, at a single point in time, in combination with information on the characteristics of the participants, can be used for predicting features of the network that would arise

⁶⁶ To make an example around 99% of the earth adult population is between 150 and 200 cm tall, with very few exceptions outside these limits.

in a population of agents with different characteristics or different constraints” (Christakis and Fowler 2009, p. 1), and opens important research possibilities through Strategic Network Evolution Models (Toivonen et al., 2009) and Actor Based Models (Snijders, 2005). These models tend to look at networks as groups of actors defined by a fixed set of characteristics, whose development is driven by a combination of chance, through randomly arising opportunities for the formation of links, and choice, in the form of optimal decisions by the actors whether to establish the potential links. In the last years, evolutionary graph theory has demonstrated, among other things, that links within networks are associated with correlations in outcomes, showing for example that changes in weight of an individual is a predictor of weight changes among her/his friends, or that certain network configurations are correlated with improved group performance (Christakis and Fowler, 2009).

To summarise the way SNA has evolved as a science, we will use the words of Freeman: “According to Mullins and Mullins (1973) fields are developed by a process of diffusion. A new perspective emerges at a certain university. Students at that university are trained in that perspective. They complete their training and go on to find jobs at other universities. In turn, they expose a new generation of their own students to the perspective, and in that way the perspective is spread. But that kind of process does not seem to have been operating in the case of social network analysis. The social network perspective apparently was developed in a number of different disciplines, at a number of different universities located in a number of different countries. Then [...], people from different fields and different traditions have learned to work together in pursuit of a common goal” (Freeman, 2004, p. 176). Today SNA is a recognised discipline with its own international organization, the International Network for Social Network Analysis; a number of texts on SNA have been published in several languages and a number of softwares designed specifically for the analysis and display of social networks exist. In the last years, especially thanks to the interest that SNA has raised among the scientific community of physics scholars, papers focusing on SNA problematics have been published in high-prestige journals, like Nature or Science. As noted by Newman, Barabási and Watts (2006), the science of networks is today increasingly focusing on real-

world cases rather than on abstract networks models, and at the same time it is concentrating on the developments of networks over time and not only on their shape and properties, looking at networks as dynamic systems where each component influences and is influenced by the network structure.

In our opinion the discipline, after a period of self-definition where its boundaries, philosophy and working language of the area have been worked out⁶⁷, is taking its place in the realm of applied sciences and is, at the same time, getting attention by non-specialists and by policy makers, due to its capacity to describe our world in a new way and to somehow foresight the future through the analysis of possible developments of the many networks that constitute our society. In particular, SNA and networks mapping methods are applied in a number of non-academic fields, from business to policy consultancy (Berkowitz 1982, Buchanan 2002, Otte and Rousseau 2002, Durland and Fredericks 2007). Organizational Network Analysis is for instance increasingly been used by management consultancies⁶⁸ to support reorganisation of companies, to track how various branches of an organisation coordinate with each other or to map information flows within organizations: who knows what, who seeks advice from whom, and where information resides. Agent-Based Modelling uses network analysis for producing models or simulations to understand various processes and to make predictions, through computer simulations where a large numbers of agents follow relatively simple rules for interacting with one another. Power Mapping and Power Analysis are techniques used in policy advocacy and in opinions survey for creating shared representations of the relative power relations between entities, collecting participants' views of power structures and representing the complexity through simple graphs able to focus on the most important relationships. In all these fields, SNA is appreciated for its capacity to capture the relationships among actors and to define what lies behind them, describing networks within their contexts. "SNA is more about telling the story of a network with quantitative tools than it is

⁶⁷ Including some critical views, such as the one provided by Monge and Contractor, 2003.

⁶⁸ Cross and Parker (2004) give a good overview of their experience working with a number of organisations facing integration and collaboration challenges.

about summarising, organising, and determining influences” (Durland and Fredericks, 2007, p. 33). Nevertheless, as we will see in the next chapter, “few development project plans [...] make any reference to [these] theoretical perspectives on how development projects work, or don’t” (Davies, 2003, p.11).

5.2.3 General networks properties and key concepts

Although each network has its own peculiarities and characteristics, empirical studies show that some generalised rules on social network dynamics exist (Newman, Barabási and Watts, 2006). We will present here some of these general properties together with some concepts often used by SNA researchers. A first important common property is that, *unless some restrictive conditions exist, networks tend to grow*. Even if during its lifecycle a network may lose some nodes, the general assumption, which has been proved by empirical analysis, is that networks tend to add nodes to their constituency. Networks have a tendency to expand by adding nodes following some general properties, the main being preferential attachment. In statistical terms, a new node will have more probabilities to be linked with highly connected nodes, following a “rich gets richer” pattern, also known as the Matthew law⁶⁹. Of course, in real life this rule must deal with the finite nature of all networks and with the cost, in terms of money, time, or commitment, of connecting to a specific node, and must therefore be considered on a case-by-case basis. Further, new nodes tend to connect with nodes that share some similarities in terms of context, in a sort of affiliation pattern. In social network sciences, it is broadly accepted that each member of a network belongs to many different contexts that constitute her/his social identity: by belonging to different groups such as a church, a political party, a local community, an industrial sector, or a project, individuals are set with characteristics that guide the way they connect with other individuals or groups. These observations enable to somehow predict the way a specific network will grow and can be used to guide the network development. Another

⁶⁹ This rule seems to be true since the Bible times, when evangelist Matthew wrote: "For everyone who has will be given more and he will have abundance. Whoever does not have, even what he has will be taken from him" (Matthew 25:29, quoted in Watts 2003, p. 108).

property, which is valid mostly for networks among individuals, has to do with the *dimension of networks*. Although in real life social networks go from extremely small to very large constituencies, some evidence suggests that the typical size of a social network tends to stabilize at around 150 members. This discovery, proposed by Dunbar (that is why 150 is called Dunbar number) arises from sociological and anthropological research around the maximum size of a village, and it is grounded on the limited social possibilities of human beings. Evolutionary psychology suggests in fact that the number of 150 may represent some kind of limit of the average human ability to recognize members and track emotional facts about all members of a group. A final important common trait among networks deals with the *homophily (love of the same) of nodes*. Granovetter (1983) noted that, even if an actor may only be able to establish a few strong ties due to possible constraints of human communication channels, more numerous weak ties can be important in seeking information across a network. Groups of strongly connected nodes have a tendency to share homogeneous opinions as well as common traits: however, being similar, each member of a group would also know more or less what the other members know. To find new information or insights, it will be important to look beyond the group through weakly connected nodes.

A few concepts are often used by SNA specialists to define the characteristics of a given network⁷⁰. *Density* is defined as the relation between the number of connections within a network and the maximum possible number of connections. It varies from 0 when there are no connections to 1 in the case of a network where all members are connected: in dense or highly connected networks each node has a very large number of connections, and tends to be linked to most of the other nodes in the network, in low-density networks it is still possible that some nodes have many connections, but overall most of the nodes are not tied to one another. *Openness* defines how much a network is open to the external world. A network is fully open if it allows any external actor to join by connecting to any network node; on the contrary, it is close if it

⁷⁰ Some of these concepts will be used in chapter 4 to describe the dynamics of the network analysed in the case study.

is not possible to join the network; further, rules can exist on how new nodes can join the network, resulting in different levels of openness. The concept of *Distance* indicates the number of steps that are needed to move from one node to another, along the links of the network. The neighbourhood of a node is the group of other nodes that can be reached by searching a very small distance along the network, and are perhaps even directly linked to the source node. Networks that have dense local neighbourhoods are described as having a high degree of clustering. *Centrality* refers to a specific node: the more a node is connected to other nodes, the more it is central with respect to the network. The measure of centrality is given by the relation between the number of connections of a specific node and the whole of the network connections; this concept allows expressing how much a node is well connected and integrated within the network. The level of *prestige* of a node is given by the relative capacity of the node to attract new coming nodes. This measure, although being somehow subjective and depending on the characteristics of new nodes, is very important in SNA since it can help anticipating the development of networks. Normally, the more a member is central and close to other members the more prestige it has. This property is often referred to as *fitness*: each new node “decides” where to link depending on the connectedness fitness of all available nodes. *Intensity* refers to a connection between two nodes: each link can be more or less intense, in terms for example of quantity of information shared, trust, or any characteristic the analyst might be looking for, depending on the analysed network. In social networks, most of the times connections with low intensity are as important if not more important than strong connections, since they are more flexible and able to adapt (Powell and Smith-Doerr, 1994). Sometimes, like in the case of software development communities, a high number of loose connections are able to create extremely stable and durable networks.

A key concept in networks is *trust*. Sydow (1998) notes that trust is assumed to support collective strategies, facilitate coordination of economic activities, promote information exchange, ease conflicts and reduce transaction costs. Building trust is one of the keys to stabilise networks as well as to making change possible, as well as a rather common challenge within social network. Child and Faulkner (1998) suggest there are three phases in trust development among network members: calculation, which is characterized by “being

prepared to work with you”, mutual understanding, characterized by “getting to know about you,” and bonding, meaning “coming to identify with you”. Kelly focuses on the delicacy of trust: “It can’t be bought. It can’t be downloaded. [...] It can only accumulate very slowly, over multiple iterations. But it can disappear in a blink... Trust is tough because it is always linked to vulnerability, conflict and ambiguity” (Kelly, 1998, p. 133).

Communication patterns are also very important. Given the centrality of information and knowledge in networks’ activities, the way nodes communicate among themselves is very important. Generally, three kinds of communications exist: one-to-many, as in broadcast models such as TV or radio, where the value of the network increases in parallel with the number of users, one-to-one, as for example in telephone or peer-to-peer networks, where the value grows with the number of users, and many-to-many, as for example in Web2.0 platforms where any user or group of users can theoretically be in touch with any other user or group.

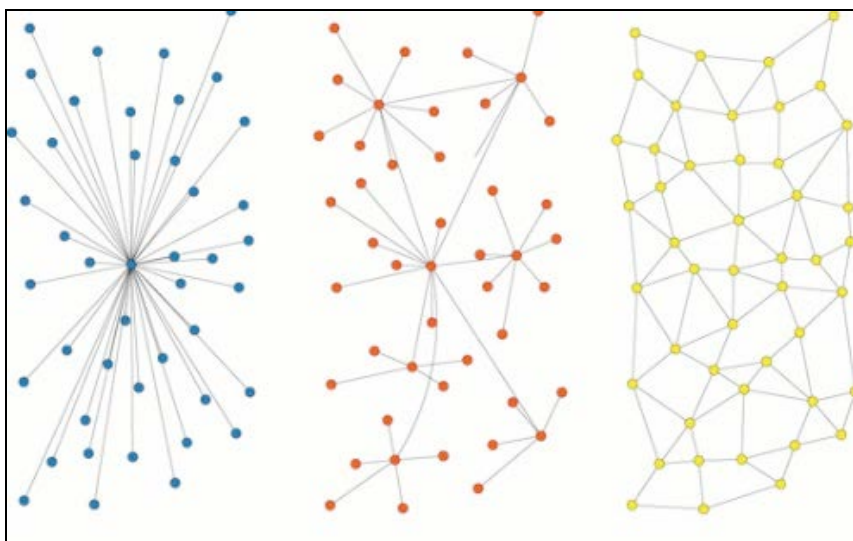


Figure 5 – Three paradigmatic examples of network topology: centralised, decentralised and distributed networks. (Source: www.netaffair.org)

Each social network is a unique entity, where nodes and connections respond to many of the above concepts, resulting in a unique and dynamic aggregation of properties. For matters of simplicity, however, some categorizations are guiding the SNA specialists: the diagrams in Figure 5, taken from the classic work of Paul Baran in the 1960s, shows three classical network topologies: centralised,

decentralised and distributed networks. As we will see during the analysis of the case study in chapter 6, these different typologies do not only represent possible developments of different networks, but can also reflect the shape of a given network in different moments of its history.

5.3 Knowledge management within networks

Knowledge is the main asset of development networks, and it is through knowledge exchange that donors, practitioners, and target communities of a given development action can increase the social value of their activities in a long term perspective (Nascimbeni, 2010). Knowledge management within social networks deals with facilitating opportunities to combine the competencies of the network nodes in order to create new knowledge that can ultimately guarantee a return for the network members and sustained success for the network. In this sense, the management of knowledge within networks is an evolutive process, comprising the phases of knowledge generation/construction, knowledge dissemination, knowledge use, knowledge embodiment and knowledge storage (Schultze, 2006). Within networks, “knowledge is not a thing or a system, but an active process of relating, the property of ongoing relational interaction” (Introcaso, 2007, p. 96).

Knowledge management practices must adapt to the specificities of networks, taking into account the importance, within networks, of tacit and implicit knowledge and the difficulty of quantify, codify and document it (Gillwald, 2004). Even if the predominant approach towards tacit or implicit knowledge is to try to convert it to a form that can be handled using traditional management approaches, a number of spontaneous new approaches are starting to appear, especially among communities of practice (Wenger 1998, Duguid 2005), which focus on providing an environment for people to develop knowledge through interaction with others in an environment where knowledge is created, nurtured and sustained. The ability to bring to the surface implicit assumptions, and the role that this can play in developing a shared understanding around specific issues, is perhaps one of the best means of building an appreciation of

what is tacit without going through the effort of making it explicit. Being able to manage and transfer tacit knowledge within a network can represent a strong competitive advantage. The knowledge and capacities of all network members should be identified as precisely as possible in order to combine existing distinctive competencies it to a desired result; missing parts have to be developed internally or generated from outside the network (Nonaka 1993). claims that explicit knowledge is easily expressed, captured, stored and reused; it can be transmitted as data and is found in databases, books, manuals and messages. In contrast, tacit knowledge is “highly personal, hard to formalize and therefore difficult to communicate to others, deeply rooted in action and in an individual’s commitment to a specific context, it consists partly of technical skills [and partly] of mental models, beliefs and perspectives so ingrained that we take them for granted and cannot easily articulate them” (p. 98). Tacit and explicit knowledge are mutually complementary entities, which interact with each other in the creative activities of human beings, that is, finally, a knowledge exchange process. This process consists of four stages: socialization, when knowledge is transferred through observation, imitation and practice; externalization, triggered by dialogue and relying on the capacity to translate tacit knowledge into documents and procedures; combination, which is about reconfiguring explicit knowledge-bases by combining and categorising processes, and finally internalisation within the network (Nonaka, 1993). Further, tacit knowledge is very important to build a background context for explicit knowledge to acquire a specific value (Duguid, 2005).

In order to apply these reflections to the development field, we need to look at the role that knowledge, considered as a valuable good, is playing in developing networks and at how this role has been changing in the last decades. When cooperation was concentrated on infrastructure and economic restructurations, the role of knowledge was mostly ancillary and mainly linked to capacity building, conducted to improve the skills of aid beneficiaries. With the raise of the Human Development paradigm, the importance of sectors such as education and health increased within development processes, bringing knowledge at the centre of the process. To achieve this, and more generally to foster knowledge exchange within networks, ICT plays a fundamental role,

since it can uncap the potential of knowledge for development by making it storable, replicable and sharable (Panos Institute 1995 and 1998, Heeks 2005, Roman and Colle 2001, Prada 2005, Batchelor et al. 2005, Finquelievich et al. 2009). To be successful, technology must be able to make the implicit visible (Nascimbeni, 2007a).

6. @LIS: a SNA evaluation of a development network

"Through the @LIS network we have overcome barriers, showing that it's not only about the spoken words but also about understanding and accepting different cultures.

The network has amplified the success of the project, and has allowed to push for the use of ICT for environment problems throughout Latin America."

@LIS partner, 2005

"The very insufficient networking of the @LIS actors may have sent out an erroneous message of lack of coherence with the essence of the programme, which is precisely the networking of society."

European Commission, 2008

6.1 The @LIS Programme

6.1.1 Contextual elements⁷¹

Building on a collaboration which dates back to the very first migration flows of the 18th Century, today the European Union is the first donor, the first foreign investor and the second trade partner of the Latin American region⁷². Despite of the positive development dynamics of Latin America⁷³ and of the presence in the region of fast-growing economies such as Argentina, Brazil or Chile, when it

⁷¹ Since the case study that we will analyse is a multilateral Europe - Latin America cooperation programme in the field of Information Society, we are hereby providing some contextual information on the relations between the two regions.

⁷² A detailed description of the relations between the EU and Latin America can be found at http://ec.europa.eu/external_relations/la/index_en.htm.

⁷³ According to the 2010 World Economic Outlook of the International Monetary Fund, the LA region is, on average, the richest in the developing world, with an estimated average GDP per capita of more than USD 11.000 in 2010 and with an expected economic growth rate of about 5.7% for 2010 and 4% in 2011 (International Monetary Fund, 2010).

comes to bilateral relations and development cooperation, the EU tends to consider Latin America as a developing region, mainly because of its high levels of socioeconomic inequality⁷⁴. When talking about relations between the EU and Latin America, it must be noted that the very concept of Latin America is a simplification adopted by the EU to ease its relational scheme with the countries of the region⁷⁵. In fact, despite the integration efforts that have taken place in the last fifty years (Guerra-Borges, 2002) and despite the recent raise of the Union of South American Nations (UNASUR) as a sub-regional community (Seabra, 2010), a real Latin American regional block able to negotiate with the EU does not yet exist. On the other hand, the concept of EU-Latin American cooperation refers to a spectrum of collaboration schemes that go from bilateral country-to-country relations such as France-Mexico, to region-to-country relations such as EU-Brazil, to region-to-subregion relations such as EU-Mercosur, to region-to-region relations. Furthermore, it must be noted that the European Commission has established special cooperation schemes with international organisations acting in Latin America, such as the UN Commission for Economic Development of Latin America (CEPAL) and the Interamerican Development Bank⁷⁶.

Bi-regional relations between the European Union and the Latin American region⁷⁷ are based on a so-called “Strategic Partnership”, established in occasion of the first bi-regional EU-LAC⁷⁸ Summit in Rio de Janeiro, Brazil, in 1999. This dialogue scheme is a framework for all the levels described above: regional, sub regional and bilateral cooperation. The Strategic Partnership is regularly reaffirmed through Summits of EU, Latin America and Caribbean leaders and through meetings at Ministerial level between the EU and the Rio Group, an

⁷⁴ In the period 1950-2000, despite the fact that extreme poverty was halved from 60% to less than 30%, income inequality in Latin America remained more or less the same (World Bank, 2006).

⁷⁵ For a broad analysis of the concept of Latin America see Rojas Mix, 2006.

⁷⁶ See the European Commission External Relations website <http://www.eeas.europa.eu>.

⁷⁷ Covering the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela.

⁷⁸ LAC refers to Latin America and the Caribbean. The Caribbean region is involved in the Strategic Partnership, especially because of the cultural proximity of Cuba and the Dominican Republic with Latin America. On the other hand, most of the Caribbean countries are part of the ACP Group and therefore fall out of the EU-LAC development cooperation scheme.

international organization of Latin American and Caribbean states created in 1986. In terms of policy priorities, the EU position towards Latin America is defined in the European Commission's Communication "EU-Latin America: Global players in Partnership", adopted by the European Parliament in 2009 following a number of negotiations between European and Latin American and Caribbean countries, that updates the Communication "Stronger Partnership between the European Union and Latin America" of 2005. As for all international partner regions such as Asia or Africa, the political priorities agreed by the Heads of States and Governments within the above Summits are then detailed in multi-annual Regional Strategy Papers: the actual paper targeting Latin America covers the period 2007-2013 and defines the following specific areas for regional development cooperation programmes with Latin America: social cohesion and fight against poverty, inequality, exclusion, and drugs, regional integration and economic cooperation, human resources and mutual understanding between the EU and Latin America.

6.1.2 Description of the @LIS Programme

The @LIS Programme⁷⁹, its acronym meaning *Alliance for the Information Society*, was a regional programme⁸⁰, directly resulting of the 1999 EU-LAC Rio de Janeiro Summit, where the promotion of the Information Society was adopted as a priority of the EU's cooperation policy with the LAC region. The genesis of the programme followed what can be considered a rather usual European Commission *iter* of development actions: a Programme Fiche and a budget

⁷⁹ It is important to specify that throughout this chapter we will always refer to the @LIS Programme that run from 2002 to 2006. In 2008, a second phase of @LIS has been launched: this second phase will not be taken into account in the present work since it is too early for any analysis and since it is radically different from the first phase. More information on this second phase can be found at http://ec.europa.eu/europeaid/where/latin-america/regional-cooperation/alis/index_en.htm.

⁸⁰ Starting from the 1990s, the European Commission launched a number of programmes in parallel with its bilateral and sub-regional cooperation operations to develop relations between Latin American and European actors and to contribute to the integration process of the region. Apart from @LIS, these programmes were AL-INVEST, funding meetings among Small and Medium Enterprises from the two regions, ALFA, supporting cooperation between higher education establishments, URB-AL, facilitating exchanges between local authorities, ALBAN, developing training for high-level officers, and EUROSociAL, fostering social cohesion in issues such as education, health and employment.

assignment went through a number of approval steps within the European Commission and within the European Parliament, and eventually the programme was officially adopted by a decision of the European Commission on the 6th December 2001. The design and the intervention logic of the programme were based on the experience of EUROLAT-IS⁸¹, a previous programme on the same theme, and on a specific feasibility study, and were therefore able to take into account a number of important issues for EU-Latin America cooperation in the Information Society as well as “a set of evident problems⁸² that hindered the balanced and equitable development of the Information Society” (European Commission, 2008). Generally speaking, all European Commission development actions, both the ones directly managed from Brussels and the ones run by external actors, are prepared and launched by the EuropeAid Office, which responds directly to Directorate General External Relations (DG RELEX). In the case of @LIS, due to the fact that within the European Commission a Directorate General in charge of Information Society (DG INFSO) exists, once the general *Action Fiche* was drafted by DG RELEX, the programme was designed in its structure in cooperation between EuropeAid, DG RELEX and DG INFSO⁸³. Following the launch of the programme, the responsibility over the programme stayed with EuropeAid, while DG INFSO worked as an expert body being mainly in charge of the organisation of some strategically and politically important @LIS components, such as the EU-LAC Ministerial Fora on Information Society. Even if this apparently complicated management scheme was smoothly managed by the involved European Commission services, through rather frequent contacts

⁸¹ EUROLAT-IS: A Working Group to Boost Euro-Latin American Joint Activities in Industrial and Societal Applications of IST, see http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=56882.

⁸² These issues are listed in the @LIS Final Evaluation Report: “a digital gap that, although decreasing, continued to show rural zones that were excluded from taking advantage of ICTs, governments immersed in the “fashion”, but far from establishing in-depth strategies that took on the problem as a whole, privatisation and market opening processes that favoured connectivity, but which played with the prices of services, given the lack of harmonised regulations in the region, poorly developed distance education schemes, despite the existence of open source tools that fit their budgets; and a Latin America with isolated efforts in development and innovation, for want of the internal integration of research centres and given the high costs of technologies and the impossibility of accessing them (when they existed) due to a lack of secure, high-definition connectivity that was exclusive” (European Commission, 2008).

⁸³ The reason for this *tripartite* management structure of the Programme is that, within the European Commission, the specific policy dialogue on Information Society is managed by DG INFSO.

between the EuropeAid and the INFSO teams in charge of @LIS, it also brought to some complications, due to the fact that, as we will see later, the two involved DGs do have different *cooperation agendas* with Latin America.

The total budget of @LIS was of 77.5 millions Euros, of which 63.5 millions were financed by the European Commission and the rest was co-funded by the beneficiaries of the programme. Considering that for the period 2007-2013 the EU assistance to Latin America amounts to around 3 billions Euros and that for the same period the European Investment Bank was authorized to lend up to 2.8 billions Euros to the Latin American region, @LIS looks relatively small. At the same time, in comparison with other regional programmes, the effort to fund EU-Latin America cooperation in the Information Society through @LIS can be considered rather substantial⁸⁴.

@LIS had the aim of promoting the benefits of using information and communication technologies in Latin America, fighting against the digital divide and creating a long-term partnership between European and Latin American countries in the field of Information Society. To reach this aim, five specific objectives were designed: to facilitate the integration of the Latin American countries in a global information society, to promote the dialogue and the cooperation among all actors of the information society, to interconnect Research and Development communities in both regions, to meet the needs of local communities and citizens as part of a sustainable development process and to implement innovative applications that are duplicable, such as computer programmes, the installation of material or the set up of networks.

⁸⁴ For the same period of @LIS, the ALFA Programme had a budget of 27 millions Euros and AL-INVEST of 40 millions Euros.

HORIZONTAL ACTIONS				
Policy and Regulatory Dialogue	Dialogue on Norms and Standards	Latin America Connected with Europe	International Stakeholders Network	Latin America Regulators' Network
DEMONSTRATION PROJECTS				
e-Government (4 projects)	e-Inclusion (5 projects)	e-Learning (6 projects)	e-Health (4 projects)	

Table 2: Synopsis of the @LIS Programme.

As in Table 2, @LIS was structured along five horizontal actions and 19 demonstration projects. Most of the @LIS actions started its operations at the end of 2003 and ended at the end of 2006.

The five horizontal actions had a strong networking and dialogue nature. The Policy dialogue, managed by the UN Economic Committee for Latin America and the Caribbean (CEPAL), wanted to contribute to the establishment of a shared political strategy for the development of the Information Society in Latin America, at national sub-regional and regional level, with a focus on social cohesion. The Dialogue on Standards, implemented by the European Telecommunications Standards Institute (ETSI), wanted to promote cooperation in the field of ICT standardisation, to facilitate the integration of the Latin American region in a global Information Society by supporting the adoption of global and open standards and allowing economies of scale and interoperability between both regions. The aim of the Network of Regulators, managed by REGULATEL, the Latin American Association of Telecommunication Regulatory Authorities, was to strengthen the exchange of information and experiences among telecom regulators and other related bodies from Europe and Latin America and to improve independent regulation in the telecommunications sector in the region. The Network of interconnectivity, also

known as America Latina Interconectada Con Europa (ALICE), worked towards the creation of RedCLARA, the first Latin American research and education network, interconnecting 12 national high-speed networks across the region and connecting them to Europe and other world regions. The Network of Stakeholders, called @LIS International Stakeholders Network (ISN), aimed to strengthen the impact of the @LIS Programme by creating a sustainable partnership between all involved stakeholders including national and regional policy makers, local authorities, educational bodies, no-profit organizations, private sector and civil society actors in both regions. This action was implemented by a consortium coordinated by the MENON Network and composed by the Universidad Politecnica de Madrid, the Association for Iberoamerican telecommunication companies (AHCJET) and a NGO called VECAM.

The majority of the @LIS budget was devoted to support 19 Demonstration projects. The @LIS projects were not research projects aiming at producing innovative tools and results, and neither development projects aiming at improving the conditions of some specific target groups. They were somehow in the middle: with the term “demonstration project” it was meant that each project had to demonstrate, in line with the needs of the target groups, how the use of ICT solutions could improve the socioeconomic conditions of Latin American citizens⁸⁵. Six projects were approved in the e-Learning field, four on e-Health, five on e-Inclusion and four on e-Government. Each project was run by a consortium of around 10 partners from Europe and from Latin America under the coordination of a European institution, and was assigned on the average a budget of 2 million Euros. These projects were of extremely different nature, going from actions aiming at bringing electricity to some areas in the Amazon, to projects working to develop advanced ICT devices to enhance tourism in some urban areas, to partnerships interconnecting schools around a

⁸⁵ In the @LIS Call for Proposal that was launched in 2003 to select the projects, equal importance was given to the description of the innovative character and of the impact of the actions.

specific educational theme, to networks supporting the creation of telecentres⁸⁶. To give an idea of the expectations of the European Commission at the time of the call for proposals that preceded the launch of the @LIS projects, here we present the way the @LIS sectors were described. The e-Government projects should “demonstrate the feasibility of ICT applied to support municipalities and local governments and administrations in areas that benefit to the society at large”, by gathering “networks of players – technology providers and users – who would build systems to facilitate the interaction between the citizen and the public administration including, for instance, through networks of administration gateways, or Internet-based services for job-seekers and employees” (European Commission, 2002). The e-Learning projects should “stimulate the development of innovative and multilingual courseware for distant learning and education, and the design of Euro-Latin American ICT-based education programs that build upon the wide cultural diversity that exist both in Latin America and in Europe”, by activating “networks of players to improve the quality and accessibility of learning at primary, secondary schools and universities through embedded ICT, in particular addressing knowledge and skills required by future citizens of the Information Society” (European Commission, 2002). The e-Health projects should “demonstrate the added value of telematics healthcare networks in Latin America, and of the interconnection with similar European networks” and “promote the use of integrated scalable and secure health information networks for improving the management of the healthcare systems by all relevant healthcare partners such as hospitals, laboratories, pharmacies, primary care, and health authorities” (European Commission, 2002). Finally, the e-Inclusion projects should have worked out “innovative networked solutions to closing in the divide that is developing, on the one hand, between the rich and poor sections of the Latin American people, and on the other hand, between the remote and rural areas and the cities of Latin America”, by developing “ICT applications that bring public, social, educational, and information integrated services to the villages, including

⁸⁶ “The term telecentre is a generic one for all kinds of arrangements – Rural Knowledge Centre, Information Kiosks, Village Knowledge Centres, etc., that seek to provide shared and mediated access to information and services by using new technologies especially computers and Internet” (Mukerji, 2008, p. 1).

through local area mobile networks” and ultimately “demonstrate systems that facilitate the working and living conditions of the small farmers and handicraft producers” (European Commission, 2002).

6.1.3 Reflections on the @LIS experience

@LIS can be considered a successful programme, both in the opinion of the European Commission, as stated in the Final Evaluation Report of the programme, and of the programme stakeholders, as shown by the fact that – as we will explain later – the majority of them decided to keep on collaborating after the end of the funding period. The ex-post evaluation of the programme⁸⁷ was generally positive, stating that “@LIS shows satisfactory effectiveness in all of its three objectives, achieving stimulation of political dialogue (inspired by the European experience) on the Information Society through LA, an increase in the capacity for interconnection between research communities in LA and Europe, and implementation of specific applications with a demonstrative nature, involving a wide range of participants in both regions” (European Commission, 2008, p. 6). The @LIS evaluators agreed that @LIS reached useful results, that the majority of the activities of the programme were carried out in accordance with the existing planning, that nearly all of the financial resources assigned to the programme were invested, paid and used, that the programme had a good global efficiency despite the complexity of its outline, and that it brought a number of results in terms of mutual knowledge sharing and professional development of the involved actors.

The programme was rather innovative, especially in its approach to the theme of Information Society. At the time of the programme preparation in 2001, the non-satisfactory results of the first generation Information Society policies, mainly focussed on ICT access and infrastructures, had been recognised by many evaluation exercises. Awareness was rising on the fact that Information Society policies had not been capable of bridging the digital gap within and among countries, and calls for involvement of civil society were more and more frequently made to correct the unfair results of globalisation and to develop the

⁸⁷ A detailed explanation on the @LIS evaluation process can be found in paragraph 6.1.5.

inclusiveness potential of ICT in society. The @LIS programme was certainly a forerunner in this direction, also because of the very high sensitivity of Latin American partners to the social cohesiveness aspect of Information Society (Morganti et al., 2005). The rather innovative vision of Information Society on which @LIS was conceived is strongly based on social, economic and environmental sustainability of the ICT solutions proposed and is grounded on an open and cooperative approach. Since the very beginning of @LIS, the vision was that the programme should have been something more than the *sum of the @LIS projects*, meaning that in order to be really successful, the initiative should have been able to generate a broader impact than the one directly related to its funded projects. The idea was to reach this objective through cooperation and networking, by involving the highest possible number of stakeholders in the @LIS activities either as users or partners for further developments. Networking, visibility, innovation transfer and dialogue were all considered as necessary elements to generate the highest possible attention, energy and enthusiasm around the @LIS mission and expected results. This aspect characterizes @LIS as a very interesting case study for the present research, since networking was present as a pillar since the very conception of the programme. We will nevertheless see that the networking aspects, which strongly permeated the philosophy of @LIS, were not taken properly into account when the programme was evaluated; later in this chapter we will discuss whether this networking vision was reflected in the way the programme was actually developed.

@LIS was conceived and partly managed by two different units of the European Commission, and this – despite the collaboration spirit among the involved EC officers – brought to a situation where two different *collaboration cultures* were driving the programme agenda⁸⁸. While DG External Relations and specifically the EuropeAid office works mainly within a development cooperation

⁸⁸ Further, the priorities and the projects of @LIS were identified in a rather Eurocentric way, without involving Latin American policy makers and stakeholders in the design of the Programme, the priorities and the projects. Reading the Final Evaluation Report: “*The lack of synchronisation between the eLAC agenda and the design of the demonstration projects did not allow sufficient use to be made of the strategic steering effect and political support that this Action (the policy dialogue) could provide to the overall Programme*” (European Commission, 2008, p. 7).

philosophy, funding relief, reconstruction and capacity building projects within developing countries, DG INFSO normally works with a research and innovation logic based on excellence and performance, and promotes the European ICT private sector around the world. Within @LIS the problems was not the rather high presence of private sector actors with respect to typical development cooperation actions, but rather the attitude of some @LIS actors towards international cooperation. As an example, we can quote the case of the Dialogue on Standards, the horizontal project aiming at promoting European ICT standards towards Latin America. We believe that this activity, perfectly legitimate in itself, never really found its proper place within @LIS simply because it did not fit with the main philosophy of the programme, based on mutual and reciprocal exchange and cooperation and not on concepts such as technology and innovation transfer. Further, even if the mission of @LIS was not to develop new ICT solutions but to demonstrate the utility and the possible impact of existing ICT tools in Latin America, some of the selected demonstration projects had a rather strong research component, that was a bit *out of tune* within the @LIS community. As noted in the @LIS Final Evaluation Report, "This criticism (...) also refers to the assignment of the resources, in some cases considerable, to the development of tools and contents (many of them by European members) which did not meet the actual requirements of the demonstration" (European Commission, 2008, p. 6). This heterogeneity of cooperation visions within @LIS was debated during the whole programme and was identified, especially by civil society actors, as a barrier to bilateral and equal cooperation. Nevertheless, it contributed to increase the multistakeholder nature of @LIS: as we will see later, this aspect was one of the most important characteristics of the @LIS community.

6.1.4 Networking dimensions within @LIS

The @LIS network was composed by 261 nodes, corresponding to the institutions that participated in the @LIS projects. These were mainly academic institutions (32%) and national and local governments (31%), while civil society (25%) and private sector organisation (12%) were less represented. @LIS was an example of multilayer cooperation, since involved north-north (a Spanish and a

Danish partner working in the same project), north-south (a Spanish and a Brazilian partner), south-south (a Brazilian and a Peruvian partner), and triangular cooperation (all projects covered a minimum of two countries from Europe and two from Latin America).

Differently from most of the European Commission development cooperation programmes, which foresee a number of projects to be selected through competitive calls for proposals and sometimes a coordination and dissemination mechanism⁸⁹, @LIS was structured around projects and networks. Apart from the call for proposal that brought to the selection of the demonstration projects, the programme supported five horizontal actions, respectively among policy makers, regulators, standard bodies, research actors, and stakeholders. Additionally, as we have seen in the previous paragraph, @LIS was conceived as an initiative that should have been able to have a broader effect on its target groups than the one directly related to its projects. The networking dimension was a priority in the programme since the very beginning, and was permeating the projects and the programme as a whole (Nascimbeni, 2006). Each @LIS project was conducted by a transnational network of partners from Europe and Latin America, and the whole programme was explicitly conceived as a network, composed by all project and institutions participating; this network was itself meant to be supported by a specific action, @LIS-ISN. Additionally, the programme was built in such a way to be ready to face three challenges. “The first relates to the collaboration between all stakeholders. The second to the motivation of all @LIS actors to both transform @LIS from a monolithic cooperation programme, starting with some funding and ending up with some results, into a community of stakeholders from EU and Latin America, which is, moreover, able to survive beyond the end of the programme. Third, to ensure the validation, usage, exchange and improvement of programme results, ultimately leading to increased community membership” (Nascimbeni, 2007, p. 66).

⁸⁹ Normally called, in the European Commission jargon, Support Actions or Technical Assistance projects.

European Commission programmes are often characterized by the presence of one or more so-called support action or accompanying measure, typically in charge of supporting the programme in terms of dissemination and collaboration building. Within @LIS, the @LIS-ISN project aimed at doing something more than the traditional support actions, since it envisioned working on a few other dimensions such as sustainability and results validation and at enlarging the @LIS community to relevant stakeholders from outside the programme. @LIS-ISN started from the assumption that, since the @LIS Programme aimed at creating sustainable links between the highest possible number of Latin American and European actors with a view at facilitating the cooperation in the longer run, participation of all the relevant categories of actors was required: national and local policy makers, private sector and particularly the ICT industry, and above all representatives of the civil society intended as final users of the @LIS results. In other words, @LIS-ISN wanted to constitute the connecting element between those 261 organisations that directly participated in the programme by receiving funding from the EU and the much broader group of policy makers, associations, NGOs, companies, universities, local authorities, that had to be put in the conditions of expressing needs, evaluating the projects results and contributing to build the long term sustainability of the programme (Nascimbeni, 2006). Finally, it must not be forgotten that at the time of the call for proposals of @LIS out of the more than 250 project proposals received only 19 were selected. @LIS-ISN was also supposed to support the 19 selected demonstration projects in involving the many stakeholders that had expressed an interest in @LIS but were not successful within a project.

Through @LIS-ISN, the European Commission wanted to guarantee that, beyond the successful development of its specific projects, @LIS would not have suffered from some weaknesses, already recognised in the implementation of other EU programmes, such as the selection of technically good but irrelevant projects, the inefficient capitalisation of experience, the lack of significant dissemination and exploitation of results, the poor sustainability perspectives of projects results. In order to tackle these problems, @LIS-ISN worked by articulating knowledge communities. Starting from the reflection that a knowledge community can only exist when some individuals and organisations

decide to work together on a specific set of problems (Nascimbeni, 2007), @LIS-ISN reached the conclusion that building a single community where actors from the four @LIS sectors and from the two continents would work together in a direct way was unrealistic. On the other hand, what @LIS-ISN did achieve was to build a meta-community, composed of both the actors directly involved in the @LIS Programme and the ones participating in other communities on the @LIS themes in Europe and Latin America. The strength of this gathering was the joint presence of civil society, research and policy actors from different sectors, and the fact that it was not about building a new community, but rather about articulating existing and working communities. Ultimately, the presence and characteristics of the @LIS-ISN action shows that the programme was designed by taking into account “the need to extend the reach of the programme, in terms of impact of the actions, linking the projects with users’ communities; relevance and sustainability of the actions, linking the projects with the policy community; participation, linking the projects with external potential partners, and in terms of network building, enlarging and maintaining a potentially sustainable community” (Nascimbeni, 2006, p. 10).

6.1.5 Evaluation within @LIS: the missing bit of networking

The European Commission has devoted serious efforts to define a coherent and effective framework for the analysis and evaluation of its development programmes; for this reason a specific Evaluation Unit exists, which is in charge of all EU cooperation and development programmes and which provides guidelines, methodologies, tools as well as access to all evaluation reports as from 1997⁹⁰.

The evaluation approach used in the case of the @LIS programme can be considered as rather representative of the mainstream European Commission monitoring and evaluation practices. The *genesis* of @LIS was rather typical for a EU development actions: following some bilateral and multilateral negotiations and discussion among representatives from the European Commission services,

⁹⁰ Updated information and documentation on the work of the European Commission Evaluation Unit can be found at http://ec.europa.eu/europeaid/how/evaluation/index_en.htm.

EU Member States and Latin American countries in charge of Information Society, in 2002 the programme was proposed by the European Commission to the European Parliament in the frame of a number of regional actions to be run in a specific period to support development and social cohesion in the Latin American region. After having received the approval by the European Parliament, the activities, expected results and budget of the programmes were defined, a call for proposal was launched, and 24 projects were selected for funding, involving 261 European and Latin American actors of different nature and origin. These projects run in parallel for around three years, and in 2006 the programme came to an end. @LIS was evaluated twice, once in the middle of its lifecycle through an *interim evaluation* and once after the end of its activities, through the *final evaluation*. Reading the Terms of Reference of these two evaluation exercises⁹¹, it can be noted that, both in the interim and the final evaluation, the main objective was to “evaluate the Programme concept, the implementation and its management mechanisms, the results, the impact and the sustainability of the Programme as a whole as well as the realisation of the objectives foreseen (and unforeseen, if any) in the financing proposal” (European Commission, 2008, p. 61). In more details, the following evaluation objectives were specified: “Make an overall independent assessment about the past performance of the Programme, paying particularly attention to the impact of the project actions against its objectives; ascertain the relevance of the Programme to the real needs of the Information Society sector in Latin America and the appropriateness of the Programme design to respond to these needs; identify key lessons and propose practical recommendations for follow-up actions and the conception of the following phase of the programme and in that case, make recommendations about a redefinition of Programme objectives and structure for a new phase, if necessary” (European Commission, 2008, p. 62). The evaluation was run along five criteria, as recommended by the OECD Development Assistance Committee: *relevance*, that is correspondence to problems and requirements, *efficiency*, meaning appropriate management and suitable use of the resources, *effectiveness*, looking into the achievements of the

⁹¹ The documents where the European Commission specified what was expected by the evaluation work.

programme objectives, *impact*, measuring the contribution to achieving the general objective, and *sustainability*, indicating the probability of continuation of the results obtained by the programme. Two more criteria were added by the European Commission: coherence, measuring the contribution of the programme to strengthening mutual relations between the European Union and Latin America, and added value of European Community cooperation.

Both the interim and final evaluation rounds were conducted by a team of professionals in the field, selected through an open competition, and were structured along a desk research and a field research phase. Desk research included the collection of all relevant documentation concerning the programme such as financing decision, project proposals, activity reports, monitoring reports; field research was run through meetings with the responsible European Commission Programme officers in Brussels, the programme correspondents in the EU Delegations in Latin America, the @LIS projects' stakeholders, and the potential beneficiaries of the programme in Europe and Latin America such as relevant ministries, associations, representatives of civil society.

If we analyse the networking dimensions within the evaluation specifications – what the European Commission wanted to be evaluated – and within the evaluation reports – what was eventually evaluated, a striking data is that *in the 96 pages of the interim evaluation report the word “networking” never appears*, and in the 116 pages of the final report the term meaningfully appears (excluding the reference to telecommunications networking) only three times, always defining a results, and never a dimension of analysis. All in all, only one short paragraph is devoted to the issue of networking, which states that “the very insufficient networking of the @LIS actors may have sent out an erroneous message of lack of coherence with the essence of the programme, which is precisely the networking of society” (European Commission, 2008, p. 35).

It is surprising that, in the evaluation of a programme that was about Information Society and which was composed of networks, networking was never taken explicitly into account. The only sentence about networking appears to be rather disconnected from the rest of the Report, and leaves a number of questions unanswered: on which data is the claim of insufficient

networking based? Networking was judged insufficient with respect to what criteria? What does it mean that the essence of the programme is the “networking of society”? The issue is not about what is said – or better not said – about networking in the Evaluation Reports, but about the way the issue of networking was treated within the evaluation activities. Clearly, the matter of networking was not tackled in depth during the evaluation, as it was not requested by the evaluation specifications. Reconfirming the thesis expressed in chapter 3 on the very low attention devoted to networking in development cooperation institutional practices, within @LIS networking was considered as something impossible to be analysed through “robust and informed data”, as the OECD guidelines state that any evaluation and analysis activity should do. On the contrary, *networking was treated more as an effect of development activities than as a fundamental component of the programme*⁹².

This consideration is central to the concern of the present research. Even in a development programme such as @LIS, that – as we have seen earlier in this chapter – was rather innovative in its approach and in its structure, neither the programme responsible officers in the European Commission who prepared the evaluation specification nor the experts who run the evaluation did consider networking as a key dimension which deserved detailed analysis. The reason for this lack of attention to the issue of networking when it comes to evaluation, that as we have seen is rather common in development cooperation, stands probably in the perception of the nature of networking activities by the European Commission as activities that are by nature difficult to quantify and therefore to evaluate in a neutral and objective fashion.

This is not only a problem of the evaluating authority – the European Commission in this case – but also of the involved stakeholders’ community. In a programme such as @LIS, which was constituted by a number of projects, evaluation must rely on the reports of the different components of the programme. This means that for a significant network evaluation all the involved stakeholders should develop the capacity of evaluating networking

⁹² This seems to be a generalised approach within the European Commission, as demonstrated by two facts. First, in the official EuropeAid Guide for projects evaluation no mention to networking is made, and second, in many Guidelines for Applicants to Calls for Proposals networking is mentioned merely as “aggregation of actors”.

activities within their specific component: in order to run a proper network-based evaluation of a complex development programme, agreement on a participative evaluation exercise must exist from the beginning among the key stakeholders involved. “While common objectives are to be expected within a hierarchical organisations, and can be treated as starting point for an evaluation, in networks of semi-autonomous actors the emergence of agreement over objectives can be seen as an achievement” (Davies, 2003, p.12).

6.2 Reconstructing the networking history of @LIS

In line with the questions guiding the research work, we have been examining at the @LIS network with a twofold objective, enriching and complementing the evaluation which was carried out during and at the end of the programme.

The first objective was *to demonstrate, in line with the Networking for Development approach presented in chapter 4, that the networking story of each @LIS projects influenced its efficacy and impact during the programme and its sustainability after the end of the programme.* To do this, we have categorised the different projects by assigning three sets of attributes to them. Those attributes are the *sector* the projects belonged to – this could be e-Health, e-Learning, e-Government or e-Inclusion; their *level of pre-existing networking*, distinguishing between those projects that were proposed by a network that was already collaborating before the Call for proposal and consortia that were put together specifically for the @LIS Call; their *balance between European and Latin American partners in the project consortium*, distinguishing between projects with a high amount of activities and budget assigned to the Latin American partners and projects whose resources and activities were more focussed in Europe. By looking at the @LIS network along these attributes, we have been able to identify relational patterns among the typology of projects, their networking developments, their performance and sustainability. Further, we have analysed how these networking dynamics have impacted on the whole programme efficacy and sustainability.

The second objective was *to show how the use of Social Network Analysis allows an appreciation of the network developments and dynamics much beyond what typical evaluation practices can do.* In the case of @LIS, we have seen that the evaluation

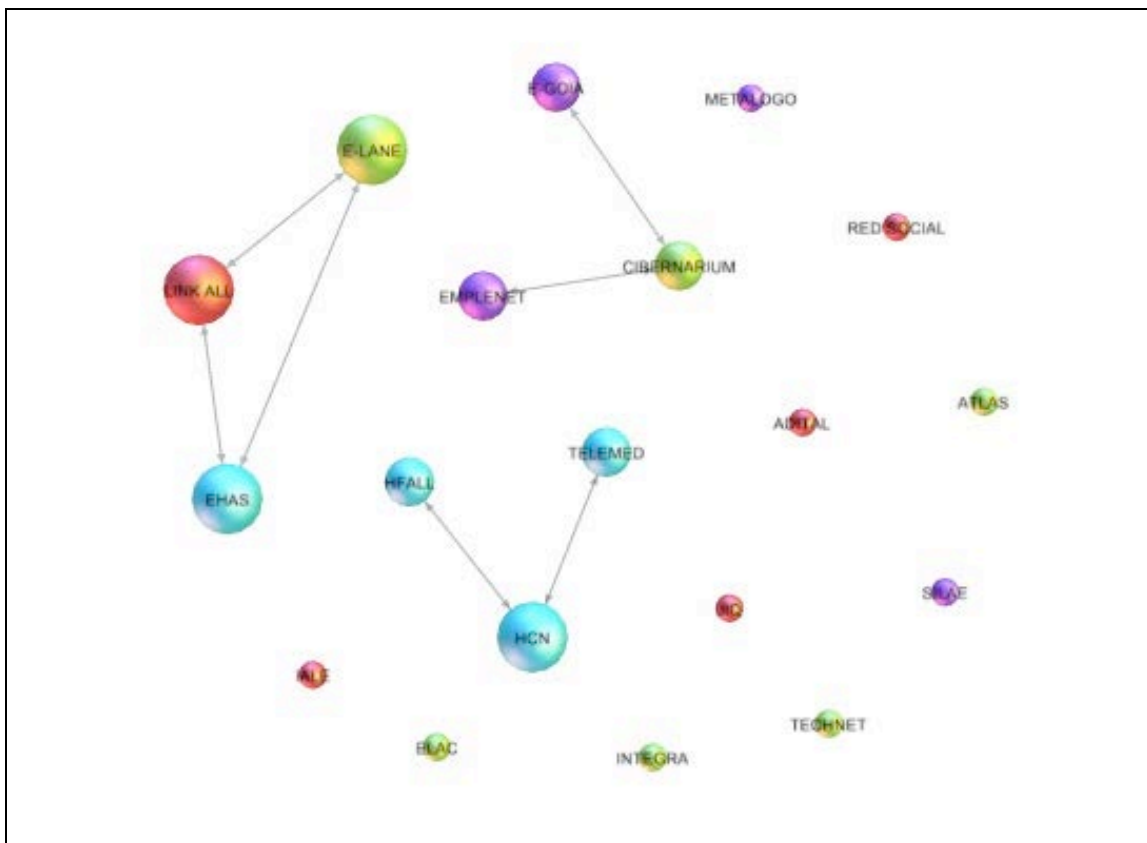
run by the European Commission, although in line with mainstream methods and approaches, was not able to grasp nor to reflect on the networking dynamics of the programme, and lost in our opinion some relevant considerations that would have been useful to fully understand the programme dynamics and impact and to better plan future cooperation activities.

Following the latest developments in Social Network Analysis (Barabási 2002 and Watts 2003, among others), even if each network has its own history, some general development dynamics seem to exist that most of networks have in common. We have analysed the developments of the @LIS network along the three years of the programme duration, describing knowledge-exchange activities and analysing emerging networking patterns. We will consider the network through four phases: network setup, corresponding to the period from the launch of the programme to month 6; network emergence, corresponding to the period from month 7 to 20, network consolidation, corresponding to the period from month 21 to 30; and network sustainability planning, corresponding to the period following month 30. In order to allow appreciating the complexity of the @LIS collaboration activities, we have distinguished three kinds of links among projects. *Links of level one*, graphically expressed with the thinnest line, indicate that contact has been taken and that information exchange is in place. This is the case of a connection between two projects that, for example because they work in the same sector, exchange information on their activities, normally with a view to strengthen this exchange towards the following stages of cooperation. *A link of level two*, graphically expressed with a thicker line, indicates that some sort of results exchange is taking place. This is for example the case of a project offering to another the use of its web platform, in exchange for instance of some material produced by the second project. *Links of level three*, expressed with the thickest line, indicate some structural collaboration. This is the case for example of a project offering to another project the possibility to test applications in its pilot sites, increasing the impact of the two actions and the benefit for their target groups⁹³.

⁹³ These links are bidirectional, meaning that we have drawn a link only when both nodes stated that the collaboration was in place, meaning that they some kind of exchange existed. Furthermore, considering bidirectional links has represented a way to validate the data.

6.2.1 First phase: network setup (months 1 to 6)

This is a very critical phase in the life of every network, and it often determines the way the network will further develop (Barabási, 2002). In the case of @LIS, the network setup phase was rather weak in terms of collaboration activities, both because during the first months of their activities the @LIS projects concentrated on setting up their own procedures, and because the support activities of @LIS-ISN did not start until the projects had produced some meaningful results to be shared with the community. Still, during this phase some relevant networking activities took place. In the following graph we present a snapshot of the @LIS network six months after the start of the projects.



Graph 1. The @LIS network on month 6. Red nodes belong to e-Learning, purple to e-Inclusion, blue to e-Health, green to e-Government. The relative dimension of the nodes reflects their level of connectedness within the network.

The colours of the different nodes reflect the sector they belong to, while their dimension reflects their level of connectedness: the bigger a node, the higher number of connections it has with other nodes. At this stage, the few established links were all of level one; this means that the presence of a link indicates that an active exchange of information was taking place⁹⁴.

As mentioned before, during the first six months, all projects have been concentrating in setting up their own working procedures and in preparing their first outcomes. An example can be useful to understand the typical projects attitude during this first period: when contacted by @LIS-ISON in order to start exploring some network-based initial activities aimed at identifying possible sustainability strategies, a project coordinator replied that they would not have worked on networking and sustainability until the middle of their project lifecycle. This approach, that in our view has limited the sustainability chances of some projects, reflects a rather classic project management attitude, along the reasoning “first produce your results, then disseminate them, then think about the future”.

During the network setup phase, some collaborative knowledge building activities were carried out, aiming at facilitating the emergence of a common knowledge base among the different actors. This work allowed to create a preliminary set of information on “who is who” and on “who does what” within the network, and was run through three main activities. First, the @LIS Yellow Pages, a list of the projects partners per country, per sector and per project, were produced and shared across the network; second, a database was created to collect information on all projects objectives, activities, expected results and partners, and third, a discussion mailing list was launched, encouraging the @LIS stakeholders to introduce themselves and their role in the different projects. What the projects accomplished in terms of networking

⁹⁴ When analysing the data we have decided that, in order to draw a link between two nodes, a contact between two persons belonging to the two projects must have been established and some information must have been exchanged. We did not consider that a link has been established, for example, if one project coordinator has been looking for information about other projects on the web or has received some information from @LIS-ISON. The rationale behind this decision was to valorise active networking approaches: meaningful networking takes place when some kind of specific action with a collaboration objective takes place (Nascimbeni, 2007).

during the first six months was mainly inputting some information on their activities and partners into the system and getting to know what the other projects were planning to do. This was the first occasion when the @LIS projects coordinators and partners were asked to take some cooperation actions within the programme; the attitudes of the different actors toward these first and quite basic cooperation activities represented an important indication to further plan the networking activities: while some actors participated quite enthusiastically, also due to their facility of using ICT means, others were more resistant to share information and seemed less interested to discover about the other projects.

Six months after its start, the programme was a galaxy of unconnected or weakly connected projects. This slow start of networking activities is perfectly understandable, if we think that @LIS was constituted by a number of projects which had just been selected and which were composed of institutions that mostly had never worked with each other, nor did know anything about the other projects. Interestingly, empirical observation has shown that most of these initial connections had not to do so much with the nature of the projects themselves, but rather with the characteristics of some of the projects' partners. Geographical proximity of stakeholders played a key role, as in the case of two institutions from Sao Paulo, respectively from the *eGOIA* and *Cibernarium* projects, which took contacts and met right after the projects started in order to respectively introduce their action plan within their projects. Sectorial proximity was also important; typically, recognised leading institutions in a specific sector were identified and contacted by other @LIS partners from that sector: this was the case of a project led by the Fraunhofer Institute in Germany, a well-known research organisation in the e-Health field, which attracted links to its project and partners from other projects in the e-Health field. The presence of the same institution as a partner in more than one project was also a strong collaboration catalyst, as in the case of the Universidad Carlos III from Madrid which was part of both the *E-LANE* and the *EHAS* project, or the Ayuntamiento de San Sebastian which was both in the *EMPLENET* and in *CIBERNARIUM* projects. In this last case, the link was established between two departments within the organisation and was then extended to the projects involved. Whatever the reasons might have been for these early connections, it is

important to note that not all of them necessarily represented the starting point for further collaborations, and that some of these connections even disappeared during the following phases of the programme. An interesting case is the one of the *LINK-ALL*, *EHAS* and *E-LANE* projects, which shared the Universidad del Cauca from Colombia as a partner: these projects established a link at the beginning of the programme, but this relation did not grow in terms of strength in the following phases, mainly because different services inside the university were appointed to take part in those projects and did not collaborate among themselves as it would have been expectable. This tells us something about the cooperative attitude of the projects at different stages of the programme: an important difference exists between the general openness to cooperation shown by some projects at the very beginning of the programme, which was normally based on geographical and thematic proximity, and a more strategic attitude to cooperation that projects have been developing throughout the life of @LIS. The more projects were getting to know each other, the more they were interested in building strategic connections. Nevertheless, these first contacts, even the ones that might have gone lost during the following years, have been important to foster a positive collaborative feeling within the @LIS community, and have contributed to fostering knowledge sharing and trust among the participating actors.

Novak (2011) has demonstrated that, due to the fact that adopting a cooperative approach has a cost⁹⁵, the natural tendency of humans in case of a repetitive call for cooperation is to adopt a “win stay, lose shift” approach. This means that, as long as a cooperative behaviour of an actor is rewarded by corresponding cooperative behaviours of others, the actor keeps on being cooperative, but when the counterparts are not behaving in a cooperative way, the actor tends to adopt a non-cooperative behaviour. In theory, this attitude should result in a dynamic where non-cooperators tend to outnumber cooperators, and therefore the network would lose its cooperation chances. Luckily for the health of networks, some mechanism exist that can counterbalance this natural tendency of networks towards non-cooperative behaviours. Novak identifies five distinct

⁹⁵ In our case the cost was at this stage the time needed by each @LIS actor to introduce itself in the mailing list, to pose some questions and to reply to others' queries.

mechanisms: direct reciprocity, based on the repetition of a cooperative behaviour along the logic “I scratch your back and you scratch mine”; indirect reciprocity, linked to the concept of reputation along the logic “I scratch your back and someone will scratch mine”; spatial influence, based on the influence that a specific behaviour of an actor has on actors that are close to him within the network; multilevel influence, grounded on how much a group of actors is able to build a common cooperation strategy beyond the behaviour of the single group components; and kin influence, based on the tendency to cooperate with members with people with similar background (Novak, 2011).

In the @LIS case all these mechanisms emerged. Further, two of them were particularly important to foster cooperative behaviours and therefore to support the creation of wealthy links among actors: indirect reciprocity and kin influence. The mechanism of *indirect reciprocity* is based on the reputation that an actor is able to build within a network (Alexander, 1987), and is typically guiding cooperation within online communities such as eBay or CouchSurfing. In these communities, cooperative or non-cooperative behaviours of every actor are made public to the community; on the base of this, the actor is rewarded or punished by the community members, who decide to adopt a more or less cooperative behaviour towards him, depending on its reputation. “If, thanks to endless chat and intrigue, the world knows that you are a good, charitable guy, then you boost your chance of being helped by someone else at future dates” (Novak, 2011, p. 54). Within @LIS, actors started building their reputation with their very first moves: we have detected that the partners that from the very beginning devoted some time to present themselves and to reply to the question posed in the mailing list by other stakeholders were the ones who were able, along the programme, to build stronger networks around them and who benefitted more from networking activities. This is the case of a Spanish project coordinator who spontaneously prepared an informal presentation where he described in details all his partners including characteristics such as communicative skills and capacity to “dance all night”, or of a partner from Brazil which offered to the community its help to identify Brazilian stakeholders that could be useful for the other projects.

These open attitudes were very effective in increasing from the very beginning of the programme the sympathy of the other projects towards these consortia and to build a positive collaborative reputation for these projects. Reputation was a key driver for cooperation within @LIS; nevertheless, for reputation to guide cooperative attitudes within a network, mechanisms must be in place to allow “enough transfer of information about who did what to whom” (Novak, 2011, p. 60) within the network. If this is easy in web-based communities such as eBay, in development programmes this is not always the case: to take advantage of reputation dynamics, a communication effort must be made to make sure that information on best cooperation behaviours flows within the network reaching all the involved actors. Multilevel influence, which deals with those cooperation mechanisms that refer to groups of actors within a network, was also important in this phase. A number of experiments have demonstrated that groups that adopt internal cooperative approaches, even in the cases where some of their members show non-cooperative attitudes, tend to perform better than other groups (Bowles, 2006); in other words “clusters of cooperators can prevail, even if besieged by defectors” (Novak, 2011, p. 80).

The *kin influence* mechanism was extremely important especially in the inception phase of the @LIS network development, mostly because the programme was structured around predefined clusters of projects in the areas of e-Learning, e-Health, e-Government and e-Inclusion, each with its own technical knowledge, specific language and pre-existing networks of stakeholders. As we have seen, the connections established during the first six months resulted in some light clustering that followed a geographical pattern, meaning that projects with partners in a specific country got in touch with projects with partners in the same country, and a logic depending on the partners background, meaning that actors with the same background inclined to cluster. These dynamics were driven by a kin influence mechanism, where we define kin in the broad sense of sector of belonging or country of belonging: it clearly appeared that the @LIS actors which showed a cooperative behaviour at this stage did this mainly with respect to other actors that they perceived as “close to them” in terms of geographic, linguistic or sectoral background. During the programme the @LIS actors have been cooperating much beyond the boundaries of these initial groups, finding their way towards transversal

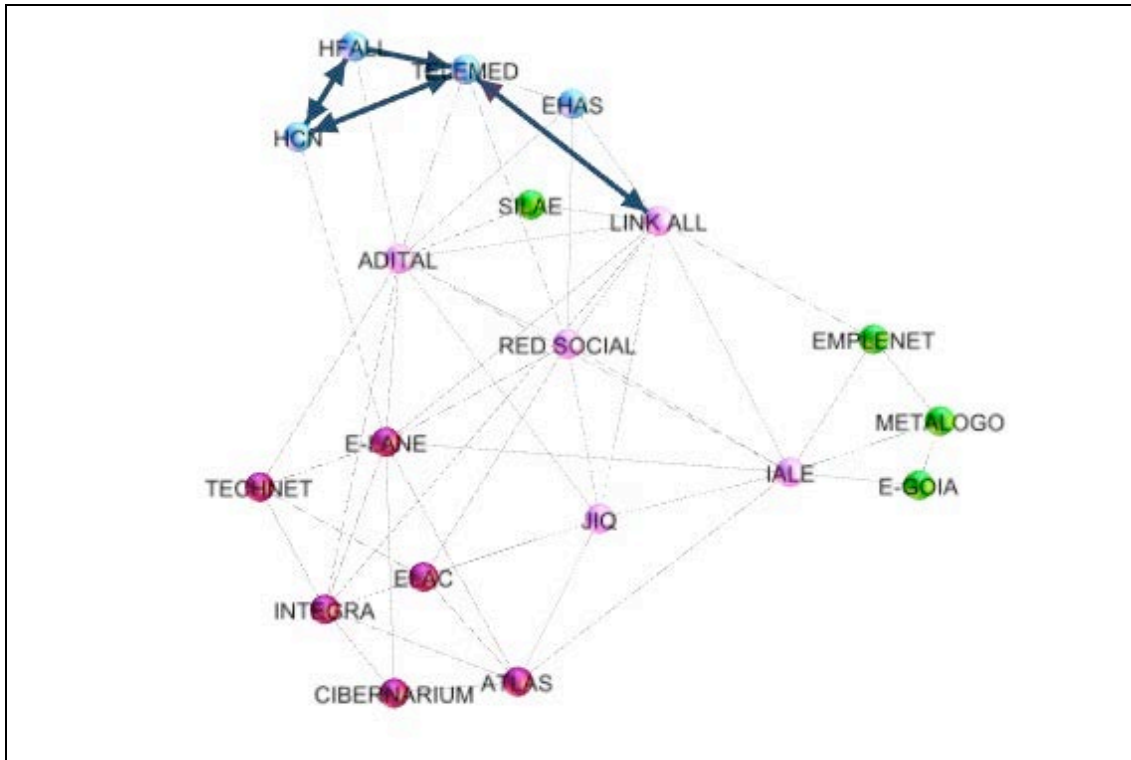
aggregations. In order to build healthy networks, it is important to identify the mechanisms underneath the creation of links from the very beginning. One networking shortcoming within @LIS has been the fact that those mechanisms have not been identified in details in the very first phase of the network development⁹⁶; on the contrary having done so would have allowed designing the networking support activities of the programme starting from the inner mechanisms that were driving the cooperative attitude of the partners and therefore would have brought to a more effective set of support activities.

6.2.2 Second phase: network emergence (months 7 to 20)

The transformation that leads from a scattered number of connections to a somehow connected community is called network emergence, and is characterised by the increase of connections, normally leading to the creation of relational patterns and of some clusters. As we can see from the following graph, the network on month 20 looked much more connected⁹⁷.

⁹⁶ It must be said that such a detailed approach is normally absent in development actions and in technical support actions like @LIS-ISN, that tend to work on transversal activities, giving for granted that if the actors find an advantage in adopting a cooperative behaviour they will do so.

⁹⁷ The graph presents all the connections established within the @LIS network since the beginning of the programme, as reported by the projects on month 20.



Graph 2. The @LIS network on month 20. Red nodes belong to e-Learning, purple to e-Inclusion, blue to e-Health, green to e-Government. The thickest lines signify connections of level two, indicating that some outcomes and knowledge sharing is taking place.

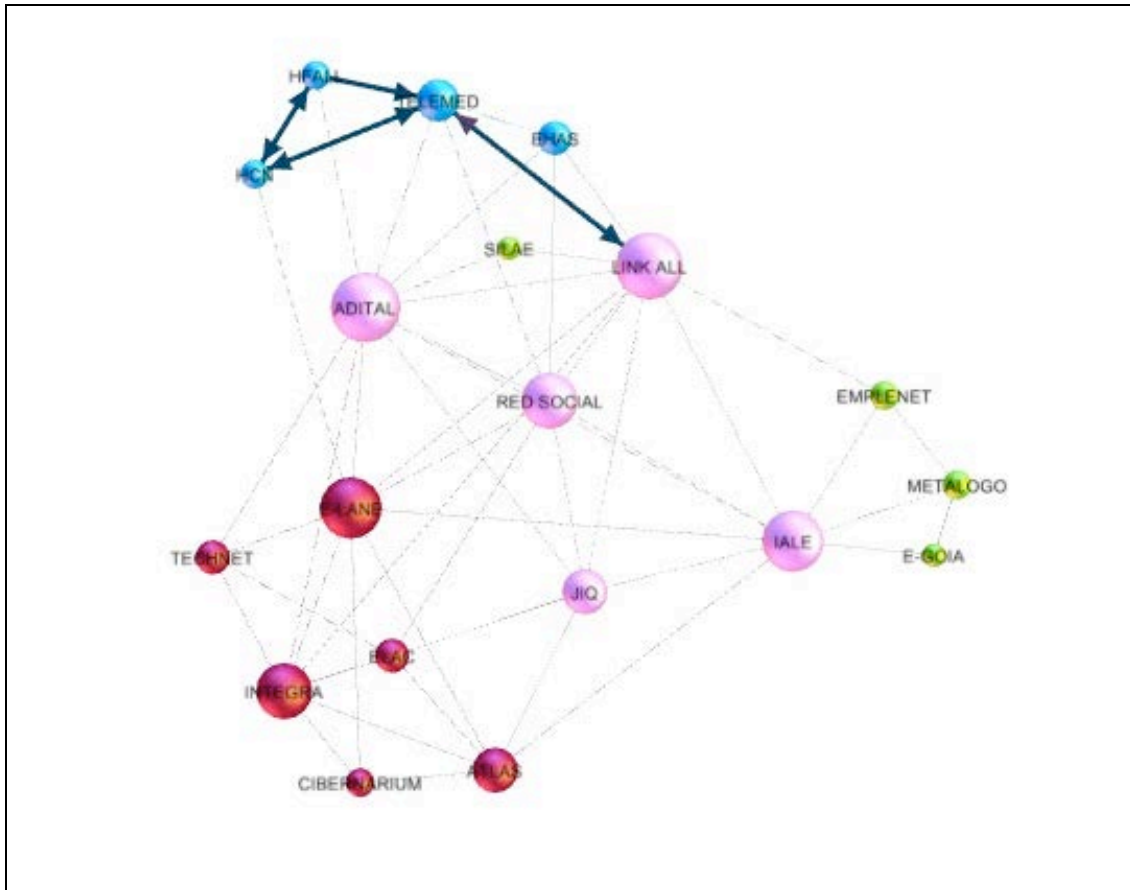
At this stage a meaningful network had emerged, through a phase transition towards a situation where most of the nodes are connected into a giant component. This is confirmed by the fact that at this stage, the average centrality degree was almost 12, meaning that each node was on the average connected to almost 12 other nodes; if we consider that the project in each sector were maximum six, it clearly appear that the network has been developing in a cross-sectoral way. Still, belonging to a sector had its importance. The position of the nodes in the graph is based on the number of links that connect each node, and shows that projects had established connections of the first kind, based on meaningful and active exchange of information, mainly with the projects belonging to the same sector⁹⁸. The only anomaly is represented by the

⁹⁸ @LIS was composed by two broad typologies of projects: some were clearly limited to a single sector such as school education, primary healthcare or electrification of rural areas, while others had a more transversal nature, dealing for

SILAE project and is explained by the fact that this project, officially belonging to the e-Government cluster, was indeed more close to the e-Inclusion sector, since it dealt with providing electricity to isolated local communities in the Ecuadorian Amazon, and therefore naturally connected with projects dealing with digital inclusion.

During the network setup phase, the first connections of level two emerged among three e-Health projects: this reflects the fact that the coordinators of these three actions agreed to explore the possibility to apply their respective results in the other projects pilot sites and to share some online content. This cluster represented the embryo of one of the most successful networking aggregations of @LIS, that, as we will see later, brought to a long-term commitment by some actors belonging to these projects in working together beyond the @LIS funding. Another stronger connection is visible between the *Telemed* and the *LINK-ALL* projects, and reflects the agreement between the two projects on studying the feasibility of extending the telemedicine services developed by *Telemed* to a pilot site of *LINK-ALL* in Brazil. In this case the connection was established between two project partners from Brazil, showing how geographic clustering was starting to produce some tangible cooperation results. These four projects (*Telemed*, *HealthCareNetwork*, *HealthForAll* and *Link All*), which established links of level two, were the ones that developed more quickly than others some networking results. In order to understand if those were, at this stage, the most important nodes within the community, the network in Graph 3 has been modified to show the degree centrality of each node, calculated on the basis of the number of links of each node and represented by the dimension of the nodes.

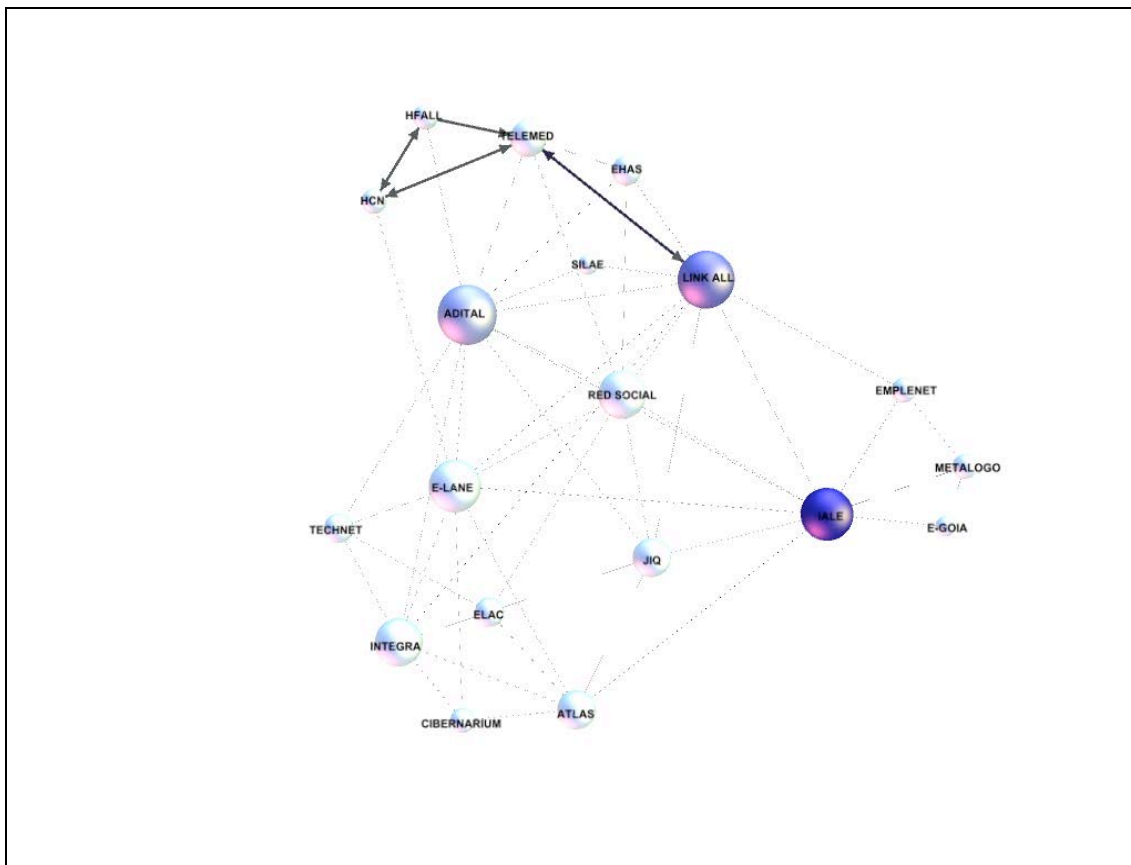
instance with issues such as e-Health in general or with use of e-Learning for social inclusion projects from this second groups were the ones that facilitated networking across sectors and stakeholders groups.



Graph 3. The @LIS network on month 20, showing the degree centrality of nodes. The colour of the nodes shows the sector of belonging, the dimension of the nodes shows their centrality degree.

By visualising the degree centrality of the different nodes, it appears that three of the four projects that had managed to establish links of level two were not the most important nodes of the network, in terms of their connectivity. The projects which at this stage had been able to develop more links were in fact *ADITAL* and *LINK-ALL*. Further, the projects belonging to the e-Learning and e-Inclusion sectors reached a higher centrality than the ones belonging to the e-Health and e-Government sectors. This is due to the fact that the projects in the first two sectors had a more generalist nature, especially in terms of stakeholders involved, while the ones belonging to the latter were more limited to their specific sectors.

The graph can be further modified to show the betweenness centrality of each node, representing how much a node is capable of connecting other nodes, being *between* two of them.

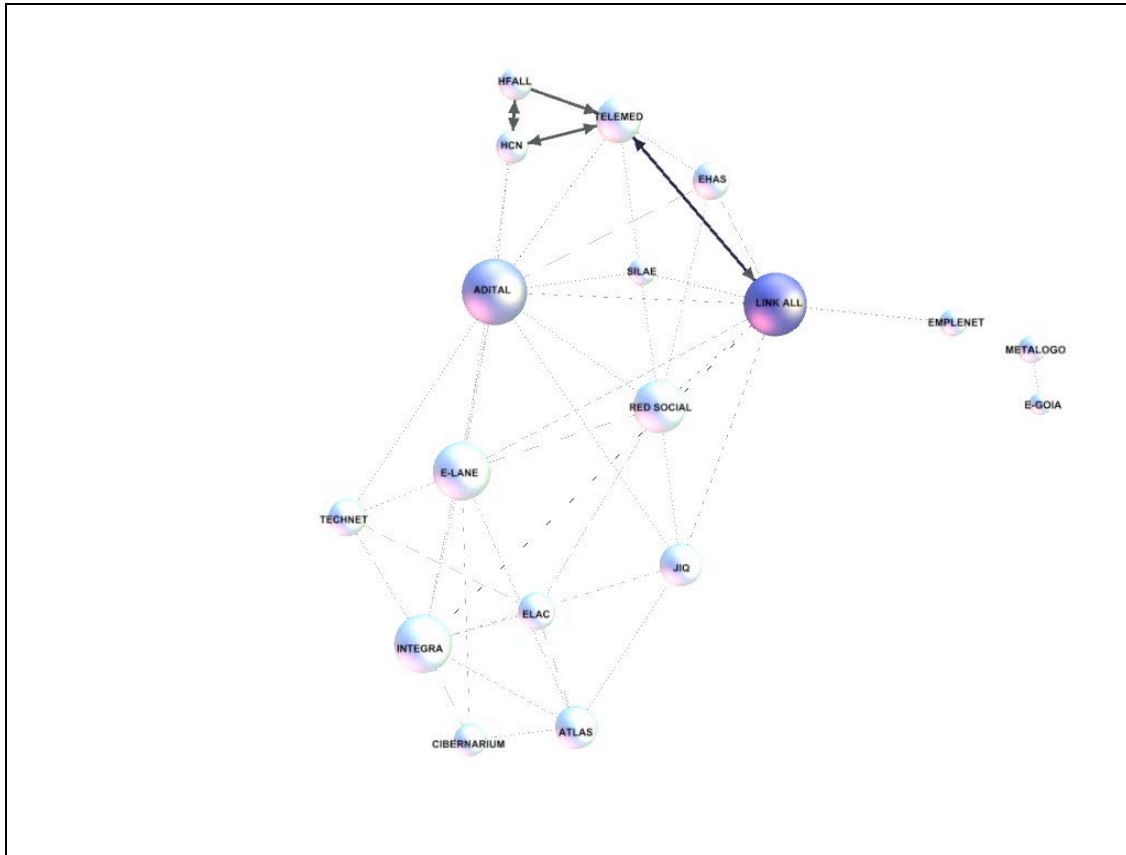


Graph 4. The @LIS network on month 22, showing the degree centrality (dimension) and betweenness centrality (colour intensity) of nodes.

In Graph 4, the degree of each node is still represented by the dimension of the nodes, while the betweenness is shown by the intensity of their colour, being light blue the lowest betweenness and dark blue the highest betweenness⁹⁹. By modifying the graph, we are able to show that the most important node in the network in terms of connectedness is represented by the *IALE* project, since it connects the whole network to the three less connected projects, the ones on the right side of the graph. If *IALE* would disappear from the network, for example

⁹⁹ Degree and betweenness centrality can be confused. A node is locally central (degree) if it has a large number of connections with the other points in its immediate environment, it is globally central (betweenness) when its position has a strategic significance in the overall structure of the network (Scott, 1992).

if the European Commission decided to terminate the project, we would be in the situation presented in graph 5, with some projects almost completely disconnected from the community¹⁰⁰.



Graph 5. A simulation of the @LIS network on month 22, without the IALE node. The dimension of a node indicates its degree, the colour intensity its betweenness.

What we have done with the last three graphs was to analyse the situation of the network in a given moment designing some *what if* scenarios. Most of SNA software applications allow playing with the network by stressing specific dimensions and by deleting or adding nodes or links. This gives the possibility of appreciating what evolution could the network take in case for example a node is removed or a link is strengthened, and is an extremely powerful technique to plan and monitor networks evolution.

¹⁰⁰ In Graph 5 the average *degree centrality* falls from 11,9 to 10,8, meaning that in this scenario each project would lose on average one connection.

Within @LIS, the network emergence phase started with the first Programme Coordination Meeting organised in Quito in March 2004 (month 7 of the programme timeline), gathering all the European projects coordinators and a number of Latin American partners. During this meeting all the projects were presented and some thematic collaboration sessions were organised. The themes of these sessions were transversal to the project areas, and were selected to facilitate cooperation across the programme: sessions were held on the use of open source software in the @LIS projects, on connectivity problems and solutions, and on projects sustainability. These themes had been chosen following an email consultation among the @LIS projects: this was the first moment of “collaborative agenda building”, and it was important since the network was able to reach a consensus on the most important themes to focus on, going beyond the interests of the individual projects. Reaching a consensus on themes of common interest was an important network-building exercise that increased the feelings of trust and belonging among participating actors, as stated for example by a couple of project partners from Latin America: “Our main problem is the low connectivity of our pilot sites: it was good to see how other projects are solving this issue” (personal communication); “We will be able to share efforts in building a common open source platform for our projects, thanks to the collaboration setup at the Meeting” (personal communication). In preparing this activity, @LIS-ISN worked on the leverage of indirect reciprocity presented above: for each theme two actors were selected to drive the corresponding workshop, and therefore gained a leading reputation within the community on a specific theme. The fact of having been chosen to give a presentation within the workshops was important for these actors, and, as demonstrated from the project subsequent collaboration dynamics, represented a motivation to keep on cooperating.



Here we face a typical dilemma of networking support: starting from the fact that every member of the network has a given capacity and interest in actively participating in the network collaborative activities and that some actions can be taken to foster the participation of specific actors within the network, in general two ways exist to foster the network development. The choice is to

either focus on the actors which show a strong starting networking capacity, facilitating the emergence of networking leaders with a strong collaboration reputation and with the capacity of “amplifying collaboration” (Novak, 2011), or to target the actors that appear more hesitant to engage in networking activities, aiming at reaching a more balanced growth of the networking capacity of the community. It is not only a matter of finding the best way to activate existing networking capacities, but a choice which normally gives an *imprinting* to the network evolution, and that should be taken with attention. Focusing on the *natural networking leaders* has the benefit of working with a few hubs relying on their capacity to engage the other nodes, but at the same time is a risky solution since, as we have seen in chapter 5, in case a network hub has some problems the whole network connectedness is put in danger, with the effect of disengaging the nodes which were relying on that particular leader. Focusing on the *natural networking followers* has the advantage of being able to directly reach all the actors of the network and can facilitate the discovery of hidden networking energies, but it is more effort-consuming and risks to uncover existing resistances to collaboration, with a negative effect on the community development. In the case of @LIS, the adopted strategy was to valorise the natural networking leaders and at the same time to try to reach all the nodes through light collaboration requests. Starting from the first Coordination Meeting a few potential leaders were identified, based on their proactivity in the online discussion as well as on their role in the respective projects. Those were actively involved in coordinating one of the transversal thematic groups that were created following the Meeting, increasing their reputation as well as their responsibility towards the network. It is important to note that all these actors, apart from some few exceptions, at a later stage became *networking hubs*, demonstrating that the strategy of working with a few nodes with high potential can be extremely rewarding in the long term. At the same time, in order to engage natural networking followers, partners from all the projects, including those that had neither participated in the online discussions nor in the Coordination Meeting, were invited to join the thematic working groups. This decision was useful to facilitate the emergence of the existing resistances to networking and to facilitate a common understanding that this problem existed and had to be tackled.

A case can be reported in this respect. During the online discussion in the field open source software that was organised in preparation of the first Coordination Meeting, the idea was put forward a “@LIS Commons” licence, a sort of Creative Commons¹⁰¹ licence specifically customised to the @LIS needs. In the opinion of the workshop participants, and especially of the a Brazilian NGO who launched the idea, this would have facilitated the use and reproduction of the @LIS projects results and at the same time would have given a clear message to the external world that the @LIS community had adopted an open approach towards the issue of Intellectual Property Rights. An innovative proposal had been made, potentially able to foster the sustainability and usability of the @LIS results in the long terms and to send a clear policy message on behalf of the whole @LIS community. During the session on open source software, the idea was introduced and discussed, and suddenly found a negative position from the representative of a German research centre, who intended to commercialise the outcomes of its project and therefore could not accept such a generalised agreement. This partner was not refusing to collaborate – we must say that along the programme it was one of the most active networkers – but was blocking a possible innovation spreading movement across the network, since the cost of accepting the cooperation, that corresponded to re-planning the sustainability strategy of its project, was higher than the benefit brought by the cooperation.

During the network emergence phase, @LIS-ISN organised a number of meetings with all the projects coordinators, with the objectives of identifying the needs of the projects in terms of sustainability support and of retrieving information that could be useful to foster synergies among the projects. These meetings were occasions for the project coordinators to reflect on the importance of working in synergy with their counterparts and to identify precise networking steps to be taken to increase their impact and success. The discussions held during these meetings resulted in a *Synergy Matrix*, a table of possible collaboration starting points among the @LIS projects.

¹⁰¹ Creative Commons licenses are copyright licenses that allow the distribution of copyrighted works, granting a set of “baseline rights”, such as the right to distribute the copyrighted work worldwide, without changes, at no charge. See <http://creativecommons.org>.

MATRIZ: NECESIDADES DE LOS PROYECTOS PARA SER SOSTENIBLES

	Encontrar financiadores públicos y privados	Desarrollar Modelos de Negocio	Financiación para mantenimiento y reparación de equipos	Encontrar quien quiere explotar plataforma desarrollada	Difusión resultados	Formación a nuevos técnicos	Actualizar contenidos	Encontrar postproducción de los Programas de Tv y radio	Fortalecer a organizaciones locales
E-GOBIERNO									
E-GOJA		X			X		X		X
EMPLENET					X		X		X
METALOGO					X		X		
SILAE	X				X		X		X
E SANIDAD									
EHAS	X		X	X	X			X	X
HON					X				
HFALL					X				X
TELEMED			X		X				X
E EDUCACION									
E-LANC		X		X	X				X
ALIS TECHNET		X		X	X				
CIBEKNAKIJUM	X	X	X		X		X		X
ATLAS	X	X	X		X	X	X		X
INTEGRA			X		X				
ELAC				X	X				
E INCLUSION									
ADITAL		X	X	X			X		X
IALE									X
JIQ/ NIB	X				X		X		X
LINK-ALL	X	X			X				X
RED SOCIAL	X		X				X		X

Table 3. The @LIS-ISN Synergy Matrix (source: @LIS-ISN project).

This table presents the projects interpretation on which of their needs could be addressed through collaboration, and is therefore a representation of the *demand side* of the @LIS network. As it can be appreciated by looking at Graph 9, a relation seems to exist between the demand side of networking at this stage and the way the @LIS network has further developed: the projects which had been able to identify needs that could be matched through collaboration were the ones who achieved a better networking performance. In other words, the best networkers were those who were able, in the first part of their projects, to clearly define the benefits they would have received from collaboration, assigning a clear value to networking activities and consequently conveying resources to networking in relation to the expected benefits¹⁰². This suggests that, to improve the performance of a network, support should be provided in quantifying the costs and the benefits of cooperation. Quantifying the cost of cooperation in development actions is not an easy task, since at the beginning of a programme it is normally not clear what will be the amount of networking

¹⁰² Recent findings in networks evolution show that if the ratio between the perceived benefit of cooperation and the cost of cooperation increases, the network will evolve in a cooperative virtuous circle since cooperators tend to become more abundant (Nowak, 2011).

activities that will be required. Normally, some of these activities are quantified and accounted in the projects budget, but generally tend to be underestimated. A possible solution for this problem lays in the idea of *hyperhead costs*. This concept refers to the sum of all those costs related to networking and cooperation that should be taken into account in a development action to support a participative and proactive attitude of all the stakeholders, with attention to sustainability, transferability and reciprocity (Jansen and Pimienta, 2006). As we will see later, considering carefully and flexibly the costs of networking within a development action is important to increase the potential impact of the action itself. Quantifying the benefits is even more difficult, because relying on the network to solve a specific problem is a choice that brings a certain grade of uncertainty, since the effectiveness of the network depends on a number of factors that are out of the project control. Further, quantifying the benefits of networking is made more difficult because of the *noise of cooperation*, defined as the presence, in our complex world, of a number of unintended mistakes and misinterpretations of other people's actions that can decrease the efficiency of a collaboration mechanism (Axelrod and Dion, 1988). Being based on human beings, social networks tend to evolve in a fuzzy and undetermined fashion, and make it difficult to have clear expectations. In the @LIS case, the Synergy Matrix helped to crystalize the needs expressed by the participating actors, and turned out to be an extremely useful tool to conceptualise and fix what the network could do for its members.

Looking at Table 3, some differences and communalities among the projects belonging to the different @LIS sectors appear. The e-Inclusion projects were the ones that mostly expressed the need for further financial support, typically because they were run by NGOs that normally depend on external funding. Among the other sectors, only 4 out of 14 projects claimed that they would need further funding, showing that most of the projects had their own strategy to make their results sustainable after the end of the funding period. The e-Learning projects were the ones that mostly needed help in developing a business plan, and at the same time were asking for support in identifying users community to adopt their outcomes. This is explained by the fact that these projects were typically run by schools networks or by universities, that

normally do not deal with business planning, and were looking for large users' community to somehow justify the need for their outcomes to be further supported. Finally, two transversal needs appeared, one rather expected, that is the plea for support in disseminating the projects results, and one unexpected, that is the demand to strengthen the institutional and technical capacities of the local actors in Latin America, since they would be the ones in charge of keeping the projects results sustainable. As we will see later, consolidating the institutional capacity of Latin American partners was very important for some projects, which reached some sort of sustainability of their results through a high *ownership* of these results among their Latin American associates.

On month 20 a second Coordination Meeting was organised in Panama with the aim of strengthening the existing links and synergies among projects. During this meeting, the community focussed for a second time on the areas that had emerged through the mailing list exchanges and to discuss how to share practices and outcomes. To make an example, since many projects at this stage were starting to develop an online collaborative platform, it was suggested that the platforms already developed by some projects could be adapted and used by others, saving resources and time. Interestingly enough, none of the projects accepted this invitation. The reason for this rather non-cooperative attitude lays probably in the fact that the projects did not want to underperform with respect to what contractually agreed with the European Commission. In this case the European Commission should have pushed for these synergies, adopting some flexibility with respect to the contractualised workplans, since sharing the same platform would have allowed for stronger networking for the remaining life of the projects. Another possible explanation has to do with the fact that at this stage the necessary trust across the network for such a profound cooperation level was not yet present, and for this reason projects preferred to develop things on their own than to relay on other actors that were not contractually bound with them.

This somehow lost opportunity represents an important lesson learnt: *the attitude of the donor was that of encouraging networking and synergies through specific actions but without any obligation for the projects: neither the networking activities that each project had run during its lifecycle were taken positively into account*

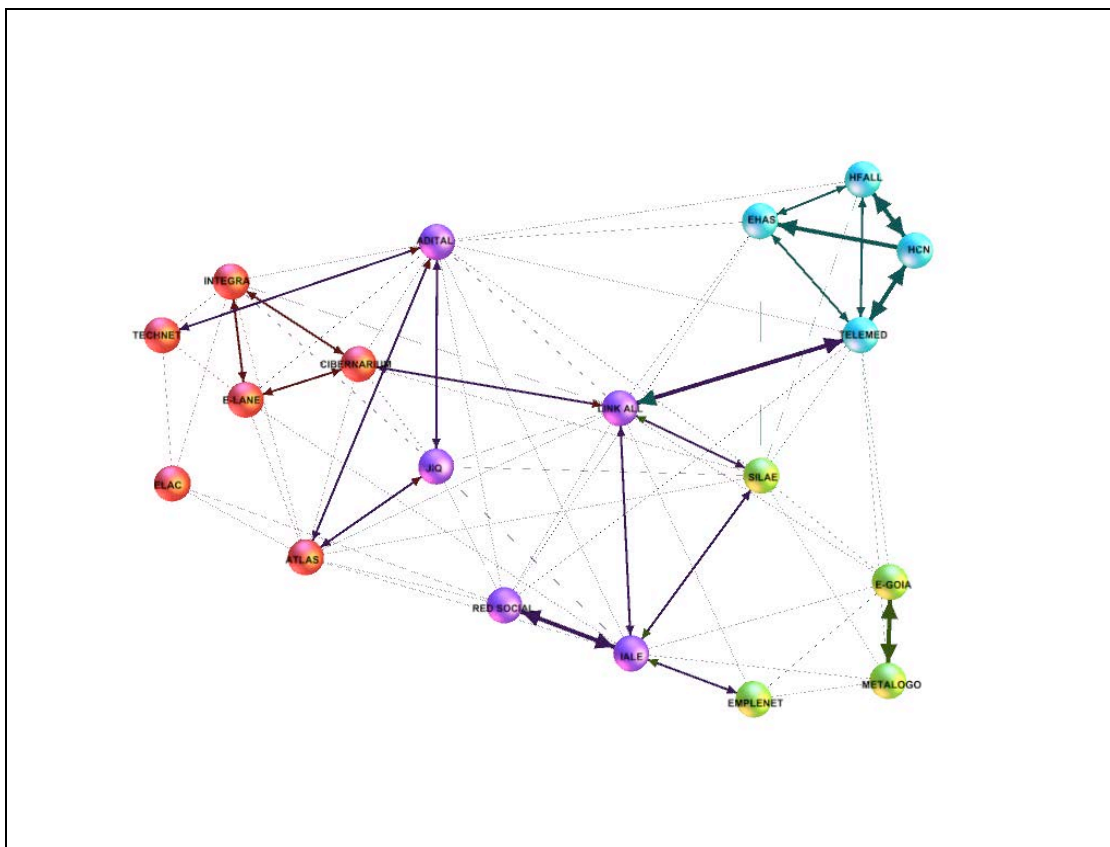
in the projects evaluation, not the non-cooperative projects were punished. In other words, the collaborative reputation of the projects, that as we have seen was the basis for indirect reciprocity mechanisms, was not officially recognised at the time of the projects evaluation. This attitude, which is rather common in development actions, tends to consider that the projects objectives, activities and results as more important than the potential synergies among stakeholders, and somehow undermines the collaboration potential of the network. Within @LIS, the fact that the additional efforts put in place by the projects to build cooperation and synergy schemes were not considered as important within the programme interim evaluation created a feeling of disillusion among some actors, decreasing somehow their further involvement in the network.

6.2.3 Third phase: network consolidation (month 21 to month 30)

During the period going from month 21 to month 30, the number of direct bilateral contacts among the @LIS partners increased substantially, taking place via email, telephone and personal meetings, showing that most of the partners were starting to feel part of the community and were overcoming the cost of cooperation to reach the benefit of networking (Nowak, 2011). Furthermore, during this period, a number of networking activities were organised by @LIS-ISN. Nine workshops were organised in Latin America¹⁰³ in order to strengthen the sustainability potential of the @LIS projects within their national contexts, involving the @LIS actors and relevant local stakeholders. Further, the third Coordination Meeting was organised in Lisbon, for the first time in Europe, gathering all the @LIS coordinators, a few partners from each project, plus some external actors such as representatives from the European Union Delegations in Latin America and a number of officers from the European Commission in Brussels. This event was organised in connection with the EU-LAC Ministerial Forum on Information Society, allowing the @LIS projects to present their results to European and Latin American policy makers in charge of Information Society. These activities had an impact in the direction of opening the

¹⁰³ In Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Peru and Uruguay.

programme to the external world. Up to this moment, even if each project had been running its own dissemination and promotional activities, the @LIS network as such was in fact a rather closed network composed by the @LIS projects and by a very few other stakeholders such as the Latin American EU Delegations: the activities run in this third phase somehow raised the level of support to the network by opening it to the external world. This was mainly achieved by “going local” through the Workshops in Latin America and by “going political” through the contacts facilitated between the @LIS projects and authorities in charge of Information Society during the Third Coordination Meeting in Lisbon. On month 30 the network took its “mature” shape, reaching the following structure.



Graph 6. The @LIS network on month 30 (Red nodes indicate e-Learning, purple e-Inclusion, blue e-Health, green e-Government). The thickest lines signify connections of level three, indicating an effective cooperation with a medium-term vision.

The @LIS network developments confirm the finding of many researchers¹⁰⁴, who claim that most of existing networks, from human and social network to biological networks or to computer networks, are *small world networks*, meaning that nodes are separated from each other just by a few links. In its maturity phase, the @LIS network had an average degree of almost 15, meaning that each node was connected on the average to 15 out of the maximum 18 potential connections. Additionally, the network evolution confirmed the clustered nature of the @LIS community: although the links have transversally increased as far as information exchange, synergy and collaboration are concerned, the four sectoral clusters remain visible¹⁰⁵. As it had started to appear on month 22, the e-Inclusion projects had gained a more central position within the network, showing that they were able to connect to projects from the other sectors to a higher degree with respect to projects belonging to the other clusters. This can be explained by the fact that all the @LIS projects had an ultimate digital inclusion aim, and therefore the e-Inclusion projects shared by nature more features with most of the others, both in terms of activities and target groups. Furthermore, as direct observation has shown along the whole of the programme, the e-Inclusion projects were always perceived by the community as being most directly connected to grassroots development, and were therefore treated with a general sympathy by the other actions.

In the network consolidation phase, the links of level two, indicating joint planning, increased, and some links of level three appeared, indicating that a number of effective cooperations had started to take place with a medium-term vision. These thickest lines seem to define another level of clustering with one group in the e-Health area on the top-right of the graph, one in the e-Learning area in the top-left, and two between the e-Learning and the e-Inclusion area¹⁰⁶.

¹⁰⁴ See Barabási 2002, Watts 2003, Dorogovtsev and Mendes 2003, Toivonen 2009.

¹⁰⁵ As stated earlier, it must be noted that the nodes are placed in the graph depending on their “closeness” to other nodes, and therefore the fact that nodes belonging to the same sector are close to each other means they share a higher number of links among themselves than with the ones belonging to the other sectors. The fact of being able to see the clusters is a great help in analysing the network development and state of the art, and is made possible by the use of SNA software and techniques.

¹⁰⁶ When three nodes are connected (as in the case of the *Cibernarium*, *Integra* and *E-LANE* projects on top left of Graph 6), this does not necessarily mean that cooperation is taking place among all the three actors, but it could be that the

Before analysing the newly established links and at the effects that these had on the network, it is time to look at some topological features of the network on month 30 and to compare them with the same metrics on month 6 and 22, showing to which the extent the network has effectively developed.

Topological features (links of strength 1)	Month 6	Month 20	Month 30
Connectedness (average incoming and outgoing degree of each node)	1,47	10,81	14,95
Network Density (total number of links within the network in relation to the total possible number)	0,04	0,31	0,41
Network diameter	2	3	4

Table 4: Development of the @LIS metrics.

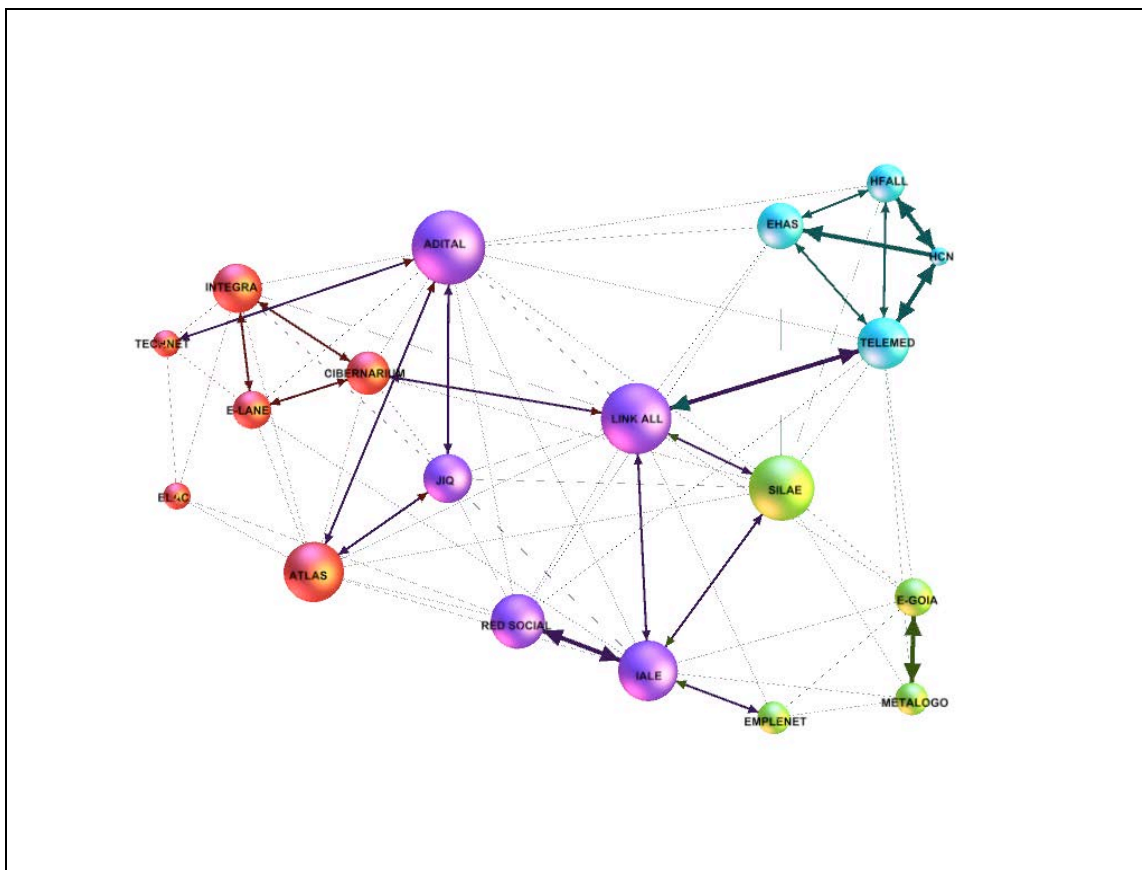
During the programme first 30 months, the network has grown more and more connected. The average number of links of a node within the network has been growing from less than 2 to almost 15: this, in a network of 19 nodes, means that a node is on average connected to almost every other node. Nevertheless, as we can see from the second line, the density of the network, although steadily growing, is no more than 0,41, meaning that the number of existing links is less than 50% of all the possible ones. Finally, network diameter has increased until 4, meaning that, on the average, each node could potentially reach – though direct connections – a node four steps away; again, for a network of 19 nodes, this means that the potential capacity of exchanging knowledge across the network is quite high. The network metrics are very different if, instead of calculating them for the links of level one, indicating active information sharing, we calculate them for the links of level two and three. On month 30, the number of links of the second kind is 15, while the one of the third kind is no more than 6. These data, if combined with the other on Table 4, confirm that the network reached a good strength as far as active

three projects cooperate on a bilateral basis on different activities. In our example, Cibernarium cooperated with *E-LANE* on the use of the online platform, *E-LANE* with *INTEGRA* on sharing pilot schools, *INTEGRA* and *CIBERNARIUM* worked on mutual dissemination.

information sharing is concerned, with a much more limited level of exchange of practices and content, and a really small number of long-term cooperation links. This fact is confirmed by direct observations along the programme, and is understandable for a network with less than three years of life composed by actors spread across four sectors and two continents.

6.2.3.1 In-depth analysis of the @LIS links

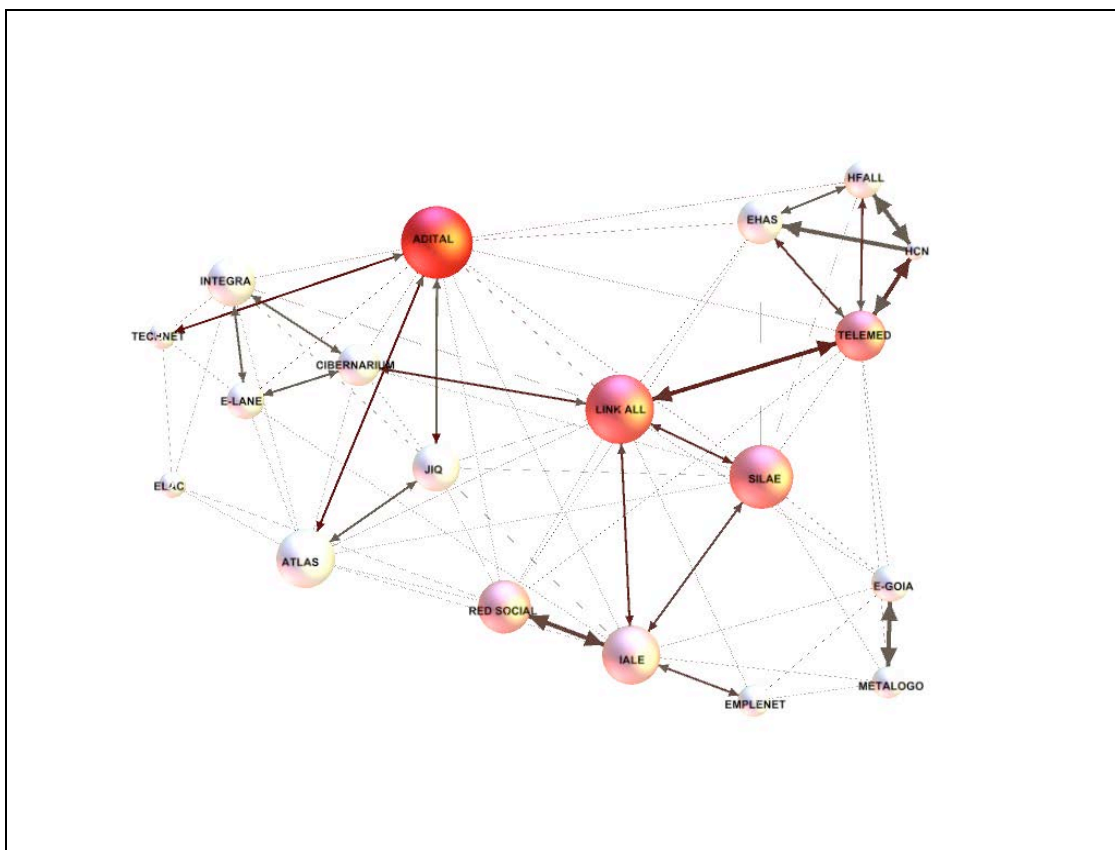
In the graph below, the connectedness of each node is visualised through its size and position: the most connected nodes appear as central in the graph¹⁰⁷.



Graph 7. The @LIS network on month 30, showing the degree centrality of nodes. Red nodes belong to e-Learning, purple to e-Inclusion, blue to e-Health, green to e-Government; the dimension indicates the degree centrality of each node.

¹⁰⁷ The links of level one increased steadily from month 22 to month 30: on the average, on month 30 a node was connected to 15 other nodes, the most connected having 25 links and the least connected having 5 links.

Almost all the e-Inclusion nodes are rather well connected, while in the other sectors some *best-networkers*, at least in terms of number of connections, start to emerge. Field observation confirms this dynamic: during the @LIS Coordination Meetings, the projects that have a greater level of connectedness (ATLAS, SILAE, Telemed) were the ones who took some leadership in organising sessions and in guiding the discussions. This decision had been taken before the meeting by @LIS-ISN in collaboration with those projects, and was accepted without any problem by the community at the beginning of the meeting, showing that a certain degree of networking prestige was acknowledged to these projects.

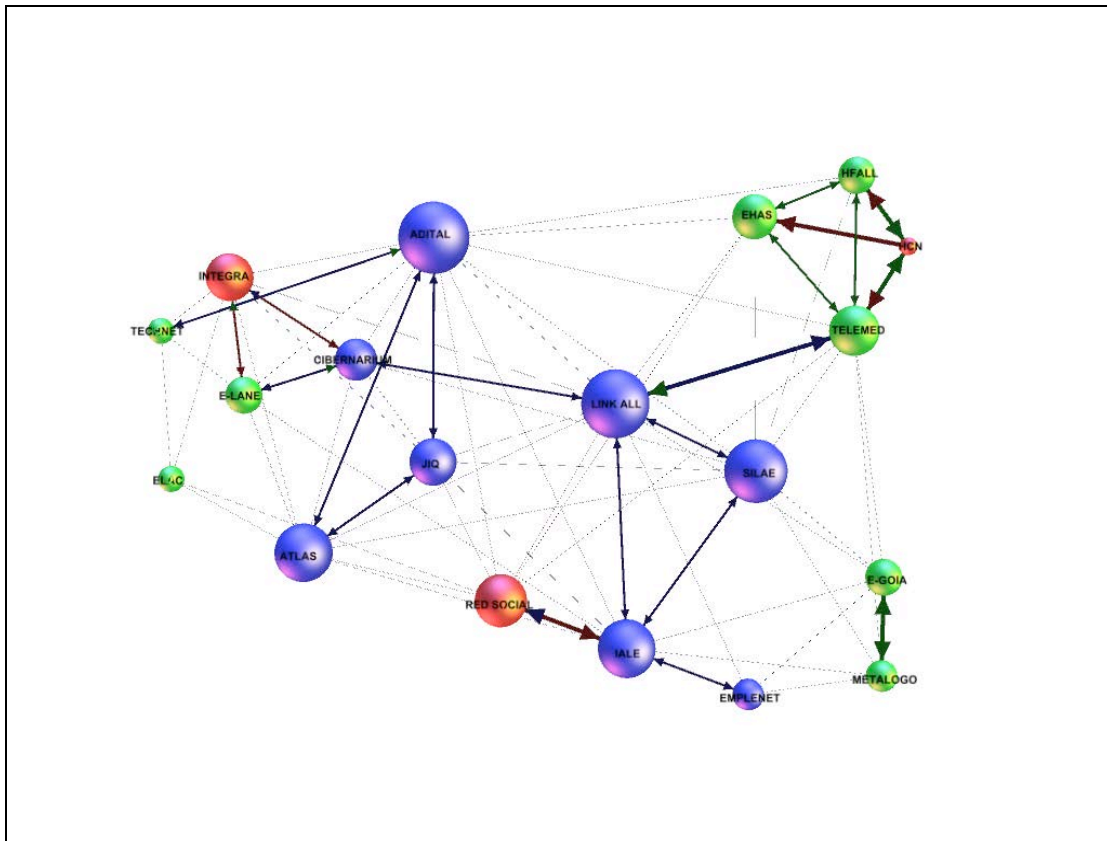


Graph 8. The @LIS network on month 30: the dimension of a node indicates its degree, the colour intensity its betweenness.

The above graph shows, together with the Centrality Degree, also the Betweenness Degree, represented through the nodes colour: the lighter a node, the less it is connecting other nodes, the darker, the more it connects other nodes. The dark nodes are the ones who were able to *channel* knowledge through the network, and are therefore extremely important to connect more isolated nodes or group of nodes. It appears that the *ADITAL*, the *LINK-ALL* and the *SILAE* projects represented the hubs of the network. What the three projects have in common is the fact that their *networking offer* to the @LIS community was based on the possibility to test the applications developed by other projects in their pilot sites: since most of the community regarded this offer as something that could have increased their impact, collaborating with those three projects was extremely interesting for most of the others.

This can be better understood if we distinguish the @LIS projects in two categories. Even if all the 19 demonstration projects had to both develop some innovative ICT solutions and to pilot them in some Latin American contexts, a distinction can in fact be made between projects that mostly focussed on developing ICT solutions to close some kind of learning, government, health or inclusion gap, and projects which focussed on demonstrating the utility and possible impact of some applications in a specific context. The projects of the first kind focussed more on the development and on the research side of their cycle, normally devoting a shorter time to the demonstration part, while the projects of the second kind developed rather simple solutions and concentrated on applying them in the selected contexts. The presence of these two typologies of projects, that confirms the complexity of the @LIS programme, is in line with the categories of stakeholders that were mostly involved in the two kinds of projects. In general terms we can say that most of the projects coordinated by a university or by a research centre belonged to the first category, while most of the ones coordinated by a NGO or by a local authority belonged to the second. This heterogeneity represented a richness for the programme, since it allowed actors with different background to work together and to learn from each other,

and made possible the creation of a genuine multistakeholder network¹⁰⁸. Also in this case, this differentiation can be visualised graphically: in the following graph, the projects which have been focussing on the developing solutions are in green, the ones who focussed more on deploying solutions and pilots are in blue, while the ones with a mixed nature are in red.



Graph 9. The @LIS network on month 30, showing the nature of the nodes: in green the projects focussing on developing innovative solutions, in blue the projects focussing on piloting solutions, in red the ones with a mixed nature.

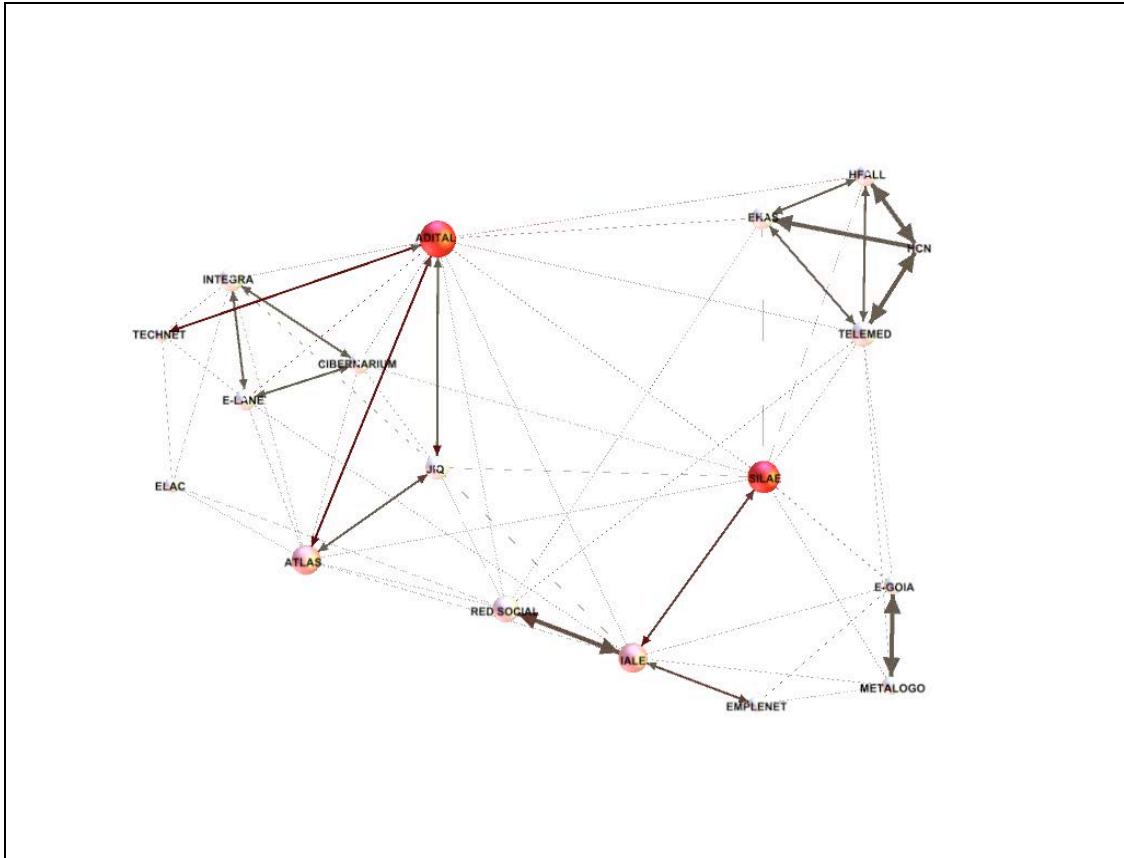
Interestingly, the projects focussing on piloting solutions are all in the central part of the graph. This confirms that, as we said before for the three hubs, these projects had a higher betweenness centrality, since what they were offering to other projects was the possibility to test in their pilot sites some applications.

¹⁰⁸ As we will further analyse later, the richness of a multistakeholder network is normally counterbalanced by a higher difficulty for the network to prosper, due to the creation – as in our case – of clear-cutting clusters with different visions and approach within the network.

The case of *LINK-ALL* is paradigmatic in this sense. Thanks to a very active promoter from a Brazilian partner, this project took contact with all those projects that had produced applications that could have been useful for the *LINK-ALL* Brazilian pilot sites. This call received a positive reply by the *Telemed* project, which was willing to share its telemedicine platform, and by the *RED-SOCIAL* project, which offered a system it had developed to allow visually impaired people to use the computer without having to buy expensive proprietary software. The presence within these projects of particularly active partners, who took a number of networking initiatives with respect to other projects and which normally contributed to the establishment of most of the links of its project, is also a reason for the centrality of this kind of projects.

We have seen that at this stage *ADITAL*, *LINK-ALL* and *SILAE* had emerged as hubs within the network. Identifying those hubs is very important if one wants to strengthen the network, both because of their higher communication capacity and because of their reputation. As we have seen, the concept of reputation is important in knowledge networks, because it contributes to increasing the general cooperative attitude of the network through an indirect reciprocity mechanism. This concept is also significant in the case of open networks, since new nodes entering the network tend to link with the existing nodes that have a high reputation (Barabási, 2010). In the case of @LIS, it would have been possible to decide how to influence the network development by acting on those hubs. Assigning more networking resources to them would have for example increased their networking capability and marginally increased the whole network connectedness; on the other hand one could have decided that, being these three nodes very much linked with e-Inclusion dynamics, other nodes such as *ATLAS* or *Telemed* from other sectors should have been empowered to become hubs, so to increasingly involve the other sectors in the network.

The importance of those hubs in terms of network strength and potential evolution can be better understood if we delete those nodes from the network. As an example, in Graph 19 we have deleted the *LINK-ALL* node, transforming @LIS into a much less connected network: only by deleting a node, the whole network density dropped from 0,41 to 0,386.



Graph 10. A simulation of the @LIS network on month 30, without the LINK-ALL node.

On month 30, fifteen links of level two had emerged in the network, showing that some projects had started to work in synergy¹⁰⁹, mainly planning to expand their services to pilot sites of other projects. Typically, projects with a strong demonstration nature, and normally with strong Latin American partners, were offering the possibility to implement activities in their pilot sites to other projects that were more focused on developing innovative solutions. An exemplary case is the one of *TECHNET*, offering its ICT-based tourism solutions to be implemented within the services portfolio the *ADITAL* pilot sites, with benefit for both actions. Another case is the one of the radio programme developed by the *ATLAS* project, which was broadcasted in the rural areas covered by the *ADITAL* project, with great benefit for the two actions. The same

¹⁰⁹ This was the main objective of the @LIS networking activities and therefore this finding would have been particularly important for the programme evaluation; unfortunately as we have seen in paragraph 6.1.5, the @LIS evaluation did not take these data into account.

happened with the following links: *IALE-SILAE*, *IALE-LINK ALL*, *EMPLENET-IALE*, *CIBERNARIUM-LINK ALL*. Some projects, such as *IALE*, were particularly successful in this respect since they had produced low technology and easily adaptable solutions, in the *IALE* case focussing on the use of web radio for rural development, and therefore were very attractive to other projects. Others produced rather advanced ICT solutions, such as the *TECHNET* artificial intelligence based support device for tourism, and therefore resulted somehow less attractive for replication. We observed that on the offer side the easiness of transferability was probably the most important factor of attractiveness, and therefore projects which were offering easy-to-adapt solutions were the most successful in building links of the second level, while on the demand site the facility of application was the key for attracting interest and therefore links.

Projects privileged to engage in synergies with high probability of success in the short term rather than participating in more elaborated cooperation schemes with demanding preparatory work involved. When projects coordinators were asked the reason for this preference, they replied that this is what they could do with the limited networking resources they had available; some of them did not have any financial resources specifically devoted to exploring possible cooperation possibilities within the network, and had therefore to use budget that was originally planned for development or demonstration activities. The paradox is that on the one hand the @LIS projects were encouraged to work in synergy but on the other specific resources to build up specific cooperation schemes were not included in the projects budgets. Having included some *hyperhead costs*, as described in paragraph 6.2.2, would have most probably allowed the creation of deeper and more complex synergy schemes. This has somehow made the networking life of the most innovative @LIS projects (the green nodes in Graph 9) more difficult, and has on the other hand facilitated those projects that were focussing on simple and flexible solutions (the blue nodes in Graph 9).

Another group of cooperation stories that lay behind the links of the second kind deals with projects sharing some of their outcomes. This was for example the case of the videos produced by the *JIQ* project, that were broadcasted

through the *ATLAS* portal reaching the *ATLAS* schools and through the *ADITAL* portal reaching the *ADITAL* municipalities, representing a good example of cross-sectoral collaboration where the work of an e-Inclusion project was used by both an e-Learning and by an e-Government project. Another case was the collaboration between the *HealthforAll* and *EHAS* projects, where the first project made available its online learning materials to be used through the *EHAS* portal. A case of trilateral collaboration is the one among *INTEGRA*, *Cibernarium* and *E-LANE*, which have been sharing tools, methodologies and outputs following a discussion organised in the frame of the second @LIS Coordination Meeting. In all these cases, projects had to overcome a number of barriers of both managerial and technological nature. In managerial terms, they had to agree on intellectual property rights and on licenses scheme for the use of the materials, while in technological terms they had to look for solutions to make the shared materials usable within the websites of all the projects involved in the collaboration. In a specific case, two projects had agreed to deliver some courses produced by one of them through the web portal of the other, but they had done so before consulting their IT specialists. Once they had done so, they discover that too much work would have been necessary to adapt the original materials to the new specifications but, instead of letting the cooperation down, they decided to simply link the two websites to allow users from the receiving project to enjoy the courses available on the other project website.

In this phase, links of level three appeared, showing not only that some collaboration was in place, but also that the involved projects had agreed on some long-term cooperation plans.

The link between *IALE* and *RED-SOCIAL* projects was grounded on the fact that the two projects were both coordinated by Caritas Española, and therefore had put in place a very similar sustainability strategy, embedding the services developed during @LIS within the set of services of the project coordinator. One could argue that this approach somehow excluded the Latin American partners from the projects' sustainability strategy: this was not the case since Caritas works through a number of branches in Latin America and therefore was guaranteeing a co-ownership of the produced results.

The link between the *Telemed* and *LINK-ALL* projects had appeared already on month 22 and in this phase was strengthened¹¹⁰. The two projects signed a Memorandum of Collaboration focusing on extending the services of *Telemed* to one of the *LINK-ALL* pilot sites. Unfortunately, despite the commitment of the Brazilian partners of the two projects, the idea encountered practical barriers due to the lack of flexibility in using the project resources for activities that were not foreseen at the beginning of the actions. For the collaboration to take place, a few fact-finding missions would have in fact been necessary, but it was not possible for the project coordinators to increase the budget of their partners involved in the operation, and therefore the synergy got lost: also in this case, having used the projects resources more flexibly would have made this cooperation possible. On the other hand, even if this collaboration was not possible within @LIS, the relation between the two institutions involved in this cooperation developed along the long tail of networking presented in paragraph 4.2 and gave birth to further collaborations outside @LIS.

The synergy among the four e-Health projects represents one of the most successful networking stories of @LIS. Even if these projects were of rather different nature¹¹¹, an important networking precondition was present: the projects shared a few partners in Brazil and a connection was pre-existing between two of their coordinators, both from Italy. Furthermore, within these projects some of the most effective network weavers¹¹² of the whole @LIS community were present. Following a number of preliminary contacts and information exchange activities, that are represented by the links of level one

¹¹⁰ A similar process took place between the *LINK-ALL* and *SILAE* projects, but reached a less mature level of development and therefore is indicated by a link of level 2.

¹¹¹ *Health for all* aimed at improving health care access and management through e-Learning for continuous professional development of family doctors in Latin America. *Health Care Network* aimed at transferring to Brazil the technical and organisational know-how acquired by European key players in the area of regional health care networks in the framework of European R&D projects and in the routine provision of telematic services. *EHAS* aimed at reducing the existing inequalities in delivery of health care among different regional centres and among different layers of the population with particular attention to the most vulnerable. *Telemed* aimed to provide e-health services in strongly underserved regions in Colombia and Brazil, introducing a e-health model supported by current telehealth technologies as well as by evidence based medicine.

¹¹² "A weaver's role is to bring nodes into relationship. Weavers can simply introduce people to each other, which might produce some low-intensity engagement between them, or they can undertake a higher-intensity effort aimed at building deeper bandwidth/engagement among the nodes" (Plastrik and Taylor, 2006).

and level two visible in Graph 1 and Graph 3, the four projects agreed, during an event organised in Belo Horizonte by the *HealthCareNetwork* project, to join forces beyond the life of @LIS and to jointly constitute the “Euro-Latin American e-Health Innovation and Excellency Laboratory”. Through a Memorandum of Understanding, a number of partners from the four projects decided to share their results in a long-term perspective and to build a common portfolio of ICT solutions for public health to be promoted across Brazil and Latin America. The coordination of this effort was undertaken by a Brazilian partner from the *HealthCareNetwork* project; that is why in Graph 7 this project has strong links with the other three projects. Following the launch meeting in Belo Horizonte, some of the partners of the four projects took a leadership role while others mostly followed the initiative development; eventually the Laboratory was able to connect with important institutions such as the Panamerican Health Organisation, to developed a scientific journal on e-Health in developing settings and to setup a joint master among some of the participating universities. All these activities were embedded in the activities of the participating projects, typically by adding the logo of the Laboratory to an initiative of one of the projects, but were promoted as joint activities, having an important impact on the whole @LIS community. When the Laboratory was announced within the @LIS mailing list, it triggered some imitation dynamics, especially within the e-Learning cluster, and definitely pushed the cooperative mood of the network, in a sort of cooperation behaviour cascade (Fowler and Christakis, 2010). The role of @LIS-ISN was important for the success of the synergy: it was in fact @LIS-ISN which designed the idea of the Laboratory, assigning roles and tasks to the involved projects, and making sure that none of the involved actors would feel overcome in its role within the initiative.

Links of level three can be very important for collaborative sustainability planning, as in the case of the *eGOIA* and *Met@logo* projects, both from the e-Government sector, which worked out a joint sustainability strategy. The projects were coordinated by two public German institutions (*Fraunhofer* and *GTZ*) that had previous collaboration experiences, and decided that a collaborative scheme could have been more successful than two individual and somehow competitive strategies. The following table presents the sets of actions and the planning complexity that lay behind a cooperation scheme of this level.

Task	Deadline / Responsible
Exchange of Documents (Presentations and Articles)	06.11.2005 Met@logo 18.11.2005 eGoia
Exchange Met@logo installation packages and documentation	06.11.2005 Met@logo
Exchange Contact addresses eGoia/Met@logo Peru	06.11.2005 Met@logo, eGoia
Feedback eGoia: Specification of additional information needs, Does a close cooperation make sense?	After eGoia Workshop in Brazil
eGoia Workshop in Peru 22.11: Participation of Met@logo project leader and (if possible) one representative of Met@logo in Peru	End of November, Met@logo & eGoia
Peru: Check of Met@logo platform – adequate for eGoia Peru?	End of November, eGoia
Brazil – Check of Met@logo platform – to be used in eGoia eGovernment Lab eGoia Brazil?	End of November, eGoia
Does Met@logo support webservice? Relation between Met@logo extensions and webservice?	18.11.2005, Met@logo
Marketing eGoia/Met@logo: Integration of information about the projects in presentations	First opportunity: Bilbao and Tunis
Costs– Calculation of maintenance costs of Met@logo solution	January 2006, Met@logo
Decision: Does a close cooperation on a technical level between eGoia and Met@logo make sense?	Mid December 2005, eGoia and Met@logo
Definition of next tasks	To be defined in Jan 2006

Table 5. Practical steps for a joint sustainability strategy. Source: @LIS-ISN project, October 2005.

This is what typically lied behind a link of level three: a number of planned activities, including feasibility options, costs calculations, joint promotion activities. This collaboration was possible thanks to the fact that the two involved institutions could devote some human resources and some budget to explore and setup the collaboration. Most probably, in case they would have been two Latin American NGOs and not two German strongly established institutions, the synergy could not have developed to this extent.

The collaborations lying behind links of level three were specifically facilitated by the work of @LIS-ISN, again through a work of systematisation of collaboration, based on a mapping of all the @LIS projects outcomes classified

with respect to the problems they addressed¹¹³, regardless of the sector they belonged to. This mapping represented another important joint effort of the @LIS community, since projects were asked to present their results, from a telemedicine software prototype to a network of schools to an online training course for farmers, following the *gaps* they intended to close, therefore overcoming the classical projects results logic. The exercise was based on the rationale that a policy maker or a company interested in adopting some ICT application does not mind if those are resulting from a project or another; on the contrary these possible adopters must be put in the position to easily visualize and compare all existing results that can be of interest for a specific problem. This work encountered some resistances among some projects which were keen on keeping a “paternity” on their results even in promotional terms and within the European Commission that was worried for possible IPR infringements, but was extremely useful to both facilitate a reflexion of the @LIS actors on what the community had produced and to foster a learning process on how to improve each other outcome in a collaborative perspective.

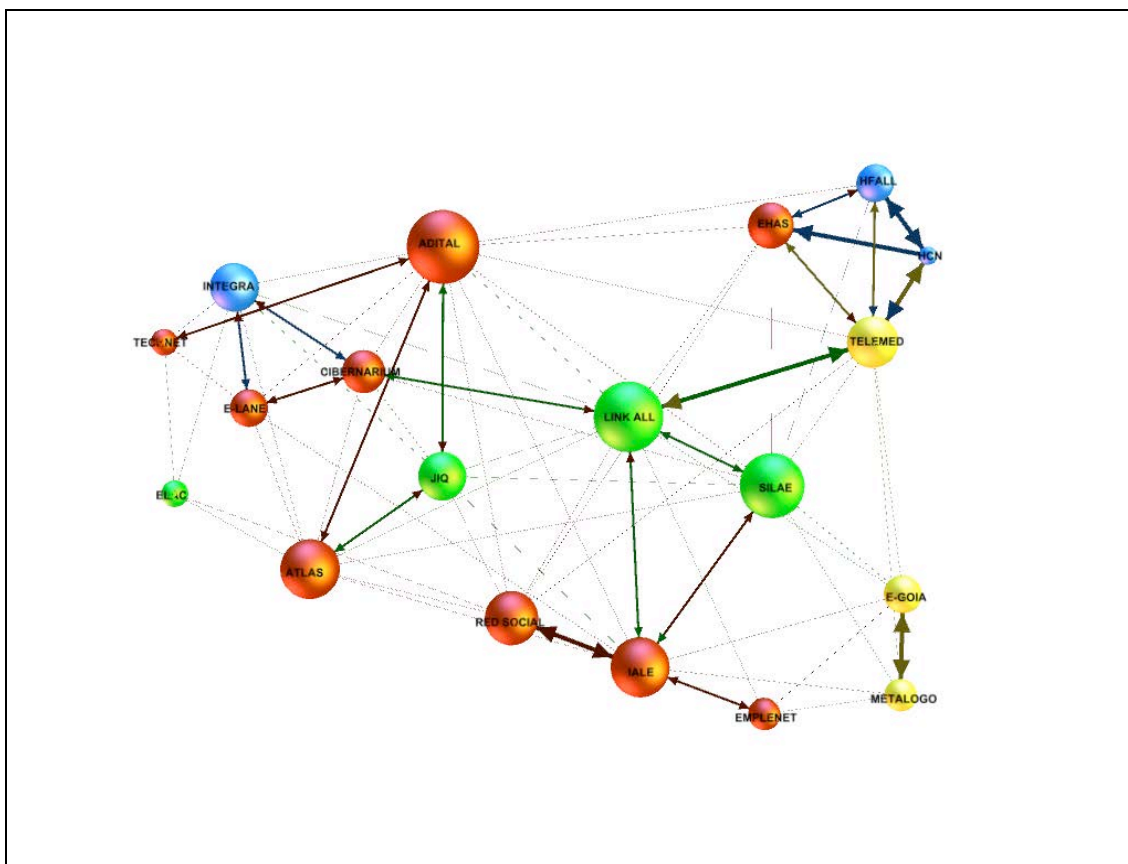
6.2.3.2 National networking dynamics

Even if @LIS was a bi-regional programme covering the whole of Europe and the whole of Latin America and therefore aimed at somehow transcending the local dimensions, some of the most interesting developments in terms of networking took pace at the national level. Most of the @LIS actors, all if we exclude a few international organisations such as UNESCO or some multinational associations, were strongly grounded in their national environment; this being true both in Latin America and in Europe¹¹⁴. Among the links that were established during the programme, some clear patterns can be identified which are related to the national contexts. In the next graph, we

¹¹³ @LIS-ISN classified the projects results along the following categories: results that helped bridging the connectivity gap, the healthcare gap, the information gap, the education gap, the training gap, the employment gap, the collaboration gap, the gap between citizens and administration, and the policy and regulatory gap.

¹¹⁴ The absence of a common language within the community was one of the highest barriers to fluent networking. Even if most of the @LIS stakeholders could understand Spanish, some Europeans expressed themselves in English, making smooth cooperation quite difficult especially in online communication.

show the projects with different colours depending on the country of the coordinator: red for Spain, blue for Italy, yellow for Germany, green the others¹¹⁵. Also in this case, some collaboration patterns related to the county of the project coordinator existed. In particular, the collaboration between *eGoia* and *Met@logo*, both coordinated from Germany, the strong connection between the two Italy-coordinated *HealthCare Network* and *HealthForAll* projects, and the many connections among projects with Spanish coordinators.

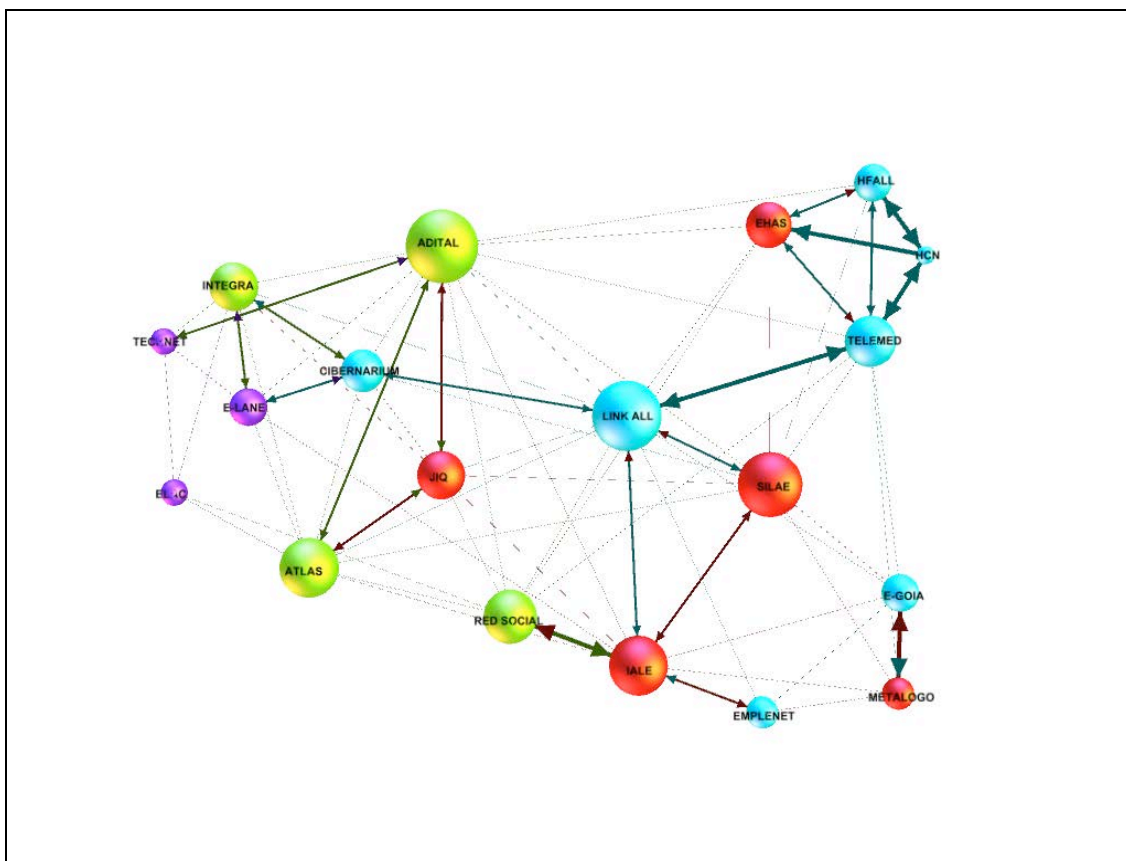


Graph 11. The @LIS network on month 30, showing the EU national coordinators (Projects with Spanish coordinator in red, with Italian coordinator in blue, with German coordinator in yellow, in green the others).

Equally important, and sometimes even more crucial, were the links established at the national level in Latin America. To give an understanding of how much focusing on the same Latin American country has facilitated establishing links

¹¹⁵ One from France, one from Belgium, one from Denmark, one from Greece.

between and across projects, in the next graph we visually distinguish among projects with a focus on Brazil (blue), Argentina (green), Mexico (purple); red indicates the projects with main focus on other countries.



Graph 12. The @LIS network on month 30, showing the Latin American focus of the nodes (Focus on Brazil is blue, on Argentina is green, on Mexico is purple, red indicates the projects with main focus on other countries).

As we have seen in paragraph 4.2.1, the @LIS partners from a specific country typically started establishing links among each other during the first months of the programme and continued to be in contact during the @LIS developments. To further strengthen this dynamic, around the middle of the programme lifecycle nine Sustainability Workshops were organised targeting the national @LIS communities in the countries with a higher number of programme

partners¹¹⁶. During these events, which were normally hosted by some ICT public authority in the country, the @LIS national partners were actively and enthusiastically involved in presenting their work, their successes and their needs to national institutions, creating the basis for further collaborations and improving the visibility of their activities in their national environment and at the same time the usability of their project results. As an example, we can report the results of the workshop which was held in Buenos Aires in December 2005. More than 50 participants attended the event, including representatives from the six @LIS demonstration projects with Argentinean partners: *ATLAS*, *INTEGRA*, *EMPLENET*, *ADITAL*, *RED-SOCIAL*, *LINK-ALL*.

Projects/actors involved	Collaboration ideas
ADITAL- UBA	Facilitate the sustainability of ADITAL through academic networks and fundraising
ADITAL – Regulatel	ADITAL needs a special regulation for connectivity in rural areas
ATLAS – Red Clara	Internet 2 could be used to connect the ATLAS schools
LINK All – ATLAS	The impact could be increased through exchange of pilot sites
INTEGRA – ATLAS	The two projects are working to interchange users, they could collaborate in producing a quality mark for all the @LIS outcomes
INTEGRA – EUN	European schools could be added to the INTEGRA schools network, in collaboration with the <i>eTwinning</i> programme of EUN
INTEGRA – ATLAS – EFQUEL	Experiences should be shared in the field of courses certification, in collaboration with the Argentinean Ministry of Labour
LINK All – Red Orion	Collaboration must be setup with the universities of the ORION network, an agreement had been signed
Link All - Adital	Mutual support in commercialisation practices
ATLAS – RED-SOCIAL	Schools for visually-impaired students should be involved in the ATLAS community
INTEGRA – UBA	Collaboration in the area of teachers training through the INTEGRA community of practices.

Table 6. Results of the @LIS Sustainability Workshop, Buenos Aires, December 2005.

¹¹⁶ Sustainability workshops were organised in Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Peru and Uruguay.

As we can see from the list of collaboration ideas that rose from the event, the discussions were able to both produce possible new synergies among a number of @LIS projects and to connect these projects with important national actors from outside the @LIS community. These workshops produced stimulating cooperation schemes. To make a couple of examples, thanks to the contacts made in the Costa Rica workshop, the work done within the *TechNet* project represented the basis for a UNESCO cathedra in the University of Costa Rica, while thanks to the Workshop organised in Brazil, the *Telemed* project – at least in some of its components – was selected by the Brazilian Federal Ministry of Development to be implemented at the national level. Further, in order to extract meaningful and innovative synergies, the workshops were organised as cooperation moments and not as occasion of competition among the involved @LIS projects, allowing the involved projects to decide which role to play within the events. “Cooperation – not competition – underpins innovation. To spur creativity, and to encourage people to come up with original ideas, we need to use the lure of the carrot, not the fear of the stick” (Novak, 2011, p. xvii).

6.2.3.3 Network dynamisers

The success of any networking venture depends on the capacity of the involved parties to successfully negotiate the aspects of their cooperation, and on how much the parties are able to work towards a common objective, openly sharing concerns and problems and working out solutions in a collaborative way. The fact that all networking activities depend on negotiation and consensus building among human beings increases the creativity potential of the network but also its unpredictability. “Humans and other animals make mistakes. Sometimes their wires get crossed. They suffer mood swings. Or they simply have a bad day” (Novak, 2011). During the history of @LIS, we have observed that one of the main reasons that has allowed some projects to emerge as thematic and cross-thematic hubs was the networking leadership that a specific person or team of persons working in those projects was able to take. Alter and Jerald (1993) define these people as “boundary spanners”, meaning “individuals who engage in networking tasks and employ methods of coordination and task integration across organizational boundaries” (p. 46).

Within @LIS, we have observed that the typical characteristics of these network dynamisers were, coherently with what stated by social network scientists, “a learning mind-set, and their ability to be flexible, adaptive, and to simultaneously consider other people’s points of view” (Spekman, Lynn and MacAvoy, 1995, p. 130) complemented by “skilful social entrepreneurship, flexibility and imagination, and the ability to learn on the fly” (Reinicke et al, 2000, p. xi).

Network dynamisers within @LIS were somehow able to understand how the networks was working in a specific moment and what actions had to be taken – from their point of view – to improve collaboration within the community. In other words, they “learned the best ways to undertake the major developmental tasks of network builders - from setting a network’s purpose and coordinating its activities to assessing its health” (Plastrik and Taylor 2006, p. 6). The early identification of network dynamisers has been very important to facilitate smooth communication across the @LIS network, since they have been able to facilitate connections among theoretically very distant actors within the programme. It is important to note that, in the case of @LIS, the main network dynamisers were neither professional networkers nor had been appointed for this specific role within their project. @LIS-ISON has been constantly relying on the most active networkers of the programme community both for spreading information through the network and to check the feasibility of ideas and developments that were emerging from the community.

Networks seem to have a number of common properties and tend to follow a number of typical developmental paths, and for this reason the main challenges that network dynamisers face during the development of a given network can be somehow foreseen. Within @LIS these challenges have been of two main types: legitimisation, since in some cases the most active networkers were officers of project partners from Latin America who could not officially “represent” the projects, and resources, since they were frequently blocked along their collaboration initiatives due to the lack of resources or to certain inflexibilities in using the project budget. Despite these challenges, which are quite common within international development programmes, these dynamisers were the main sources of the most interesting network developments within @LIS.

6.2.4 Fourth phase: network sustainability planning (month 31 to month 36)

This was probably the most delicate part of the @LIS network development, since during this phase the projects contracts with the European Commission as well as the corresponding funding were coming to an end, and therefore the institutional motivation of the partners to participate in the network, linked to the financial support received, had to be substituted by other forms of motivation. This phase was the testbed to appreciate whether the @LIS community was just an aggregation of actors bound to cooperate for contractual reasons, which in European programmes tends to be the norm, or if it had become a stakeholders network able to survive after the end of the programme funding.

If we look at @LIS from a *resource dependency perspective*, a neo-Gramscian theory that emphasizes the capacity of organisations to adapt to their environment (Scott, 2003), it is clear that, among the many motivational drivers that could convince an actor to collaborate within the @LIS network, the fact that the projects depended on resources controlled by others within the environment played a primary role, amid the complex number of dependencies with the elements of the surrounding inter-organisational networks (Hatch, 1997). Therefore, what happened when the contracts between the different projects and the European Commission finally came to an end reveals the actual reasons for networking within the @LIS community.

A fundamental moment in this respect was represented by the third Coordination Meeting, which took place in Lisbon on month 29, in April 2006. During this event, a plenary session was devoted to discuss possible common lines of action for the sustainability of the @LIS network after the end of the funding period. As part of its support activities and following a preliminary feasibility study, @LIS-ISN proposed to transform the @LIS community into a stable EU-Latin American association of actors working in the field of Information Society, and to enlarge it to other interested stakeholder from the two regions. This proposal originated a vivid discussion that touched upon the delicate long-term sustainability issues of a development network. Who would have been the owner of the knowledge produced by the network? How would have the network been managed? What was the correct balance between

openness and formality? Who should have decided on the network strategy? Even if at the time of the Coordination Meeting most of these questions remained only partially answered, the result of the session was extremely encouraging, since most of the participants agreed to keep on working as a network also after the end of the European Commission support, and expressed interest in joining the newly proposed association. Responding to this mandate by the community, @LIS-ISON supported thereafter an aggregation and consensus building process that, in the period from September 2006 to January 2007, brought to the creation of a no-profit international association called VIT@LIS¹¹⁷. Officially established in Brussels, VIT@LIS is still existing today and gathers European and Latin American institutions and individuals active in subjects related to the Information Society such as but not limited to e-Learning, e-Health, e-Government and e-Inclusion, committed to share information and results and to collaborate towards the creation of a more inclusive and open Information Society across the two continents. Since its creation, VIT@LIS has been keeping on growing and counts today on more than 300 members, including many categories of stakeholders such as universities, civil society actors, governments and public agencies, international networks, companies¹¹⁸.

Following the definition of knowledge networks provided by Creech and Willard (2001), VIT@LIS can be regarded as “a group of expert and institutions working together on a common concern, to strengthen each other's research and communications capacity, to share knowledge bases and develop solutions that meet the needs of target decision-makers at the national and international level” (p.19). In line with this definition, what VIT@LIS wants to do is not to produce new knowledge, but rather to facilitate, articulate and add dynamism to knowledge fluxes, trying, following the @LIS-ISON successful experience, to

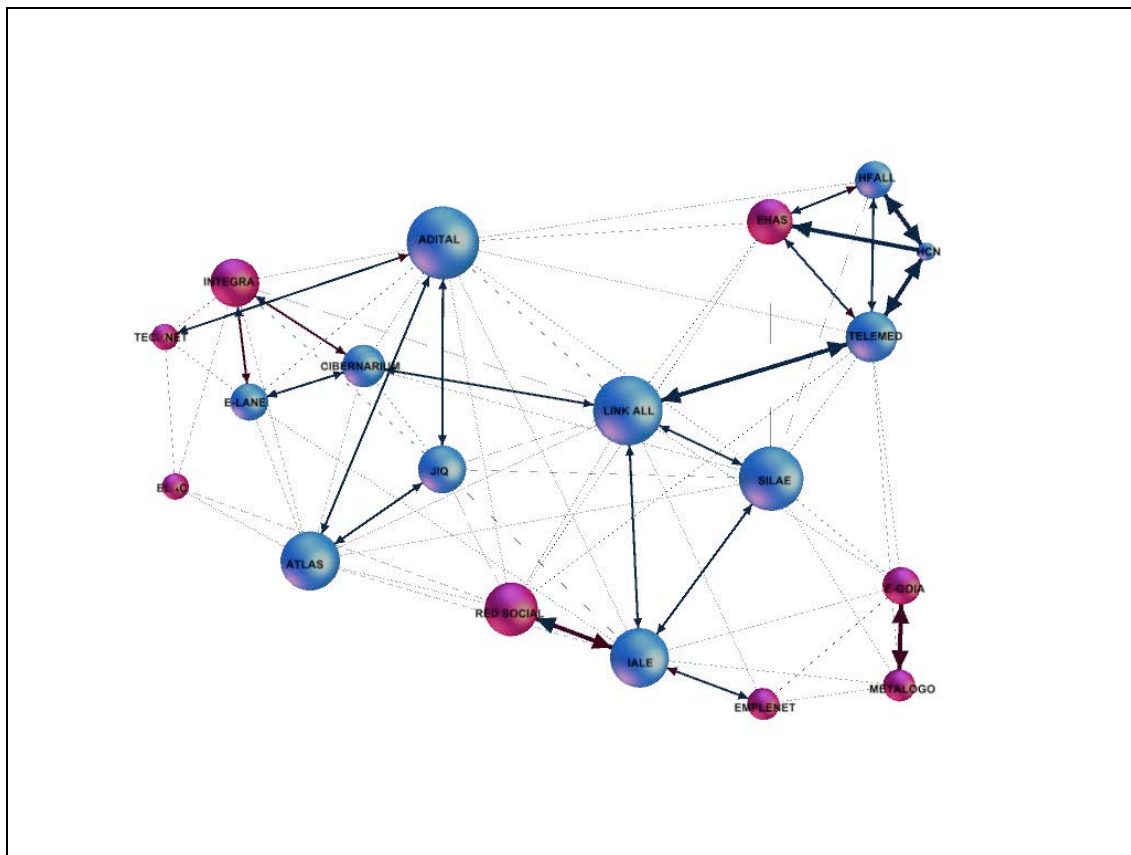
¹¹⁷ VIT@LIS took its name from the very well fitting brand of mineral water that was available in the meeting room in Lisbon at the time of the discussion, that seemed to suggest “*Vida después de @LIS*”, that is “*Life after @LIS*”.

¹¹⁸ The VIT@LIS members include key actors such as the Latin American group of advanced research and education national networks (RedCLARA), the forum of Latin American telecom regulators (REGULATEL), the National Office for Information Technology of Argentina, the Municipality of Sao Paulo, the e-Mexico National Programme, many prestigious universities such as the Universidad Autonoma Metropolitana from Mexico, the Pontificia Universidad Católica from Peru, the Universidades Politécnicas of Madrid and of Catalunya, as well as many important NGOs such as RITS from Brazil or the Association for Progressive Communication.

distribute the right knowledge to the correct stakeholders and to articulate knowledge communities around themes of common interest. A few issues had to be taken into account in such an operation, extremely complex in terms of the different stakeholders and sectors represented as well as in terms of geographical coverage (Nascimbeni, 2007). First, the extremely differentiated expectations, priorities, working styles and approaches towards Information Society issues of the members of the network. Second, the members' resistances to adopt innovative e-practices in their collaboration schemes and the change of mind-set required for the adoption of a knowledge sharing process such as the one brought forward by VIT@LIS. Third, the fact that each knowledge flux that VIT@LIS is supporting has the double nature of being at the same time global and local; since what shows to be useful at a specific local level can be transferred in a global perspective to other contexts only by standardising certain parts of the knowledge creation and documentation process, and at the same time only by localising global knowledge practices we can be sure that the local needs are taken into account. Fourth, the need to make excellence emerge and at the same time try to help the *quasi-excellent* institutions to improve and to learn from the best performers. This point relates with the co-existence within VIT@LIS of business-oriented together with non-profit sets of values: only by balancing the promotion of excellence with the support to inclusion these visions can coexist and add value to each other.

To properly tackle these issues, VIT@LIS was conceived with a flat and non-hierarchical structure. Any member of the association can input knowledge into the system or respond to any proposal coming from other members. To make this process possible in such a broad association, a number of transversal issues have to continuously be taken into account, such as multiculturalism and multilingualism, intellectual property rights, reciprocity, relation among policy, practice and research, multidisciplinary and problem-based logic. The VIT@LIS network was conceived along the conceptualisation by Moreno, Acevedo and Mataix (2007), which distinguishes between bi-dimensional networks and three-dimensional networks, the latter being characterised by a decentralised management approach where strong nodes act as dynamisers with a rather high degree of freedom, putting priority on knowledge building through nodes collaboration and contacts with external world. By structuring

VIT@LIS along this tri-dimensional network model, it was possible to strengthen the institutional capacity of the nodes as well as their collaborative capability and operational autonomy (Nascimbeni, 2007).



Graph 13. The @LIS network on month 30, showing the projects that joined VIT@LIS with three or more partners (in blue).

The fact that a high number of the institutions and the individuals who were participating in the @LIS Programme decided to join the VIT@LIS association shows that those actors were assigning a clear value to their participation in the @LIS network and to the knowledge sharing possibilities offered by being part of the community, beyond the funding that they were receiving from the European Commission. In the above graph we have modified the @LIS network as it appeared on month 30, distinguishing between the projects that joined the VIT@LIS network with three or more partners and the ones that joined with two partners or less. The graph shows that the projects that devoted more attention and energy to networking during @LIS, which appear in the centre of the graph, are the ones who joined VIT@LIS with more members, showing that

VIT@LIS was a rather natural development of the collaboration activities which took place during the programme. On the other hand, it clearly appears that the projects that did not join VIT@LIS with at least three institutions are the ones at the margin of the network. This demonstrates a correlation between the networking capacity, shown by the centrality of the nodes in the graph, the value assigned by the different actors to their networking activities within @LIS, and their interest in continuing working in collaboration within the community.

6.2.5 The network mobilises for the @LIS Day

On the 28th of September 2006, the @LIS network went through one of its most important moments: a general mobilisation of its members for a common objective. Following a proposal by @LIS-ISN, it was in fact decided to organise a joint promotional moment called “@LIS Day” in order to attract attention of policy makers, stakeholders and media on the importance of EU-Latin American cooperation in the field of Information Society. The @LIS Day aimed at valorising the work done and the results achieved by the @LIS projects among the widest possible audiences, and at facilitating the emergence of “hidden collaboration energies” across Europe and Latin America in the @LIS fields. The event was organised in a fully decentralised way, relying on the spontaneous interest of the @LIS actors in organising some kind of activity to make their projects and results visible on the very same day, and to do this in cooperation with other stakeholders, preferably but not compulsorily belonging to @LIS.

The organisation of the exercise was challenging for at least two reasons: the work that was requested to the projects was not part of their contract with the European Commission and the @LIS Day was scheduled in a delicate moment for most of the @LIS partnerships, which were closing their demonstration phases. Nevertheless, the response was extremely encouraging: out of the 19 @LIS projects, 15 got active in organising some kind of activity and in engaging external actors; further, the project activated their networks and through this more than 50 non-@LIS stakeholders organised some kind of mobilisation. The most relevant activities organised were a Seminar in Brussels aimed to valorise and discuss the results of the @LIS projects with European development and

Information Society experts, a Seminar in Madrid to foster the Spanish component of @LIS and to strengthen the existing links between Spain and Latin America in the Information Society, a EU-LA ICT Research Exhibition in Granada presenting to non-professionals the @LIS applications, a Seminar in Buenos Aires aimed to discuss the advance in the country on Information Society issues and to present a number of national best practices, a Conference in Mexico City devoted to promoting the @LIS results in the country focusing on e-Learning, an ICT Exhibition in Quito on how Information Society tools can help people from the Amazon, and an Event in Belo Horizonte to present the results of the Latin American e-Health laboratory. All these events were connected in real time through videoconference, in a sort of bi-regional network meeting¹¹⁹. In parallel, a number of activities were spontaneously organised by non-@LIS stakeholders: schools celebrated EU-Latin America cooperation in their daily work, cities and local authorities announced their interest in adopting some @LIS results, universities announced cooperation plans and joint research programmes on different Information Society themes, NGOs organised events in cooperation with European or Latin American counterparts. This mobilisation beyond the @LIS boundaries involved important actors such as

¹¹⁹ Most of the @LIS projects mobilised for the @LIS Day. *EMPLENET* organised a demonstration session in an employment centre in Niteroi, Brazil, in connection with a Centre in León, Mexico, to announce the transfer of the project to the Leon region. *EHAS*, *HealthCareNetwork*, *HealthforAll* and *Telemed* co-organised the Workshop of the e-Health Innovation and Excellence Laboratory in Belo Horizonte, Brazil, involving health authorities from the country and other stakeholders. *Telemed* prepared a demonstration of the Telemedicine Kiosk for Infectious diseases and launched a promotional video on *Telemed* in Colombia and Brazil. *ADITAL* presented the results of a study on possible installation of its services across Latin America and organised a fair in Aracena, Spain, on sustainable development and ICTs. *SILAE* organised a videoconference between the Amazon and Europe and a cultural exhibition in Puyo, Ecuador, on the role of ICT to safeguard the Amazon cultural heritage. *IALE* launched a campaign on migration and ICT through more than 150 radio stations, reaching isolated region across the whole of Latin America. *JIQ* issued a special issue of the *Jornal Internacional de Barrios*, collecting videos from Latin American grassroots actors on the importance of working with Europe. *LINK-ALL* run a demonstration of its platform in all the project pilot sites and a press releases to increase the visibility of the project actions. *ATLAS* organised a “school collaborative day” involving more that 500 primary schools to discuss on the vision of pupils of Europe and Latin America. *CIBERNARIUM* run a promotional event in the project Internet Cafè in São Paulo, Brazil, with the involvement of disadvantaged ICT users. *ELAC* organised a Conference in Managua, Nicaragua and presented the *ELAC* publication, titled “Inclusividad de las TICs en la academia y la sociedad”. *E-LANE* launched a joint Master course among the project partners and announced that the project summer schools would transform in a community of practice to train trainers from Europe and Latin America in the field of e-Learning. *INTEGRA* organised an interactive game for the project schools through mobile phones as well as a Discussion Workshop on “Public Policies for ICT in education” in Buenos Aires, Argentina.

UNESCO, the Organisation of American States and Euronews, and was made possible thanks to the fact that most of the @LIS projects contacted their users and stakeholders and offered them the possibility to organise some sort of activity during the @LIS Day.

The success of the @LIS Day shows that, despite the existence of some important challenges, the majority of the @LIS community responded to a call for mobilisation with a fully cooperative approach. This represents a good example of what Fowler and Christakis (2009) call “cooperative behaviour cascades”, claiming that a cooperative behaviour, which in our case was the decision to organise an activity during the @LIS Day, can spread across a network along a three degrees of influence rule: as a result, each node in a network can influence hundreds of nodes, even without being directly linked to them. During the @LIS Day we observed exactly this dynamics: *the cooperative attitude and the enthusiasm of some of the @LIS actors influenced the decision of the others to cooperate within the initiative, in a sort of cooperative snowball effect.*

6.3 Networking and performance, capacity building, sustainability

From the analysis of the @LIS network evolution it is possible to extrapolate some dynamics and patterns that can be useful to reflect on the impact of networking and knowledge sharing activities on the actual success of the programme¹²⁰ and that can represent possible guidelines to foster networking in future development programmes. We will classify these dynamics searching for their impact on the three dimensions that are at the heart of the Networking for Development concept introduced in chapter 4, which are performance, capacity building and sustainability.

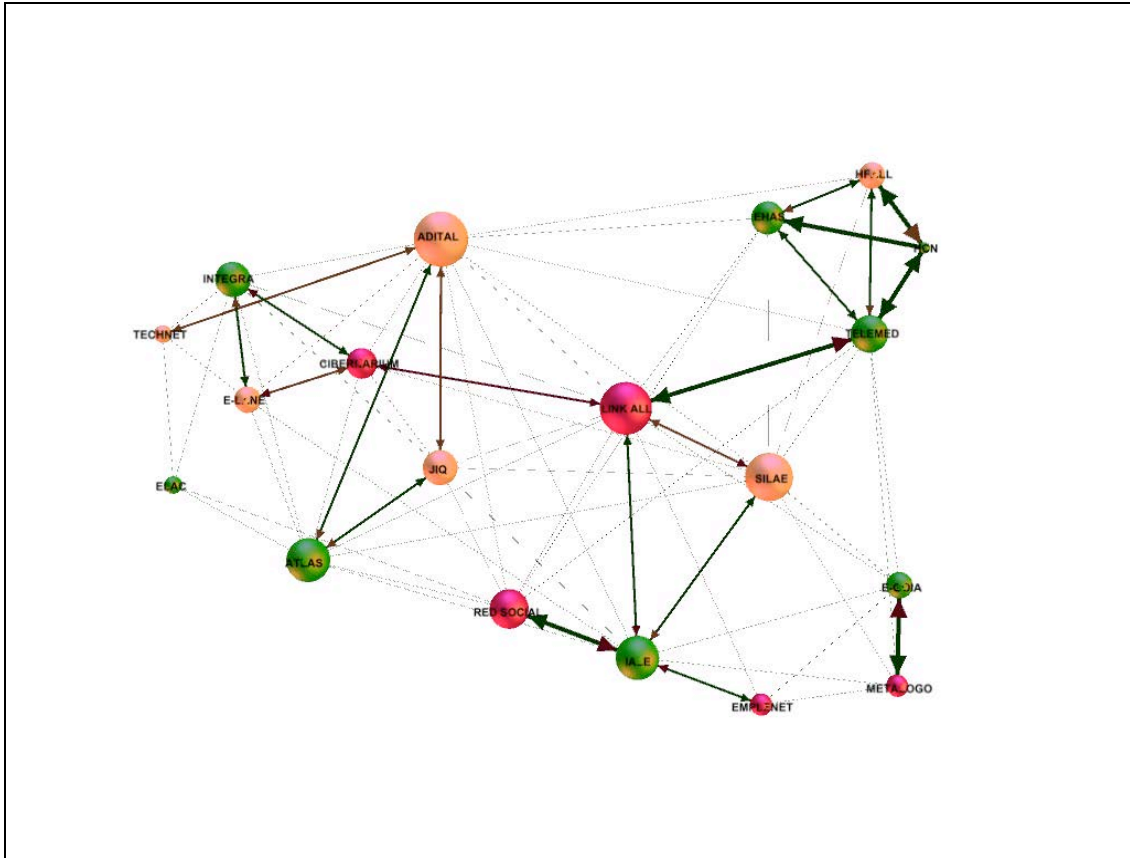
¹²⁰ As described in paragraph 6.1.5, these networking dynamics have only marginally been taken into account by the @LIS evaluation activities carried out by the European Commission: we are convinced that having considered them seriously would have helped in getting a better understanding of the developments, impacts and inner processes of a programme such as @LIS. Again, this is not only a problem only of the European Commission evaluation practices, but it seems to be a common *myopia* of most of the major donors and international development organisation.

6.3.1. *Impact of networking on programme and projects performance*

The official @LIS evaluation by the European Commission focussed on the relevance, efficiency and impact of the funded projects and of their results on their target groups, and paid specific attention to the level of compliance of the projects to their contractualised workplans. Although this evaluation was based on a sound methodology and was run in a rather participatory way¹²¹, the reasons why some projects were rated as more successful than others are merely provided in a few sentences in the @LIS Final Evaluation Report. The first of these sentence focuses on general project characteristics and reads “Among the main success factors, the outstanding projects were those that stimulated Latin American creativity more than the transfer of recipes from Europe, also associated with a relatively limited number of partners, flexible horizontal coordination with involvement of Latin American partners in the design and budgets reflecting a more even balance between the Europe and Latin America” (European Commission, 2008). Additionally, it is noticed that “the e-Health projects are the ones that have achieved more convincing results as the result of their demonstrative effects and the widespread replications, as well as the good coordination that they have established among themselves with a view to influencing the relevant public policies in their sector” and that “the e-education projects have also achieved interesting demonstration effects, but each one has done so individually, in highly diverse subject matter areas, and without achieving a perceptible impact on the political levels”. Finally, it is stated “the e-Inclusion and e-Government projects are the ones that have attained the least success in demonstrating reproducible solutions”.

Based on these considerations, the final @LIS evaluation report assigned an overall evaluation mark to each project: deficient, good or very good. In the following graph, we have modified the @LIS network on month 30 by showing the projects that scored “very good” in green, the ones which scored “good” in yellow, and the ones who scored “deficient” in red.

¹²¹ See paragraph 6.1.5 for more details.



Graph 14. The @LIS network on month 30, along the European Commission Final Evaluation (Projects evaluated as “very good” in green, as “good” in yellow, as “deficient” in red. The dimension of the nodes indicates the degree centrality of the projects).

Comparing the marks assigned by the European Commission evaluation with the degree centrality of the @LIS projects, shown in the graph by the nodes dimension, *there seems to be no correlation between the capacity of the projects to establish collaboration links¹²² and their degree of success as appraised by the European Commission.* This seems to be confirmed by the fact that none of the network hubs, as identified previously, received a “very good” mark by the final @LIS evaluation. This is no surprise since as we have seen earlier the networking activities and the corresponding results were nearly not taken into account by the official evaluation, and shows once more that projects were evaluated on

¹²² We have seen that, even if it is always difficult to rank projects in relation to their networking capacity, some networking leaders clearly appeared during the @LIS analysis.

the basis of how good they had been in reaching their individual objective and not of how much they had contributed to the development of the @LIS network. The only correspondence between positive marks and high levels of networking refers to the four e-Health projects, out of which three were rated “very good” and one received a “good” mark. As we have previously noticed, the e-Health projects adopted an extremely focussed networking strategy, concentrating on collaborating in depth with very few other projects, mostly from the same sector. Some correspondence therefore exists between the success of the projects following the European Commission evaluation and their networking capacity, but only for those projects that were able to reach a deep level of synergy. In other words, the @LIS evaluation rewarded the capacity to build strong networking links – the links of level three in our analysis, and gave importance to the tangible outputs of networking activities. In the case of the e-Health projects, the creation of the e-Health Excellence and Innovation Laboratory was particularly appreciated. What the evaluation was not able to grasp is the *soft side* of networking, meaning those connections and synergies that were established to exchange information, plan possible joint actions, discuss solutions to similar problems, but which did not reach a deep level of networking, nor produced measurable results. We believe that these links, partly corresponding to tacit knowledge exchanges, should on the other hand be recognised and rewarded, since they represent, especially in a programme that involved a number of organisations without a long international cooperation experience, an indication of the increased performance with respect to the “outreach” of the projects. As we have seen in the previous pages, these synergies did in fact contribute to the projects performance by extending their impact to other pilot sites or by facilitating resources saving through knowledge and results sharing. These connections, which “populate” the long tail of networking¹²³ within the @LIS community, are difficult to be measured and documented without the use of specific network analysis techniques. To be able to appreciate and to value these important connections, we must work beyond the traditional input-output logic that considers networking as instrumental to

¹²³ The concept of “long tail of networking” is presented in chapter 4.2.

reach the programme objectives¹²⁴, considering the networks within a development programme as principal components of the programme, as suggested by the concept of Networking for Development presented in chapter 4. This evaluation approach is more complex and involves several levels of analysis, but at the same time enables evaluators to fully address the complexity of development actions: from a systems theory perspective, it is not the sum of the parts that is important but the relationships between these parts (Barabási, 2002).

6.3.2. *Impact of networking on capacity building*

@LIS, alike many development programmes, involved institutions with quite different backgrounds and facilitated collaboration among practitioners with extremely diverse mind-sets¹²⁵. Within the European Commission evaluation, this has been taken into account only in descriptive terms, differentiating the @LIS stakeholders in four categories: universities and research actors, civil society, local and national authorities and private sector actors. This rather basic and superficial approach towards the multicultural richness of @LIS can be definitely improved by adopting SNA methods, which allows understanding how much the composite nature of the programme population has allowed the emergence of intercultural capacity building practices among its stakeholders.

During its lifecycle, the @LIS network developed in a strong multistakeholder fashion, meaning that the clusters which had been developing in the network emergence phase – mainly among actors from the same background or the same country - started to get more and more in touch, somehow *considering the*

¹²⁴ Input-output approaches, guided by questions such as how much the networks have contributed to achieving the programme objectives and how relevant, effective and efficient they have been, do allow drawing some limited considerations on the added value of networking. An example is the work by Fawcett (2000) in his study of 20 different local community partnerships in the UK, focussing on the networking factors that have affected community change by focusing on discontinuities in the pattern of community development and on the events associated with increases and decreases in rates of networking.

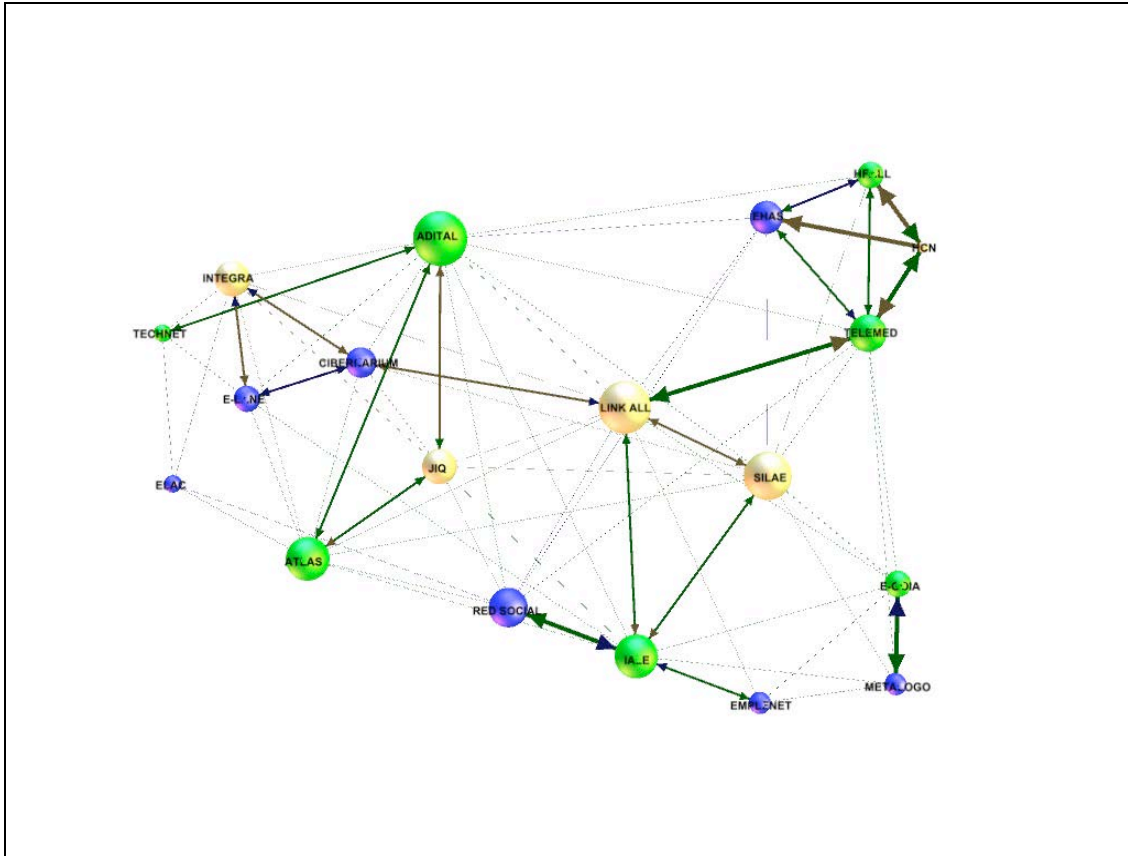
¹²⁵ To make an extreme example, during the @LIS EU-LAC Ministerial Forum on Information Society, a delegation of chiefs from a Brazilian amazon tribe organised a discussion workshop with the participation of European ICT consultants: half of the event was devoted to agree on common meanings of words such as “access” or “connectivity”.

different approaches and visions on the issues at stake more as points of discussion than of points of divergence. Two examples give an idea of the sometimes extremely different positions within the network. During a debate held within the second Coordination Meeting in Panama, a number of @LIS partners gathered in a workshop to discuss copyright issues, and specifically what approach to adopt in case of results developed in collaboration by two or more projects. During the discussion, a clear differentiation emerged between two visions. A first group, composed by some business and academic @LIS partners, claimed that, despite any collaboration, the intellectual ownership of the newly produced results should have been based on the ownership of the originating outcomes and respective projects; for example that if a component of an eGovernment software package produced by a project would be improved in cooperation with another project, the intellectual property of the new package should stay with the original project. On the contrary, a second group claimed that whenever some kind of collaborative work was bringing to a new outcome, this joint effort should be recognised by a joint copyright scheme. The discussion clearly shows the existence within the community of two rather distant approaches to the issue of intellectual property, one typical of NGOs and open source communities and one typical of the private sector: even if a number of discussions were held to facilitate reaching a consensus of a general IPR strategy, the original positions of the two factions did not change during the programme lifecycle.

Another example has to do with the flexibility in allocating project budget to networking activities. We have seen earlier that in a few cases possible synergies were not turn into reality due to the lack of budget availability to organise face-to-face meetings between partners of two or more projects, to discuss in person possible collaborations or to visit pilot sites to investigate the possible applicability of specific solutions. Surprisingly, in most of these cases private sector actors were more rigid in deciding to devote some project budget to these unforeseen activities, while NGOs had much less problems in spending money for networking. Unfortunately, the business culture of some @LIS stakeholders, which needed to justify any cost in terms of possible Return on Investment, has sometimes blocked promising synergies.

These examples show the extent to which the different “cooperation cultures” within the @LIS community were far from each other. Further, sometimes these different visions clashed and made quite difficult for the network to grow in a balanced way. Nevertheless, we have seen that on month 30 a number of rather stable connections were created between local governments and NGOs, or between civil society actors and private companies. This was very important in terms of capacity building, since the visions brought by the different stakeholders nurtured a rather rich debate around a number of topics, helping the participating actors to look at the problems at stake from the perspective of others, therefore increasing their capacity of operating in composite international collaboration environment. In other words, the multistakeholder nature of the @LIS network facilitated the emergence of a common understanding of the networking attitudes of the different stakeholders’ categories, and therefore a learning process at the network level. Appreciating the results of these capacity building processes in quantitative terms is quite challenging, since these processes mainly deal with the improvement of transversal and behavioural skills, which are by nature hard to grasp and to quantify: the role of participant observation to monitor capacity building progresses is here fundamental.

One of the main aims of @LIS was to strengthen the capacities of Latin American partners through their cooperation with European counterparts. Therefore, the @LIS network can be considered as a learning community with a mission to facilitate international collaboration competences across Europe and Latin America. The following graph allows understanding if the balance between the European and the Latin American components of the project consortia, in terms of partners, responsibilities, budget and activities, had an influence on the way they performed networking activities, and ultimately on the capacity building process between Europe and Latin America. In this case we are distinguishing between projects with a high amount of activities and budget assigned to the Latin American partners, including some local coordination, projects that were more EU-focussed and projects with a balanced nature.



Graph 15. The @LIS network on month 30, showing the Europe-Latin America balance of the nodes (In yellow the LA-focused projects, in blue the EU-focused, in green the balanced ones).

A relational pattern between networking and Europe-Latin American balance of the projects does not seem to emerge, probably due to the fact that each project had its own characteristics and management strategy, much beyond the artificial distinction between projects with a stronger European or Latin American essence. In some projects, such as *ADITAL* or *CIBERNARIUM*, a high number of activities took place in Europe under the responsibility of the project coordinators, but the networking and dissemination activities were left mainly to the Latin American partners. In other cases, such as *EHAS* or *RED-SOCIAL*, the project were rather balanced because of the fact that the coordinator was a European institution with *branches* in Latin America, and therefore it is complicated to distinguish between those parts of the work which were done in Europe and the those in Latin America. On the other hand, the graph shows that a number of strong connections were established among projects with a

strong European focus and projects with more resources and activities in Latin America. Each of these connections represent a “contact” between different approaches to international development cooperation, and therefore represented a possibility for the involved partners to enlarge their understanding of how cooperation is understood by actors with different backgrounds.

The @LIS network analysis confirms an important general principle of SNA, which is that actors with similar background tend to collaborate to a stronger extent among themselves than with other players. This phenomenon does not only deal with the fact that institutions with similar background have normally analogous objectives and procedures and therefore naturally prefer to work with each other, but also with the inner understanding that different categories of stakeholders have of the concept of collaboration. We have observed that some patterns emerged regarding the reasons why different kinds of organisations engage in networking and collaboration activities, and we believe that these different approaches to international cooperation represented an important source of capacity building for the actors involved, which should be taken into account when analysing a network such as @LIS¹²⁶. We can analyse these different attitudes along the classical distinction between policy, private sector and civil society actors. Policy actors, meaning local and national authorities, tended to consider networking as a fundamental component of their work, and therefore did engage in exchanges of information and in exploring possible synergies, but showed some resistances in formalising collaborations. This behaviour was for example observed in two Brazilian municipalities, Sao Paulo and Porto Alegre, both from the *Cibernarium* project, and in the Municipality of San Sebastian from the *Emplenet* project. These actors were very active in networking, as shown by the many links of level one of their projects, but were not able to formalise any long-term collaboration with other projects, as shown by the very low number of links of level two and three that these projects were able to establish. On the other hand, actors from the private sector, such as enterprises or private research centres, did look at networking

¹²⁶ Once more, no trace of this differentiation is present in the European Commission evaluation.

mainly as a mean to increase the performance of their activities and therefore were attentive to spot practical collaboration possibilities. But, once these possibilities were found, they tended to devote to networking activity the minimum effort needed to reach their own objective in a rather pragmatic way, limiting in such a way the networking externalities that, as we have seen in paragraph 4.2, can enrich the networking impact. An example is the collaboration between the *eGOIA* and the *EMPLENET* projects, which reached a deep level of collaboration but only on a specific issue, which was the planning of a joint sustainability strategy, without expanding this collaboration to other areas that could have been equally important. Finally, civil society actors typically gave great importance to the *human dimension of networking* (an @LIS actor used the expression “the joy of collaboration”) and tended to invest time and energy in this activity also beyond the potential return on investment. On the other hand, due to this broad vision of networking, civil society actors within @LIS were not often capable to concentrate a limited number of critical activities, thus producing a lot of externalities and tacit knowledge without reaching a deep collaboration level. *The advantage of building multistakeholder networks is that each actor could learn from the different perspectives and therefore improve its networking attitude and methods.*

Finally, the analysis shows that collaborative capacity building took place across the @LIS sectors. The programme was composed both by projects clearly limited to a single sector¹²⁷ and by projects with a more transversal nature, such as the *HealthforAll* project, which did work in the field of health, but mainly by running e-Learning activities. These transversal projects, which at the time of the selection were assigned with a label and which had sometimes more things in common with projects belonging to other sectors, represented an extremely important set of *intercultural learning hubs*, because they shared concerns and methods with more than one group within the programme. Identifying and supporting these intercultural learning hubs has been extremely important within the history of @LIS, since they have facilitated the rise of collaborative learning opportunities across the thematic sectors of @LIS.

¹²⁷ To make an example, the *INTEGRA* project dealt with the use of ICT in schools and involved typical stakeholders of this sector, such as Ministries of Education and NGOs dealing with primary education.

6.3.3 Impact of networking on sustainability

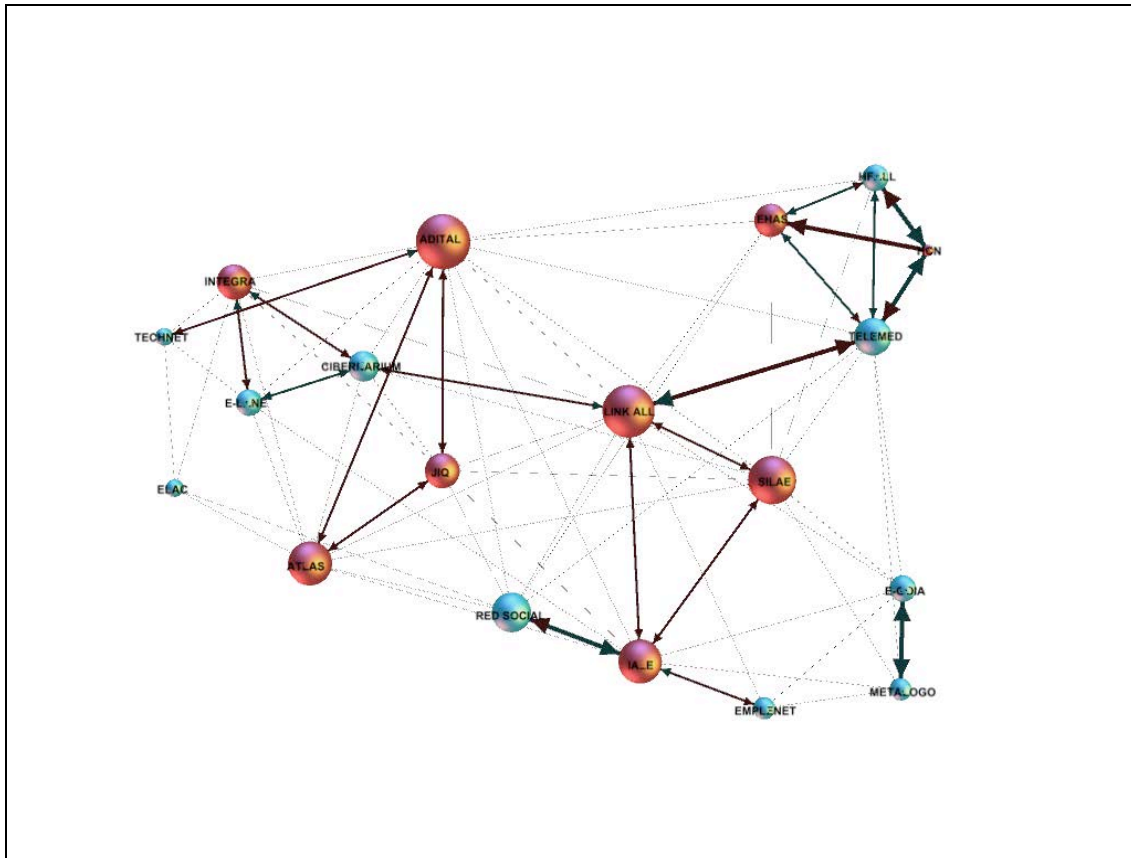
One of the main reasons why networking activities were encouraged within @LIS was to facilitate the sustainability of the projects results after the end of the funding period: as noted in the @LIS Final Evaluation Report, some cases of networking-based sustainability did actually emerge (European Commission, 2008).

A synergy success story that had a sustainability impact is the collaboration among the four e-Health projects. As we have seen before, due to some positive circumstances such as the presence of strong Italian and Brazilian constituencies within the partnerships, the four projects agreed, with different degrees of commitment but with a general collaborative attitude, to keep on sharing and working together through the “EU-Latin American e-Health Excellence and Innovation Laboratory”, a new aggregation which was conceived and launched during the third year of @LIS. Thanks to the critical mass achieved in the Laboratory, the projects were able to attract the interest from a number of Latin American public health authorities, and started to plan some new telemedicine projects, in Brazil, Mexico and Colombia. Furthermore, the Laboratory attracted the attention of other European Commission programmes such as Eurosocial, an action focusing on social cohesion in the Latin American region. The practical effect of this cooperation brought to some outstanding dynamics of results adoption at a large scale: one above all, a telemedicine support system produced within @LIS has been adopted at the level of the Minas Gerais state and represented the basis for a further development at the Brazilian federal level. Thanks to networking, the number of potential beneficiaries increased exponentially, from a few hundred thousand in the pilot phase to more than 180 millions in the deployment phase. In this case, networking represented the key to involve important political actors that have continued to sponsor the project activities, in an enlarged perspective. Another area where some network-based sustainability developments can be reported is the one of e-Government. Thanks to the resonance of the results of the *eGoia* project in Brazil and to its collaboration with some of the *EMPLENET* municipalities, some results of the two projects, originally planned only for some municipalities in the Sao Paulo state, have been adopted in eight other Brazilian states and have

represented the starting point for other initiatives aimed at promoting electronic government in the entire country. In this case, networking between two projects has allowed reaching sustainability through replication of some solutions, which had shown an impact in a specific setting to other pilot sites. In line with what said in the previous paragraph, the coordinators of these two projects were private sector actors, and limited their cooperation to the existing replication possibilities in the short term without developing any long-term initiative as in the case of the e-Health projects.

In order to claim that networking can positively influence the sustainability potential of a development programme, as proposed by the Networking for Development approach, we must identify a relational pattern between networking and sustainability potential beyond some isolated cases of success. The @LIS Final Evaluation Report states that “the strongest sustainability conditions are seen in the demonstration projects that were implemented on the basis of the Latin American partners’ previous experiences, with respect to which the required infrastructure and capabilities were already in place, and which the project has helped to promote. An extensive replication of these experiences is more probable” (European Commission, 2008, p. 38). In line with this point, we can detect that a correlation existed between the sustainability potential of the @LIS projects and two aspects: the pre-existing level of networking of the project consortia and the balance between Europe and Latin America within the projects¹²⁸. To look for the impact of networking on sustainability potential through these two dimensions, the @LIS network on month 30 can be manipulated to show the existing patterns between the networking performance of the different projects and these two aspects.

¹²⁸ We focus on sustainability potential, which is the probability for a project results to be sustainable after the end of the funding, and not on sustainability as such because this is what is normally evaluated at the end of a development programme. Actual sustainability depends on a number of issues that go beyond what could have been *prepared* during the project lifetime.



Graph 16. The @LIS network on month 30, showing the projects based on pre-existing networks (in red) and the ones who built the partners' network specifically for the @LIS project (in blue).

In Graph 16, the red nodes are projects that were proposed by a network of European and Latin American institutions that were already working together before the @LIS call for proposal, while the blue nodes are projects whose partnership was built on purpose for the @LIS call for proposals¹²⁹. *It appears that projects based on pre-existing development networks were more successful in building collaboration links within @LIS with respect to projects run by consortia that had been built ad hoc for the @LIS programme.* This can be explained by two contextual factors: first, those consortia which were based on a previous collaboration

¹²⁹ We recognise that this distinction is a bit artificial, since all projects had elements coming from some sort of history of collaboration among their partners, and some elements of novelty in the project idea, but is useful to put a practical example related to the concept of Networking for Development. The @LIS history has demonstrated that both modalities have positive and negative sides: on the one hand projects based on consortia that had been working together in the past normally represented a safer option in terms of efficiency and reliability, on the other new consortia were normally more creative and open to innovation.

history were faster in completing their inception phases and started networking relatively earlier than other projects; second, these consortia had normally previous experiences as well as a number of established contacts in their field of action, and therefore were better equipped to build links with external actors. These factors being important, we claim that a third important reason exists which justifies the better networking performance of the projects of the first kind. These projects, due to the fact that they were built on pre-existing *development networks*, as defined in chapter 4, started their activities with a common knowledge base and a with a shared social capital¹³⁰, which allowed them to be more active in building bridges with other projects and stakeholders, within and outside @LIS.

In line with the concept of Networking for Development, in those cases when the projects were designed as an activity of an existing stakeholders' network "the network came before the project", while when projects have built the network around a project idea, the "project came before the network". *HealthCareNetwork* is a paradigmatic example of a project of the first kind, since it was built on a network between Italian and Brazilian partners who had been working together for more than two decades, which was enriched by other European partners that were part of the collaborators network of the project coordinator. As we have seen, this project took a leadership role in what can probably be considered the most successful sustainability story within @LIS, which is the creation of the EU-LA e-Health Innovation and Excellence Laboratory. The *CIBERNARIUM* project is an example of the second typology: the consortium had been put together specifically for the @LIS call for proposals, and was not based on a pre-existing development network. Even if some of the telecentres that the project built were able to remain sustainable, after the end of the project each partner concentrated on its national context; in this case the network was not there before the project and was somehow dismantled after the end of the project. Using the words of an @LIS partner: "The most important lesson learnt during the project has been that ICT projects should not be prepared in isolation and preconceived, but must be conceived

¹³⁰ The concept of social capital is described in chapter 4.1.

with the full participation of the expected users. This way, people own the project from the start and take care of its results. On the other hand, when the project is felt as a donation from outside, they do not take care of it and it risks to fail" (Debandi et al., 2006).

The European Commission was highly concerned with the sustainability of the @LIS projects and of their results, while the sustainability of the @LIS programme and of its community were not issues of major interest, along the assumption that if the projects would have been successful and would have shown some sustainable results, the European Commission would have probably launched a second phase of @LIS¹³¹. As we have explained earlier, the @LIS community found its way to be potentially sustainable through the creation of VIT@LIS: this is probably the most relevant and detectable result of the networking and synergy building activities which were run during the programme and shows that *network-based sustainability is a strategy that can work not only at the level of a single project or of a cluster of projects, but also at the level of a development programme*. Additionally, the fact that most of the @LIS projects agreed to keep on collaborating after the end of the programme demonstrated that the @LIS stakeholders assigned a clear value to the networking activities that they had been running during @LIS. If we combine this finding with the data presented in Graph 13, which show that the most active networking projects are the ones which joined VIT@LIS with more members, a direct relation emerges which links pre-existing networking capacities, value assigned to networking, and sustainability potential of the projects and the programme, showing that VIT@LIS was a rather natural development of the collaboration activities which took place during the programme.

¹³¹ This was actually the case: a second phase of @LIS was launched in 2009. In this second phase, despite of the interest shown by the @LIS demonstration projects in continuing cooperating and of the general good performance of the projects which emerged from the @LIS Final Evaluation, the European Commission took the decision not to support demonstration projects anymore, focusing only on structural actions such as a policy network, a research network and a regulators network.

Chapter 7. Conclusions

“Anche se il disegno generale è stato minuziosamente progettato, ciò che conta non è il suo chiudersi in una figura armoniosa, ma è la forza centrifuga che da esso si sprigiona, la pluralità dei linguaggi come garanzia d’una verità non parziale”¹³².

Italo Calvino, 1993

7.1 Proving the impact of networking in development settings

It is worth remembering that the main aim of the present research is to prove that development cooperation can increase its relevance and impact by formally incorporating knowledge sharing and networking within its planning, implementation and evaluation practices. We also want to demonstrate that, for this advance to happen, development practitioners must grow the capacity to analyse and appraise the way networks work and interplay in development settings and must grow the capacity to put in place strategies that can favour the evolution of these networks and their impact on the target communities of the respective development actions. In the next paragraphs, the findings of the research are summarized and placed in perspective, along the research questions that have guided the investigation.

The first research question deals with *whether the adoption of knowledge sharing and networking practices can generate an impact in the context of development cooperation*. To answer to this, we have been investigating the correlations between networking on one side and performance, capacity building and

¹³² “Even if the overall design has been minutely planned, what matters is not the enclosure of the work within a harmonious figure, but the centrifugal force produced by it – a plurality of language as a guarantee of a truth that is not merely partial”.

sustainability of development programmes and projects on the other. The analysis of the networking dynamics within the @LIS programme has confirmed the hypothesis behind the first research question, proving a relation between networking and the impact dimensions of interest. We have seen that *networking impacts on development actions through joint value creation*. “Joint value creation is the creation of new insights and knowledge through the collaboration of members on research, on field projects and other activities” (Creech and Ramji, 2004, p.4).

Creech and Ramji (2004) identify three areas of added value for network assessments: effectiveness of knowledge networking, structure and governance of knowledge networks, and sustainability of knowledge networking. Our analysis of @LIS confirms that, by monitoring these dimensions in a dynamic way and through appropriate techniques, *an impact of networking activities on development actions can be identified* along these dimensions. In terms of effectiveness, the @LIS experience shows how the strategy of knowledge sharing has evolved along the network life and have been continuously fine-tuned to the needs of the community. For instance, while in the network setup and emergence phases the @LIS community was relying mainly on mailing list exchange and on knowledge sharing seminars, during the network consolidation and sustainability planning phases high-level policy events were organised where appropriate discussions and results-uptake could be favoured. In terms of structure and governance, a clear decentralisation process was observed: while at the beginning of the network life most of the inputs came from @LIS-ISBN, already in early stages some peripheral nodes started to produce knowledge and to input it into the system. This process has to do with the decision making process of the network: only decentralised networks can support genuine knowledge sharing in the long run (Reinicke et al., 2000). In terms of efficiency and sustainability, within the @LIS experience the most significant barrier to networking was not the perceived transactional cost of knowledge sharing but rather the need to strengthen the network members’ ability to collaborate on knowledge articulation issues such as systematisation of information and results, sustainability and transfer of practices. These findings, apart from being important since they tackle what are probably

the main concerns of any development practitioner – impact, capacity building and sustainability - validate the statement that *knowledge sharing and networks articulation, especially in the frame of large and multistakeholder programmes, should not be regarded as an ancillary and not-fundamental activities but should rather be considered central pillars of successful development actions.*

Nevertheless, research has also shown that the hypothesis behind the first research question can be considered validated only in the presence of three conditions. A first condition is the capacity to ponder impact in a broader sense than the ordinary “project impact”. We have in fact seen that there seems to be no direct correlation between the capacity of the projects to build meaningful connections within the network and their degree of success as appraised by the European Commission, which analysed the projects performances through a classic input-output mode. On the other hand, we argue that a number of important impact dimensions which have to do with tacit knowledge exchange, cross-sectors and multistakeholder capacity building and international cooperation skills development exist and can be appraised, by combining SNA with direct observation. A second condition is that the networks behind projects must be valorised starting from the projects selection process. The analysis shows in fact that projects based on pre-existing development networks were more successful in building meaningful and impact-bearing collaboration links within @LIS with respect to projects run by consortia that had been built ad hoc for the @LIS programme. The obvious reason for this is that these projects commenced their activities starting from a common knowledge base and a shared social capital, which allowed them to be more active in building bridges with other projects and stakeholders, within and outside @LIS. Further to this, we have seen that these projects were able to build a higher level of trust and a stronger cooperative attitude around their activities, also influencing others along a number of reciprocal and non-reciprocal strategies (Novak, 2011). A third condition is that, in order to have a meaningful impact on a given development action, networks must be supported and monitored along the whole of their lifecycle. This finding, which is connected to the second and third research questions of the present work, strongly emerged from the case study analysis, proving the direct relation between support to networking, capacity

building and impact of knowledge sharing activities within development. *Successful networking, within development cooperation as well as in any other field, is based on the capacity of the involved individuals and institutions to work towards common and shared objectives beyond the individual interest.* If these capacities are continuously and professionally supported, as suggested by the Networking for Development approach, networks not only will prosper, but that will also deploy a proper *raison d'être* beyond the initial funding and survive, as in the case of VIT@LIS.

7.2 Looking at development networks with the appropriate lenses

The second research question inquired about the *possibility of appreciating and quantifying the added value of networking and knowledge sharing within development cooperation.* This question, apart from representing a way to validate the methodology used to analyse the case study, arose from the consideration that the evaluation of @LIS by the European Commission was not capable to appreciate the many networking dynamics which took place during the programme and their impact on the involved stakeholders. “The very insufficient networking of the @LIS actors may have sent out an erroneous message of lack of coherence with the essence of the programme, which is precisely the networking of society.” (European Commission, 2008, p. 35). This sentence, taken from the @LIS Final Evaluation Report, in a few lines opens and closes the issue of networking within @LIS from the perspective of the official programme evaluation. We are now in the position to claim that this sentence is wrong, because we have traced a number of important networking dynamics taking place during @LIS, which had a significant impact on the programme and which culminated with the creation of VIT@LIS. Further, the sentence is based on inaccurate assumptions, since the way the European Commission evaluation has been looking for networking activities within @LIS was quite superficial, not dynamic and especially was not supported by network analysis techniques. The programme evaluation was not able to grasp the very rich base of tacit knowledge that the @LIS network produced and shared, meaning those connections and synergies that were established to exchange information, plan

possible joint actions, discuss solutions to similar problems, but did not produce tangible and quantifiable results, also because of the inflexibility in budget spending and in embracing activities which were not originally planned. Additionally, the @LIS evaluation did not take enough into account a few important characteristics of the programme community such as the co-existence of very different collaboration cultures or the fact that not different stakeholders were driven by different cooperation motivations¹³³. In a metaphor, the European Commission has been looking for networking evidence like an astronomer would look for microbes, with a telescope and not with a microscope.

On the contrary, by using Social Network Analysis complemented with participatory observation, we have made possible the appreciation of the evolving social capital of @LIS. During the case study analysis, a number of important relations among the programme actors have emerged, together with their dynamics of trust and reciprocity, allowing understanding the rationale behind different collaboration patterns and how the projects have used collaboration instrumentally to achieve objectives that would have been impossible to achieve on their own. Further, we have evidenced that differences in background and in cooperation attitudes can be analysed and can be turned into networking drivers. Looking at the network with appropriate analysis tools has confirmed that, within development networks, social capital is productive (Bagnasco, 2002), and that this productivity is achieved through the actors' interactions around the available network resources (Kadushin, 2004).

Being able to understand and monitor network developments is extremely important if we want to successfully support the network growth, as we will see in the next paragraph. For instance, we have seen that since the evaluation activities run by the European Commission were not able to properly spot networking dynamics, knowledge sharing initiatives taken by projects were not rewarded, nor projects that were under-networking were penalised. On the contrary, we have shown that SNA-based evaluation allows identifying clusters

¹³³ In chapter 3 the @LIS evaluation by the European Commission is analysed in depth.

as they emerge, together with corresponding groups of individuals who are working together by sharing similar knowledge and perspectives. In other words, *SNA enables the understanding of the behaviours of specific nodes and clusters, unveiling what is probably the most interesting aspect of a network, that is not are the most important nodes but rather which are the connection patterns among nodes.*

The research has confirmed the validity of analysing development networks though a combination of quantitative and qualitative evaluation methods. As noted by Frechtling and Sharp (1997), combining quantitative data, analysed through network algorithms in order to allow the visualisation of networks, and qualitative data, able to complement the quantitative information and to provide explanations for some observed dynamics, is a rather common practice in networks evaluation. The power of the approach stands in the fact that, since the components of social network are in most of the cases concrete and observable *social items* such as individual or institutions, they cannot be analysed only through quantitative metrics, but a combination of metrics and qualitative components is needed, which is able to enrich statistical data. The methodological challenge of analysing development networks following this approach stands in the difficulty of “accommodating both thick (in depth, contextually rich) and thin (spread out, process-oriented) approaches to enquiry” (Bebbington and Kothari, 2006, p. 863). As suggested by Riles (2011), we have not focussed on a generalised thick description¹³⁴, but rather we have inquired the network from inside out looking for the patterns that naturally emerged, and then we have focused on those patterns for a detailed analysis.

¹³⁴ In *The Interpretation of Cultures* (1973), Clifford Geertz claims that the work of the ethnographer must be based on a “thick description” of every sign he/she observes, in order to uncover all possible meanings of the sign. The objective of thick description is to generate meaning by observing behaviours in their context and at a specific point in time.

7.3 Supporting development networks with the correct strategies

The hypothesis behind the third research question was that *the way development networks grow can be influenced by specific collaboration support activities, in order to maximise the impact of the networking undertakings on the target communities*. The rationale of the hypothesis is that, in order for collaboration and knowledge sharing activities to deploy all their potential added value, healthy and adaptable networks must be there to enhance development programmes. By analysing the history of @LIS, we can now state that it is possible to influence the way a development network grows and the timing of its developments. Further, we revealed that the work of supporting knowledge sharing and networking takes time and energy, and should be accounted at the same level as the work of researchers and development operators, paying specific attention to the complexity of knowledge sharing and to the efforts needed to make sure that information flows properly within the network and reaches all the relevant nodes. Many important results of development cooperation, such as the appropriation of results for social change by the beneficiaries or the governance of the dynamic between funding and motivation or between excellence and inclusion, are based on knowledge sharing and on networking processes, and therefore attention and resources must be deployed for development networks to prosper.

Having analysed the @LIS network development has allowed identifying some support activities that were successful and some others that could have been taken and that might have had a positive effect on the network evolution, as well as some principles that should guide networking support activities within development cooperation. First, *support to networking must be based on trust*. The first challenge that @LIS-ISN had to overcome was in fact getting the confidence of the @LIS stakeholders, convincing them of the relevance for them of participating in the @LIS community. Once this confidence had been achieved, @LIS-ISN embarked in a number of activities to structure the network along joint collaboration agendas, to enlarge the network by facilitating meaningful contacts with the external world, and to establish synergies across the network by identifying the problems of the different projects and the solutions that

could be possibly provided by the community. These support activities corresponded to well-identified steps that aimed at making the network prosper, and had to be continuously updated in relation to the network needs along its history.

Further, the experience has shown that *support to networking must be constructivist*, meaning that when new activities are added to the support portfolio the previous actions should not be abandoned. This is due to the fact that networks tend to evolve in a scattered way for a number of reasons: different stakeholders have different motivations for collaboration, the persons representing the nodes have different mind-sets, representatives might change and bring new energy or new barriers, external conditions might evolve. Therefore, it is impossible to decide at the beginning of the process what will be needed to accompany the network along its developments. We have noted that in providing support to collaboration timing is very important, since proposing a good idea at the wrong moment can be counterproductive. When the first hubs were identified, action was not always taken to empower them or to use their prestige to influence the network development. Every time an emerging hub was empowered, as in the case of the *HealthCareNetwork* project - which was supported in the development of a collaboration plan for the e-Health Laboratory, this has had a positive cascade effects on the hub neighbours and, ultimately, on the whole network.

Additionally, *support to networking must be flexible*. Being flexible means, first of all, allowing space for errors: in the @LIS case, as we have seen, the majority of the connections established in the first semester of the programme did not represent starting points for stronger collaboration schemes: having invested on those links could have represented a loss of energy and, even worse, could have created a distortion in the network potential development. Being flexible also means having the capacity to use the available supporting resources in an adaptable way: we have seen that some promising synergies did not develop due to the lack of networking funds, that in most of the cases would have been minimal with respect to the projects budget. On the other hand, an increased flexibility in the use of resources would have allowed the creation of deeper and more complex synergy schemes.

Finally, *support to networking must be attentive to diversity*, in order not to turn the distinctive interaction styles and management approaches of the participating stakeholders into barriers to effective cooperation. Within @LIS, when these differences were properly treated, a positive trend emerged in the large majority of the participating stakeholders, based on cooperation enthusiasm, excitement for working together, discovery of how different situations can engender diverse ways of implementing the same technologies and applications. Further, to take advantage of the multistakeholder nature of a development network, it is important to keep monitor the existing different attitudes under constant observation (Morganti et al., 2005). Monitoring diversity means making sure that the benefits as well as the costs of cooperation are clear in every moment to all the network stakeholders, since as we have seen a correlation pattern existed within @LIS between clarity of collaboration objectives and networking performance.

7.4 Validating the Networking for Development approach

All along the dissertation we have been arguing that development cooperation should renew the way programmes are planned, implemented and evaluated, by adopting an approach intensely based on networking. As we have depicted, to some extent this change is happening, especially in the way donors and professionals collaborate and in the way development actions are planned, but we are still far from a situation where networks can fully deploy their potential impact on development programmes and projects. The @LIS programme was a paradigmatic case in this respect. The programme design and planning phases were run in an extremely networking-attentive way, both in terms of programme structure and of the margin left to networking and collaboration. Additionally, @LIS focussed on the issue of Information Society and on the use of ICT to close socioeconomic gaps in Latin America, and as we have seen the field of ICT for Development is rather sensible to the need for better and more informed networking. Unfortunately, this original inspiration was not fully reflected during the programme implementation and evaluation phases. Even if the European Commission was not particularly inflexible with respect to new

ideas emerging from the @LIS community such as the @LIS Day¹³⁵ or the Euro-Latin American e-Health Laboratory¹³⁶, we have seen that the programme was not able to setup a mechanism able to motivate and reward networking and collaboration activities beyond what contractualised with the @LIS stakeholders, and that some potentially important collaboration possibilities were not turned into reality because respecting the projects contracts was considered as more important than working in synergy within the community. What was most critical is that monitoring and evaluation within @LIS were not equipped with the required capacity to grasp networking dynamics and added values and therefore could not provide informed feedback on the productive social capital of @LIS (Bagnasco, 2002) to the European Commission. This was particularly severe, since changes of attitudes and behaviours of decision makers often result from participating in and from reflecting on the results of evaluation processes (Patton 1997 in Carden 2009).

On the other hand, having analysed the @LIS experience through network analysis methods within the present work has allowed understanding the extent to which the networks that flourished within @LIS have been meaningful to the involved actors and what has been their impact on the programme and on its stakeholders. Importantly, *the research has permitted to validate some crucial elements of the Networking for Development approach*. It is worth remembering that the Networking for Development approach¹³⁷ is proposed in the present work as a way to systematize the many inputs by researchers towards the need to consider knowledge sharing as the central pillar of development processes and as a “flagship concept” that could be used to advocate among decision makers for a more systematic and official inclusion of networking activities within development actions. The approach is based on the assumption that, to increase the impact of development actions in terms of performance, capacity building and sustainability, development should not be built only on development projects but rather on *development networks*, which

¹³⁵ The @LIS Day is described in paragraph 6.2.5.

¹³⁶ The Euro-Latin American e-Health Innovation and Excellence Laboratory is described in paragraph 6.2.3.1.

¹³⁷ The approach is presented in details in chapter 4.

should be the aggregations in charge of running development activities, making sure that knowledge sharing is always high on the programmes' agendas as the starting point to build sustainability and transferability of the development programmes, projects and results.

The analysis has shown what should be the necessary components for the Networking for Development approach to be applied within development actions. A first essential element is the strategic decision by the donor, which must opt for a network-based programme, as it was the case within @LIS. Second, this decision must be coherently followed by a networking-attentive selection of the projects that will be supported. In the case of @LIS, the fact that the selected projects as well as the stakeholders which composed the consortia were of extremely different nature has had a positive impact on the @LIS network in terms of diversity of approaches and creativity, but has also made the network development rather slow and non-linear. Once the projects and therefore the programme networks are launched, a strong capacity to monitor the network developments and to influence its shape and dynamic must be in place, based on resources availability, openness to adapt to the network strategic development, willingness to reward the best networking-performers against the resistances to collaboration, and capacity to identify network dynamisers. The @LIS analysis has demonstrated that the more these support activities are constructivist, flexible and attentive to interculturality, the more they will be successful.

Further, we have appreciated that within @LIS the successful creation of collaboration links, whether they were aimed at information exchange, joint planning or long-term synergy building, were related to a few clearly identifiable conditions. The starting point was typically the attractiveness of the *collaboration offer* that projects were able to propose to the community: when this offer was able to overcome the perceived cost of cooperation, links thrived. Once the benefits and the costs of cooperation were clear to the members of the network, the different networking performances were based on the presence within a project of committed network dynamisers and on the availability of resources in terms of time and budget to pursue the emerging synergies and to explore new possible connections. These conditions proved to be valid both for projects which adopted extended networking approaches, establishing a high

amount of links focussing on information exchange and initial synergy building, and for projects with “deeper” networking attitudes, characteristic of projects which established a smaller number of links and tried to go in-depth along those. These stronger links, such as the ones behind the Euro-Latin American e-Health Laboratory, were considered by the official programme evaluation as far more important than lighter links corresponding to information exchange and synergies exploration. Without undermining the importance of going as much as possible in depth in collaboration building, we believe that lighter synergies, that are built on what we defined as the long tail of networking¹³⁸, are extremely meaningful and can represent starting points for further networking developments.

7.5 Advocating for further research on networking for development

In order to further develop these reflections and to fine-tune the proposed approach in its policy and practice facets, we believe that the *Networking for Development approach should be the object of research and pilot actions*.

As we have seen in chapter 3, researchers from a number of disciplines are increasingly looking into the importance of knowledge sharing and networking in development settings and tend to reach conclusions that are in line with ours, advocating for a higher degree and professionalisation of networking in development actions. Nevertheless, most of the existing research focuses on exploring the relation between networks and development at a rather theoretical level, and even in the few cases where Social Network Analysis is used to analyse development actions¹³⁹, this is done at the level of individual development projects, without reaching the “system level” that, in our opinion is necessary to tackle if we want to support a change of paradigm within development. Further, development research is often not attentive to

¹³⁸ The concept of long tail of networking is presented in paragraph 4.2.

¹³⁹ Very few examples exist of SNA applied to development programmes evaluation: see Davies 2003 and Davies 2007. Clark (2006) has produced a manual for applying SNA in rural development projects.

networking, as in the survey run by the Brighton Institute for Development Studies (Haddad, 2006). In this survey, the networking dimension of development cooperation, although appearing underneath many of the discussions that were run during the research, does not have had a relevant place in the study conclusions, showing once more that, even in the cases when networking is considered, it is perceived as an instrumental dimension to other development issues and not as a key leverage for development per se.

In terms of policy receptivity with respect to our proposed renewed approach, in the last years a number of donors, including the European Commission, have been - slowly and not steadily - moving from a model where every new phase of a specific programme starts by launching a new call for proposal to a model where programmes are at least partly built on existing stakeholders networks, as advocated by the Networking for Development approach. Even if the adoption of these practices is not always based on the intention to refresh the whole approach to international development cooperation, this provides a number of potential cases where the proposed approach can be tested and improved.

The moment seems therefore to be propitious, for two things to happen. First, more research should be done on the impact of networking activities on development actions, resulting in a body of evidence and in a number of success - and failure - stories. The research challenge would be to strengthen the communication and networking dimensions within development studies, opening up a rather unexplored area built around the application of network theories and methods within development actions. We believe that it would be preferable to embed SNA approaches and methodologies within existing research lines in the field, rather than opening up new research paths which would risk to be perceived as not fully relevant to the core problems of development. Further, we believe that research should try not to focus on individual development projects, since in order to use evidence-based results to advocate for networking-sensitive renewed approaches these results should be relevant for “development systems” such as programmes or communities. Second, the evidence-based results of these research efforts should be used to

influence the way decision makers plan, implement and – last but not least – evaluate the development actions under their responsibility. In particular, it would be interesting to monitor the impact of networking and knowledge sharing dynamics on the of performance, capacity building and sustainability of projects which have been structured starting from existing networks and to confront them – as we did in the present work – with the impact of networking on projects setup in a more traditional way. Having more data which confirm the findings of the present work, that is that the impact of networking - provided that we are able to measure it – is higher in those projects constructed along the Networking for Development approach would be a strong leverage to advocate for a broad application of the approach.

With the present research, we have been able to grasp a number of evidences of the positive impact of networking within development programmes, and we have discussed some conditions to maximise the effect of networking on key dimensions such as projects performance, intercultural capacity building and sustainability. Still, we had to work *ex post* - when the @LIS programme was finished, and for this reason we could only speculate on how the history of the network would have been if its advances would have been analysed through SNA during the programme lifecycle. Further research which applies Social Network Analysis methods to development problems, especially if it would confirm the findings of our work showing some correlations between networking and impact of development programmes and projects, could possibly lead to the launch of some pilot actions where the Networking for Development approach could be tested during the programmes and not *ex post*. On the other hand, the analysis of the @LIS programme shows that applying networking analysis technique to a development programme can be useful both for identifying interesting spaces for improvement and for showing the benefit of adopting a networking approach in designing, running and evaluating development actions, therefore contributing to bridge the networking divide.

7.6 Epilogue: a short story on networking for development¹⁴⁰

In the summer of 2002 the director of a Colombian NGO, whom we will call Pablo, received an email message from a German researcher whom he had met in a conference a couple of years before, containing an invitation for his NGO to join a consortium that was being put together to reply to a call for projects proposals by the European Commission for a development programme, called @LIS. Pablo had a quick look at the description of the programme and replied positively to the invitation. In the following days, he was requested by the coordinator to comment the proposal outline and to send some administrative information, which he did. Several months later, Pablo had almost forgotten about this email exchange, when he received the good news that the European Commission had approved the project proposal and that the project would have been funded with more than two million Euros, which corresponded roughly to twenty times the overall yearly turnover of Pablo's organisation.

At the same time, the director of a Brazilian NGO, whom we will call Maria, received, through a mailing list of a network of institutions that she was part of since more than ten years, some information on a new call for proposals for a development programme called @LIS. She was involved in a number of discussions with some members of this network who had manifested interest in a possible proposal, and they came up with a project idea that would have been contributing, through the European Commission funding, to some activities that the group had been run for quite some time. The group decided that an Italian institution could have been a good coordinator for the proposal, and worked through weekly virtual meetings to finalise the proposal, which was delivered to the European Commission. After a few months, the good news was received that the proposal had been approved, and that the network Maria was part of would have been empowered through some additional funding.

¹⁴⁰ This short story provides a fictional and non-scientific view of what has probably happened within the @LIS community development, and exemplifies the benefits of adopting the Networking for Development approach from the point of view of the development practitioners.

In spring 2003, Pablo travelled to Germany to participate in the new project's kick off meeting, where he finally met the members of the newly established consortium who would have worked with him for the upcoming three years. Most of the meeting was devoted to fine-tuning the project planning, since Pablo and the other partners realised that what had been agreed in the contract between the German coordinator and the European Commission was not exactly what his Colombian target stakeholders would need, let's say because the project was about implementing some e-Government solutions which would have needed stable internet connectivity that was not always available in the communities he was working with. At the end of the meeting, he was excited by the new adventure that was starting, but also frustrated because he was not totally convinced that the project budget would have been spent in line with the needs of his target communities.

Roughly in the same period, Maria travelled to Italy for her project's kick off meeting. The partnership spent a full week discussing all the details of the project and planning further cooperation actions that could have been developed starting from the new action. Most of the members of the consortium knew each other quite well due to previous cooperation experiences; the only two new partners familiarised very quickly with the group. Since the project proposal had been prepared by the whole consortium, the planned activities were in line with the need of all the partners' target stakeholders, and therefore most of the meeting was devoted to plan the project activities for the first period in details and to discuss how to make sure that the project and its results would be embedded in the daily life of the target communities. When travelling back to Brazil after such an intense working week, Maria was sure that this new project would have been a success, and was excited for how the Brazilian communities she was working with would have reacted knowing they would have been part of such a project.

Three years after, Pablo was impressed by the effectiveness and capacity of the members of his consortium: the project activities had been run as planned, the results had been delivered and a huge amount of administrative paperwork had been produced to report the project activities to the European Commission. Additionally, he had been invited to a few Coordination Meetings where he

had the chance to meet with partners from the other @LIS projects. He was impressed by the extreme variety of people, organisations and ideas that were circulating in such meetings. Being part of such a professional consortium was a great experience both for Pablo and for his colleagues. Nevertheless, the problem remained that the e-Government system that the project had developed was too advanced for the rural communities in Colombia that Pablo's NGO was working with. In a couple of project meetings, Pablo had expressed this worry to the consortium, and had even proposed to extend the pilot activities he was in charge of to a Brazilian area where an NGO was working on the same problems: following a discussion he had with a lady during a Coordination Meeting, those Brazilian communities would have benefitted from the application of his project, even more than his target users in Colombia. Unfortunately, his project coordinator was not positive about the idea, since this would have had to be part of a contract amendment and would have taken too much time to happen. Pablo accepted this decision but kept on thinking how useful it would have been to transfer the project outcomes in Brazil.

At the same time, Maria was extremely satisfied of how the project had been developing. Apart from the time lost in filling the European Commission bureaucratic forms and from the usual delays that affect development projects with partners scattered around the world, everything was running fine. The results were there and they were starting to be fully implemented in the target areas, and this had increased the visibility of Maria's NGO at local and at national level. More than this, what she was mostly enthusiastic about were the collaboration possibilities related to her participation in the project. She had had the chance to travel to two @LIS Coordination Meetings, where she had met a number of interesting people from different sectors and where she could present her project and the activities of her NGO to possible new partners. In order to arrive prepared to these Coordination Meetings, she had to spend a lot of time on a web platform called @LIS-ISON reading what the other projects were doing and contacting those partners that she found interesting. By the way, this had been very useful since through this website she got in touch with a person from UNESCO who wanted her to apply for a prize for the best development project of the year! During the Coordination Meetings, she had taken a few

interesting contacts to bring to her area in Brazil some applications that were being developed by other projects, especially a quite advanced e-Government solution that was being implemented in Colombia. She informed her network of this possibility and received very enthusiastic responses: at the end of the day, why should have they said no simply because this was not in their original project plan? That is why she was very disappointed when Pablo, the Colombian contact from the e-Government project, wrote to tell that unfortunately his consortium had decided that it was not possible for him to continue exploring how to transfer its results to Maria's communities.

During the last project meeting, the members of Pablo's consortium were proud for the achieved results but were pervaded by a feeling of uncertainty, because they had not been able to agree on specific plans for the future of their consortium. The demonstration activities had been run quite successfully also in Pablo's communities, and the project results were available to be used by any NGO across Latin America, unfortunately not for free. Further, the project coordinator was sure that the project would have received an extremely positive mark by the European Commission. In the meantime Pablo, as well as a few other members of the group, had joined VIT@LIS, an association that had been launched during the last Coordination Meeting in Lisbon with the aim to keep on collaborating after the end of the projects. To tell the truth, he had joined VIT@LIS it mainly because it was free of charge, and he had never wrote a single message in the association online forum.

The final meeting of Maria's project was not different from any other meeting of the group: the participants were confident that they would have met again because they felt they were part of the same network. They were extremely happy of the fact that the @LIS project had given them the possibility to strengthen and to enlarge their network; the new partners who had entered the group at the beginning of the project were now completely integrated. The partners were not sure that the European Commission would have evaluated their work fully positively, mainly because, in order to take advantage of all the possible opportunities, they had spent some budget for activities that were not originally planned. Nevertheless, the group was convinced that without this open and flexible attitude the UNESCO prize would not have been won by

their project, neither that a follow-up project founded by the World Bank would have started, as it was indeed the case. Still, Maria had the feeling that not all the opportunities had been taken. She was quite happy when she saw that Pablo was a member of VIT@LIS, and she contacted him to retake the idea of transferring the e-Government solution of his project to her communities. Pablo was glad of this new possibility and, even if they decided not to transfer the costly product of his original project, was able to help Maria's NGO by sharing information on his @LIS experience through the VIT@LIS forum, and became very close to Maria's network. We do not know if the result of Pablo's project will ever be transferred to Maria's community, what we know for sure is that a meaningful link was established, based on open knowledge sharing, trust and joint planning, and that Pablo and his NGO are now part of a development network.

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List of acronyms

DAC: Development Assistance Committee

EC: European Commission

GAID: Global Alliance for ICT and Development

ICT: Information and Communication Technologies

ICTD: Information and Communication Technologies for Development

IDC: International Development Cooperation

IDRC: International Development Research Centre

IICD: International Institute for Communication and Development

IMF: International Monetary Fund

ITU: International Telecommunications Union

OECD: Organisation for Economic Co-operation and Development

ODA: Official Development Assistance

SIDA: Swedish International Development Cooperation Agency

SNA: Social Network Analysis

TA: Technical Assistance

TC: Technical Cooperation

UN: United Nations

UNDP: United Nations Development Programme

WSIS: World Summit on Information Society

Annex 1. Questionnaire

Cuestionario de Sostenibilidad para los Proyectos @LIS de Demostración

Nuestro objetivo es apoyarle durante la implementación de su proyecto @LIS y ayudarle a alcanzar la sostenibilidad del mismo.

Implementación

- ¿Las actividades están siendo desarrolladas según lo planificado?
- ¿Están siendo conseguidos los resultados planificados?
- ¿Cual es el rol de la red @LIS en el éxito de su proyecto?
- En caso de cambios externos o necesidades cambiantes, ¿como se ha adaptado el proyecto durante su implementación?

Apoyo Político e Institucional

- ¿Tiene el proyecto el apoyo deseado a nivel político, publico y privado?
- ¿Ha habido cambios en las políticas que afectan al proyecto?
- ¿Hay buenos contactos con las instituciones que puedan favorecer la sostenibilidad?
- Es posible la apropiación local de los resultados del proyecto?

Recursos Humanos y Técnicos

- ¿Son los recursos humanos previstos suficientes para llevar a cabo las actividades según lo previsto?
- ¿Los beneficiarios tienen fácil acceso a la tecnología utilizada?
- La tecnología utilizada por el proyecto, se puede actualizar a un precio reducido?
- La tecnología utilizada, mejora las condiciones de vida de los grupos beneficiarios?

Colaboración con otros proyectos @LIS

- ¿Con cuales proyectos @LIS están intercambiando informaciones?

Proyectos	Notas adicionales

- ¿Con cuales proyectos @LIS tienen planes de colaboración?

Proyectos	Descripción del plan

- ¿Con cuales proyectos @LIS están trabajando en colaboración?

Proyectos	Tipos de actividades

- ¿Con cuales otros actores están colaborando en el marco de su proyecto?

Actores	Tipo de colaboración

Apoyo Socio-cultural

- Como es el nivel de participación y apropiación del proyecto por las contrapartes del proyecto?
- Están siendo todos los socios beneficiados por el proyecto?
- Como son las relaciones entre los miembros del Consorcio?

Impacto Medioambiental

- ¿Es el proyecto medioambientalmente sostenible?
- El proyecto, ¿ respeta las necesidades medioambientales?

Viabilidad Económica y Financiera

- En caso de que se requiera apoyo financiero una vez que termine el proyecto, ¿es probable que los fondos estén disponibles?
- Los servicios (resultados) están disponibles a un precio razonable para los beneficiarios una vez que el proyecto termine?

Otros

- ¿Tiene algunas necesidades específicas para desarrollar las actividades del proyecto?
- Tiene algún producto/metodología que quiere compartir con otros proyectos @LIS?

Annex 2. Surveys results

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
E-GOIA	EMPLENET	0	0	1
E-GOIA	METALOGO	0	1	3
E-GOIA	SILAE	0	0	1
E-GOIA	EHAS	0	0	0
E-GOIA	HCN	0	0	0
E-GOIA	HFALL	0	0	0
E-GOIA	TELEMED	0	0	1
E-GOIA	E-LANE	0	0	1
E-GOIA	TECHNET	0	0	0
E-GOIA	CIBERNARIUM	1	0	0
E-GOIA	ATLAS	0	0	0
E-GOIA	INTEGRA	0	0	0
E-GOIA	ELAC	0	0	0
E-GOIA	ADITAL	0	0	1
E-GOIA	IALE	0	0	0
E-GOIA	JIQ	0	0	0
E-GOIA	LINK ALL	0	0	1
E-GOIA	RED SOCIAL	0	0	0
EMPLENET	E-GOIA	0	0	1
EMPLENET	METALOGO	0	1	2
EMPLENET	SILAE	0	0	0
EMPLENET	EHAS	0	0	0
EMPLENET	HCN	0	0	0
EMPLENET	HFALL	0	0	0
EMPLENET	TELEMED	0	0	0
EMPLENET	E-LANE	0	0	0
EMPLENET	TECHNET	0	0	0
EMPLENET	CIBERNARIUM	0	0	1
EMPLENET	ATLAS	0	0	0
EMPLENET	INTEGRA	0	0	0
EMPLENET	ELAC	0	0	0
EMPLENET	ADITAL	0	0	1
EMPLENET	IALE	0	1	1
EMPLENET	JIQ	0	0	0
EMPLENET	LINK ALL	0	1	2

¹⁴¹ 0 indicates that no link exists; 1, 2, 3 indicate the strength of existing links.

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
EMPLENET	RED SOCIAL	0	0	0
METALOGO	E-GOIA	0	1	3
METALOGO	EMPLENET	0	1	2
METALOGO	SILAE	0	0	0
METALOGO	EHAS	0	0	0
METALOGO	HCN	0	0	0
METALOGO	HFALL	0	0	0
METALOGO	TELEMED	0	0	0
METALOGO	E-LANE	0	0	0
METALOGO	TECHNET	0	0	1
METALOGO	CIBERNARIUM	0	0	0
METALOGO	ATLAS	0	0	0
METALOGO	INTEGRA	0	0	0
METALOGO	ELAC	0	0	0
METALOGO	ADITAL	0	0	1
METALOGO	IALE	0	1	1
METALOGO	JIQ	0	0	0
METALOGO	LINK ALL	0	0	0
METALOGO	RED SOCIAL	0	0	0
SILAE	E-GOIA	0	0	1
SILAE	EMPLENET	0	0	0
SILAE	METALOGO	0	0	0
SILAE	EHAS	0	0	1
SILAE	HCN	0	0	0
SILAE	HFALL	0	0	0
SILAE	TELEMED	0	0	0
SILAE	E-LANE	0	0	0
SILAE	TECHNET	0	0	0
SILAE	CIBERNARIUM	0	0	0
SILAE	ATLAS	0	0	1
SILAE	INTEGRA	0	0	0
SILAE	ELAC	0	0	0
SILAE	ADITAL	0	1	2
SILAE	IALE	0	0	1
SILAE	JIQ	0	0	0
SILAE	LINK ALL	0	1	2
SILAE	RED SOCIAL	0	0	0
EHAS	E-GOIA	0	0	0
EHAS	EMPLENET	0	0	0
EHAS	METALOGO	0	0	0
EHAS	SILAE	0	0	1
EHAS	HCN	0	0	2

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
EHAS	HFALL	0	0	2
EHAS	TELEMED	0	1	2
EHAS	E-LANE	1	0	0
EHAS	TECHNET	0	0	0
EHAS	CIBERNARIUM	0	0	0
EHAS	ATLAS	0	0	0
EHAS	INTEGRA	0	0	0
EHAS	ELAC	0	0	0
EHAS	ADITAL	0	1	2
EHAS	IALE	0	0	0
EHAS	JIQ	0	0	0
EHAS	LINK ALL	1	1	1
EHAS	RED SOCIAL	0	1	2
HCN	E-GOIA	0	0	0
HCN	EMPLENET	0	0	0
HCN	METALOGO	0	0	0
HCN	SILAE	0	0	0
HCN	EHAS	0	0	2
HCN	HFALL	1	2	3
HCN	TELEMED	1	2	3
HCN	E-LANE	0	1	1
HCN	TECHNET	0	0	0
HCN	CIBERNARIUM	0	0	0
HCN	ATLAS	0	0	0
HCN	INTEGRA	0	1	1
HCN	ELAC	0	0	0
HCN	ADITAL	0	0	0
HCN	IALE	0	0	0
HCN	JIQ	0	0	0
HCN	LINK ALL	0	0	1
HCN	RED SOCIAL	0	0	1
HFALL	E-GOIA	0	0	0
HFALL	EMPLENET	0	0	0
HFALL	METALOGO	0	0	0
HFALL	SILAE	0	0	0
HFALL	EHAS	0	0	2
HFALL	HCN	1	2	3
HFALL	TELEMED	0	2	2
HFALL	E-LANE	0	1	1
HFALL	TECHNET	0	0	0
HFALL	CIBERNARIUM	0	0	0
HFALL	ATLAS	0	0	0

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
HFALL	INTEGRA	0	1	1
HFALL	ELAC	0	0	0
HFALL	ADITAL	0	1	1
HFALL	IALE	0	0	0
HFALL	JIQ	0	0	0
HFALL	LINK ALL	0	0	1
HFALL	RED SOCIAL	0	0	1
TELEMED	E-GOIA	0	0	1
TELEMED	EMPLENET	0	0	0
TELEMED	METALOGO	0	0	0
TELEMED	SILAE	0	0	0
TELEMED	EHAS	0	1	2
TELEMED	HCN	1	2	2
TELEMED	HFALL	0	1	2
TELEMED	E-LANE	0	0	1
TELEMED	TECHNET	0	0	0
TELEMED	CIBERNARIUM	0	0	0
TELEMED	ATLAS	0	0	0
TELEMED	INTEGRA	0	0	0
TELEMED	ELAC	0	0	0
TELEMED	ADITAL	0	0	1
TELEMED	IALE	0	0	0
TELEMED	JIQ	0	0	0
TELEMED	LINK ALL	0	2	3
TELEMED	RED SOCIAL	0	1	1
E-LANE	E-GOIA	0	0	1
E-LANE	EMPLENET	0	0	0
E-LANE	METALOGO	0	0	0
E-LANE	SILAE	0	0	0
E-LANE	EHAS	1	0	0
E-LANE	HCN	0	1	1
E-LANE	HFALL	0	1	1
E-LANE	TELEMED	0	0	1
E-LANE	TECHNET	0	1	1
E-LANE	CIBERNARIUM	0	1	2
E-LANE	ATLAS	0	1	1
E-LANE	INTEGRA	0	1	1
E-LANE	ELAC	0	0	1
E-LANE	ADITAL	0	1	1
E-LANE	IALE	0	1	1
E-LANE	JIQ	0	1	1
E-LANE	LINK ALL	1	1	1

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
E-LANE	RED SOCIAL	0	1	1
TECHNET	E-GOIA	0	0	0
TECHNET	EMPLENET	0	0	0
TECHNET	METALOGO	0	0	1
TECHNET	SILAE	0	0	0
TECHNET	EHAS	0	0	0
TECHNET	HCN	0	0	0
TECHNET	HFALL	0	0	0
TECHNET	TELEMED	0	0	0
TECHNET	E-LANE	0	1	1
TECHNET	CIBERNARIUM	0	0	1
TECHNET	ATLAS	0	0	1
TECHNET	INTEGRA	0	1	1
TECHNET	ELAC	0	1	1
TECHNET	ADITAL	0	1	2
TECHNET	IALE	0	0	0
TECHNET	JIQ	0	0	0
TECHNET	LINK ALL	0	1	2
TECHNET	RED SOCIAL	0	0	0
CIBERNARIUM	E-GOIA	1	0	0
CIBERNARIUM	EMPLENET	0	0	1
CIBERNARIUM	METALOGO	0	0	0
CIBERNARIUM	SILAE	0	0	0
CIBERNARIUM	EHAS	0	0	0
CIBERNARIUM	HCN	0	0	0
CIBERNARIUM	HFALL	0	0	0
CIBERNARIUM	TELEMED	0	0	0
CIBERNARIUM	E-LANE	0	1	2
CIBERNARIUM	TECHNET	0	0	1
CIBERNARIUM	ATLAS	0	1	2
CIBERNARIUM	INTEGRA	0	1	2
CIBERNARIUM	ELAC	0	0	1
CIBERNARIUM	ADITAL	0	0	0
CIBERNARIUM	IALE	0	0	1
CIBERNARIUM	JIQ	0	1	2
CIBERNARIUM	LINK ALL	0	0	0
CIBERNARIUM	RED SOCIAL	0	0	1
ATLAS	E-GOIA	0	0	0
ATLAS	EMPLENET	0	0	0
ATLAS	METALOGO	0	0	0
ATLAS	SILAE	0	0	1
ATLAS	EHAS	0	0	0

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
ATLAS	HCN	0	0	0
ATLAS	HFALL	0	0	0
ATLAS	TELEMED	0	0	0
ATLAS	E-LANE	0	1	1
ATLAS	TECHNET	0	0	1
ATLAS	CIBERNARIUM	0	1	2
ATLAS	INTEGRA	0	1	2
ATLAS	ELAC	0	1	1
ATLAS	ADITAL	0	0	1
ATLAS	IALE	0	1	2
ATLAS	JIQ	0	1	2
ATLAS	LINK ALL	0	0	1
ATLAS	RED SOCIAL	0	0	0
INTEGRA	E-GOIA	0	0	0
INTEGRA	EMPLENET	0	0	0
INTEGRA	METALOGO	0	0	0
INTEGRA	SILAE	0	0	0
INTEGRA	EHAS	0	0	0
INTEGRA	HCN	0	1	1
INTEGRA	HFALL	0	1	1
INTEGRA	TELEMED	0	0	0
INTEGRA	E-LANE	0	1	1
INTEGRA	TECHNET	0	1	1
INTEGRA	CIBERNARIUM	0	1	2
INTEGRA	ATLAS	0	1	2
INTEGRA	ELAC	0	1	1
INTEGRA	ADITAL	0	1	1
INTEGRA	IALE	0	0	0
INTEGRA	JIQ	0	1	1
INTEGRA	LINK ALL	0	1	1
INTEGRA	RED SOCIAL	0	0	0
ELAC	E-GOIA	0	0	0
ELAC	EMPLENET	0	0	0
ELAC	METALOGO	0	0	0
ELAC	SILAE	0	0	0
ELAC	EHAS	0	0	0
ELAC	HCN	0	0	0
ELAC	HFALL	0	0	0
ELAC	TELEMED	0	0	1
ELAC	E-LANE	0	0	1
ELAC	TECHNET	0	1	1
ELAC	CIBERNARIUM	0	0	1

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
ELAC	ATLAS	0	1	1
ELAC	INTEGRA	0	1	1
ELAC	ADITAL	0	1	1
ELAC	IALE	0	0	0
ELAC	JIQ	0	0	0
ELAC	LINK ALL	0	0	0
ELAC	RED SOCIAL	0	1	1
ADITAL	E-GOIA	0	0	1
ADITAL	EMPLENET	0	0	1
ADITAL	METALOGO	0	0	1
ADITAL	SILAE	0	1	2
ADITAL	EHAS	0	1	2
ADITAL	HCN	0	0	0
ADITAL	HFALL	0	1	1
ADITAL	TELEMED	0	1	1
ADITAL	E-LANE	0	1	1
ADITAL	TECHNET	0	1	2
ADITAL	CIBERNARIUM	0	0	0
ADITAL	ATLAS	0	0	1
ADITAL	INTEGRA	0	1	1
ADITAL	ELAC	0	1	1
ADITAL	IALE	0	1	1
ADITAL	JIQ	0	1	2
ADITAL	LINK ALL	0	1	1
ADITAL	RED SOCIAL	0	1	1
IALE	E-GOIA	0	0	0
IALE	EMPLENET	0	1	1
IALE	METALOGO	0	1	1
IALE	SILAE	0	0	1
IALE	EHAS	0	0	0
IALE	HCN	0	0	0
IALE	HFALL	0	0	1
IALE	TELEMED	0	0	0
IALE	E-LANE	0	1	1
IALE	TECHNET	0	0	0
IALE	CIBERNARIUM	0	0	1
IALE	ATLAS	0	1	2
IALE	INTEGRA	0	0	0
IALE	ELAC	0	0	0
IALE	ADITAL	0	1	1
IALE	JIQ	0	1	1
IALE	LINK ALL	0	1	2

Project (from)	Project (to)	Collaboration Month 6 ¹⁴¹	Collaboration Month 22	Collaboration Month 30
IALE	RED SOCIAL	0	1	2
JIQ	E-GOIA	0	0	0
JIQ	EMPLENET	0	0	0
JIQ	METALOGO	0	0	0
JIQ	SILAE	0	0	0
JIQ	EHAS	0	0	0
JIQ	HCN	0	0	0
JIQ	HFALL	0	0	0
JIQ	TELEMED	0	0	0
JIQ	E-LANE	0	1	1
JIQ	TECHNET	0	0	0
JIQ	CIBERNARIUM	0	1	2
JIQ	ATLAS	0	1	2
JIQ	INTEGRA	0	1	1
JIQ	ELAC	0	0	0
JIQ	ADITAL	0	1	2
JIQ	IALE	0	1	1
JIQ	LINK ALL	0	1	1
JIQ	RED SOCIAL	0	1	1
LINK ALL	E-GOIA	0	0	1
LINK ALL	EMPLENET	0	1	2
LINK ALL	METALOGO	0	0	0
LINK ALL	SILAE	0	1	2
LINK ALL	EHAS	1	1	1
LINK ALL	HCN	0	0	1
LINK ALL	HFALL	0	0	0
LINK ALL	TELEMED	0	2	3
LINK ALL	E-LANE	1	1	1
LINK ALL	TECHNET	0	1	2
LINK ALL	CIBERNARIUM	0	0	0
LINK ALL	ATLAS	0	0	1
LINK ALL	INTEGRA	0	1	1
LINK ALL	ELAC	0	0	0
LINK ALL	ADITAL	0	1	1
LINK ALL	IALE	0	1	2
LINK ALL	JIQ	0	1	1
LINK ALL	RED SOCIAL	0	0	1
RED SOCIAL	E-GOIA	0	0	0
RED SOCIAL	EMPLENET	0	0	0
RED SOCIAL	METALOGO	0	0	0
RED SOCIAL	SILAE	0	0	0
RED SOCIAL	EHAS	0	1	2

Project (from)	Project (to)	Collaboration Month 6¹⁴¹	Collaboration Month 22	Collaboration Month 30
RED SOCIAL	HCN	0	0	1
RED SOCIAL	HFALL	0	0	1
RED SOCIAL	TELEMED	0	1	1
RED SOCIAL	E-LANE	0	1	1
RED SOCIAL	TECHNET	0	0	0
RED SOCIAL	CIBERNARIUM	0	0	1
RED SOCIAL	ATLAS	0	0	0
RED SOCIAL	INTEGRA	0	0	0
RED SOCIAL	ELAC	0	1	1
RED SOCIAL	ADITAL	0	1	1
RED SOCIAL	IALE	0	1	2
RED SOCIAL	JIQ	0	1	1
RED SOCIAL	LINK ALL	0	0	1