

The Story of the Vision and Development of Phyrtual.org

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Abstract. This story tells of the vision and development of the virtual social innovation environment Phyrtual.org. It describes the start of the vision back in 2002 inside a young, small non-profit organization created in 2001, the Digital Youth Consortium. It follows the initial efforts and setbacks, the origins of the name, the transformation of the Consortium in the Fondazione Mondo Digitale, and the publication of the first concept in 2006. The story continues with the development of Phyrtual, the team, and the stabilization of the basic concept of the website as a virtual social innovation environment. Finally, it reaches the beginning of the process of going public. This story is part of this process.

The vision of Phyrtual.org comes from the world of social innovation and it began to take shape around 2002. At the time, the term “social innovation” had not reached today’s popularity. There were other terms in vogue such as digital divide, e-inclusion, and ICT4D (information and communications technologies for development). In addition, the term social entrepreneurship was beginning to spread more widely.

The Start of a Vision

The idea of Phyrtual was preceded by the creation of the Digital Youth Consortium (DYC) by the Municipality of Rome and 6 ICT companies in 2001. The DYC was a small organization of about 10 people, most of them young university students spending a practice period for their final year of career. The most senior people were the co-creators of the Consortium, who acted as General Director (Mirta Michilli) and Scientific Director (Alfonso Molina) of the organization respectively. The Scientific Director was also Professor of Technology Strategy at the University of Edinburgh. By the end of 2002, the Consortium organized an international meeting to discuss the possibility of a Global e-inclusion Movement (GeM).¹ In 2003, it participated at the massive World Summit for the Information Society (WSIS) in Geneva. Both of these events were focused on the idea of movements to tackle the challenge of the digital divide, or, more positively, digital inclusion (e-inclusion).

¹ Molina, A., *A Vision for a Better World in a Crossroad Century: The Dream of the Information Society for All and the Global e-Inclusion Movement*, Position Paper written for the workshop: Searching and Encouraging Synergies and Commitment for a Global e-Inclusion Movement, Rome. 11-12 December 2002. Also, Molina, A., *A Better World is Possible: An Invitation to Believe and Make It Happen*, Report for Post-Workshop (Rome) Development of the Global e-Inclusion Movement (GeM), Rome, 2003.

The effervescence created by the two physical events -of course in their widely different scales- did not lead to a continued collaborative action by participants. This stimulated a number of questions: Why did people not take further cooperative steps after the meetings? What was missing for this to happen? What possibilities do exist to enhance the chances of this happening? In sum, how can people build up a growing movement from a global event intending to do so? Clearly there were obvious answers to the first two questions. For instance, there were no follow-up resources for the organizations participating in the events, so everybody went back to their routine struggles after the gatherings. In the case of WSIS, the organization had already decided for a two-stage process, so the next gathering came 2 years later in Tunis. There is still a website and a secretariat but the movement never happened. Lack of follow-up resources translated into the impossibility of creating common projects that could link the organizations around concrete shared objectives, possibly leading to lasting knowledge relationships. Without this, there cannot be solid working relationships. And this led the Scientific Director to pose an audacious goal, namely, create a platform that would enable the globalization of multiple flows of the best of humanity: knowledge, solidarity, positive emotions, etc. To an important extent, this was an extension of Molina's theoretical and practical work on processes of technological innovation and capabilities.²

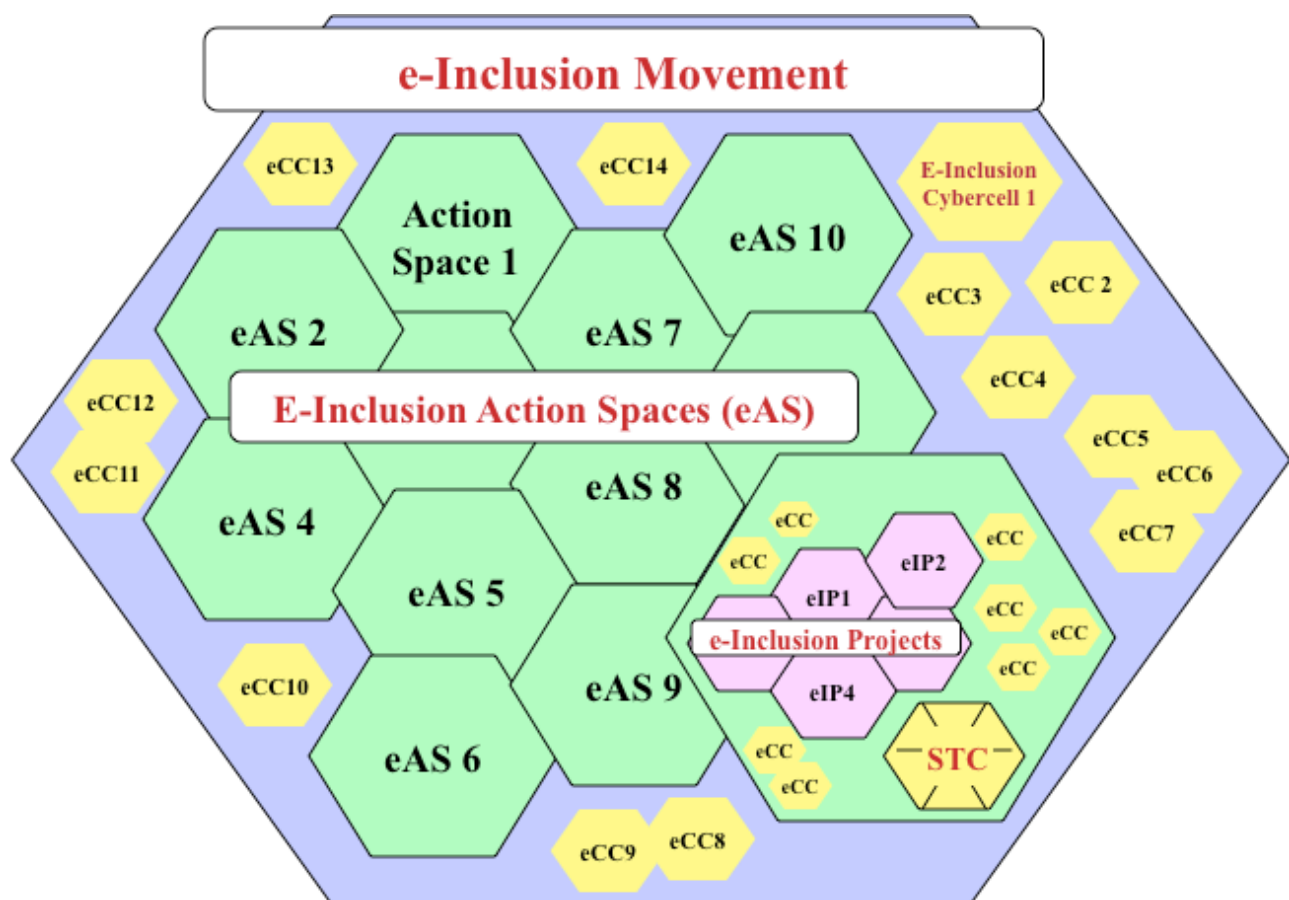
The DYC's directors began to search for some kind of answer and, by the beginning of the 2000s, the development of free(libre) open source code software (FLOSS) was starting to make an impact in terms of technology and, above all, new development and business models. It was natural to explore the application of open source software, particularly, because of its enormous potential for e-inclusion resulting from its free availability and movement-type of business model. In 2003, the Consortium's directors visited leading FLOSS places during visits to Brazil and Spain. The target was to identify software applications that could be useful to develop an online support environment for e-inclusion projects and, ultimately, an e-inclusion movement. The website should be available for multiple projects that could cluster within areas of knowledge and activities, allowing people to develop their own e-inclusion ideas, while sharing with others working in similar areas (e.g., education, computing recycling, etc.). It followed the proposals made in Molina (2002, 2003),³

² See theories of *sociotechnical constituencies* and *sociotechnical alignment* in various papers, for instance, Molina, A., Transputers and transputer-based parallel computers: Sociotechnical constituencies and the build up of British-European capabilities in information technology, *Research Policy*, No.19, 1990, pp.309-333. Molina, A., In search of insights into the generation of techno-economic trends: Micro- and macro-constituencies in the microprocessor industry, *Research Policy*, Vol.22, Nos.5/6, 1993, pp.479-506. Molina, A., Insights into the Nature of Technology Diffusion and Implementation: The Perspective of Sociotechnical Alignment, *Technovation*, 1997, Vol.17, Nos.11/12, pp.601-626. Molina, A., The Role of the *Technical* in Innovation and Technology Development: The Perspective of Sociotechnical Constituencies, *Technovation*, Vol.19, 1999, pp.1-29. Molina, A., Transforming Visionary Products into Realities: Constituency-Building and *Observacting* in the Case of NewsPad. *Futures*, Vol.31, 1999, pp.291-232.

³ Molina, A., A Vision for a Better World in a Crossroad Century: The Dream of the Information Society for All and the Global e-Inclusion Movement, Consorzio Gioventù Digitale, Rome, 2002. Found at <http://www.mondodigitale.org/risorse/pubblicazioni/a-vision-better-world-crossroad-century>

shown in Figure 1. This figure also shows that the eCCs evolving into eIPs and so on can conceptually be seen as processes of building up *sociotechnical constituencies*.

There was much interest in the concept but nobody was able to tell this is the FLOSS environment you need. People in Brazil and Spain were interested in contributing to a development of this kind so, out of the trips, at least a potential network of FLOSS developers had been created - young people who were willing to share their free time to contribute to a dream. At the DYC in Rome, a person who could act as a pole for the project was needed. This led to the first decision to invest in such person; thus, a young Brazilian system architect came to Rome to work on defining better the concept so that it could be communicated to software developers in their own technical language.



eCC = e-inclusion cybercell; eIP = e-Inclusion Project; eAS = e-inclusion Action Space; GeM = Global e-Inclusion Movement; STC = sociotechnical constituencies

Figure 1. Multi-dimensional Organizational View of Global e-Inclusion Movement (GeM)

Source. Molina (2003), p.25.⁴

Also, Molina, A., *A Better World is Possible: An Invitation to Believe and Make It Happen*, Consorzio Gioventù Digitale, Rome, 2003. Found at <http://www.mondodigitale.org/risorse/pubblicazioni/articoli/better-world-possible-final-report>

⁴ This paper described a variety of possible cells in the evolution towards a GeM.

Start of Phyrtual Development and Set Back

The Brazilian developer arrived at the beginning of 2004 at the DYC in Rome. He started working closely with the Scientific Director trying to translate the vision into a system architecture that could later be taken by a software programmer and a graphic designer to make reality of the website. The year 2004 was also the time for the DYC's two-yearly international competition, Global Junior Challenge (www.gjc.it). This competition is focused on innovative educational projects as well as projects fostering e-inclusion. A conference accompanied the 2004 event and one of the themes was open source software for e-inclusion. During this event a Roman entrepreneur trying to build a for-profit business out of open source software asked to participate and was invited in the open spirit of the event. Immediately after, he offered the Brazilian developer a much better salary to work with him. It was an opportunity for the developer that the DYC could not match, so by the end of 2004 back to square 1 as far as internal technical resources for the vision was concerned. The leaders of the DYC knew that the organization could never compete with the resources of forprofit companies operating in the market, so the decision was taken of not trying to bring foreign personnel who could be easily poached by market-based companies. The loss for the DYC was not dramatic since the development work was only beginning and the period of investment was short. The project was left in the back burner waiting for the arrival of a good programmer at the DYC.

The Name Phyrtual and the Restart of Development Work

In September 2005, Molina used the term Phyrtual for the first time in a public presentation to refer to the idea of an *e-Innovation environment* complementary to a *p-Innovation environment*. Phyrtual = physical + virtual. The place was Brussels at the Workshop: *i2010 for Digital Inclusion and Participation*.⁵ By 2006, the strategic importance of Phyrtual was firmly established and now seen as fundamental to the routine project-work of the organization. The DYC had started a programme called "Thematic Weeks" in 2004. This programme was aimed at stimulating the 'transfer' of good practices on ICT-based educational innovation from innovating schools to learning schools in the Roman school system. The Thematic Weeks programme was entirely 'physical,' happening at a Centre housed in an old renovated school. Here the DYC's *p-innovation environment* saw thousands of teachers and students participating in lectures, laboratories, socializing events, etc., to stimulate social, knowledge, didactical, and technological flows in the Roman school system. Simultaneously, short case studies of innovative educational projects

⁵ See Molina, A., *e-Inclusion in the International Socio-economic Context*. Presentation given at Workshop: i2010 for Digital Inclusion and Participation, Brussels, 23rd September 2005.

created a pool of written and video material focused on these projects. By the end of the 2005 session, it had become clear that the centralized model needed to evolve into something more decentralized. The main reasons were the peripheral location of the Centre, the heavy Roman traffic, and the benefits of decentralization for the diffusion of results. In fact, the yearly start-up events of the Thematic Weeks had already begun to migrate to other schools in the Roman territory. For instance, many schools opened their doors to their communities during the annual promotional week (Digital Literacy Week) dedicated to the older people's digital literacy programme *Nonni su Internet* (Grandparents in the Internet). Thus, it was abundantly clear that the *p-innovation environment* operating at the Centre was fundamentally limited to respond to the exacting challenge faced by all school systems of the world, namely, how to diffuse and scale up the most innovative projects from innovating schools to the system. The *p-innovation environment* of the Centre gave a week to a given innovative project and, although knowledge and contacts were transferred, this was nothing like the scale needed for large impact. Besides, although books with case studies were published, the challenge was really to break the barrier of time and space for processes of educational innovation. This meant an *e-innovation environment* (virtual) complementary the existing *p-innovation environment*. Ultimately, it meant a single strategic *phyrtual* understanding and practice of innovation; a practice with no *a priori* geographical and time limits in which any idea could potentially develop into an international movement.

In the same year 2006, the DYC became the Fondazione Mondo Digitale (FMD). At this point the Lazio Region and Intel also entered as founding members of the Foundation, thus helping expand the financial resources of the organization. The FMD could also build on the social and cognitive capital created during the years of the DYC. In fact, the FMD was set up in clear recognition of the good work done by the DYC and to provide a better institutional framework to deepen this work. Molina wrote a book to celebrate the launch of the new Foundation in October 2006.⁶ It revised the projects and achievements of the DYC and the final chapter exposed a vision of the institutional evolution of the Foundation. It discussed in some detail the concepts of *e-innovation environment* and its complement *p-innovation environment*, both leading to the integrated *Phyrtual environment* for the rise and development of phyrtual innovation movements. As the following quotation points out:

a stimulating environment of rich interactions and joint-learning among organizations and people driving targeted, grass-root processes of ICT-based innovation and e-inclusion. It defined the nature of this

⁶ Molina, A., *The Digital World Foundation: Towards an Inclusive Knowledge Society*, Fondazione Mondo Digitale, Rome, 2006. Also in Italian, see Molina, A., *Fondazione Mondo Digitale: Verso una Società Democratica della Conoscenza*, Fondazione Mondo Digitale, Roma, 2006. The first printing was limited to the event. Then, at the start of 2007, the two versions were published for free downloading in Lulu.com. Both versions can be downloaded from <http://www.mondodigitale.org/risorse/pubblicazioni/libri-ed-opuscoli/digital-world-foundation> <http://www.mondodigitale.org/risorse/pubblicazioni/libri-ed-opuscoli/fondazione-mondo-digitale>

environment as *phyrtual*, that is, integrating physical (in the territory) and virtual activities into a single programmatic and flexible framework of activities, learning and change. (Molina, 2007, p.106).

Box 1 list the characteristics identified as essential to the envisaged *e-innovation environment*.

BOX 1. Envisaged Characteristics of a Virtual Innovation Environment

The structure of an e-Innovation environment is multi-faceted since its purpose is to support grass-root innovation processes that enhance the quality of people's lives. The realization of such change-oriented environment requires the structuring of multiple aspects. In particular:

- online platform with all the required functionalities and content to facilitate the creation and/or improvements of concrete social and educational processes
- flows of human, financial, material (tangible and intangible), time and space resources. Here human resources include not just knowledge and expertise but also reputation, values and feelings such as solidarity, fraternity, equality, compassion, unity, etc.
- strategic thinking, understanding and support of digital literacy and innovation processes, resulting in collaborative strategy-making and resource-finding aimed at enhancing the effectiveness of such processes.
- instrumentalization and operationalization of scientific understanding on the nature of ICT-based innovation processes to facilitate collaborative learning, strategy-making and constituency-building of grass-root processes.
- mechanisms and processes enabling social and educational innovators to do both: (i) contribute structured knowledge, lessons and information about the nature and state of development of their processes, and (ii) initiate collaborative strategy-making and constituency-building actions around their processes.
- communities of people capable and willing to provide collaborative support to grass-root processes.
- promotion and exploitation of synergies between the many different grass-root efforts and processes for mutual benefit and for the strengthening of a programmatic movement realizing the scaling-up of good practices

Source. Molina (2007), p.107.

Figure 2 shows an illustration of a possible functional e-Innovation environment as perceived in 2006.

At the start of 2007, the one person taking care of all the technical communication of the organization left to take another job. A final year university student needing to do a "stage" period for his computing degree replaced him. Unlike the Brazilian developer who was a software system architect and did not know programming, the new person (originally from Albania) was a programmer with limited formal skill on software system development. This had an important impact on the development of Phyrtual since it implied a major change in the development

strategy. In principle the best solution is to have the system architecture well defined first and then proceed with the programming. Now, the FMD had no system architect but it could proceed with the effort to begin to realize the website immediately. It was not perfect but it was possible within the limited resources of the organization. Of course, there was also a need for a graphic design capacity. A young student of Architecture (originally from Rumania) took over this task. He had joined the DYC when he was a final-year student at the secondary school. He was to design the graphics for Phyrtual and the new programmer was to realise it for Internet.

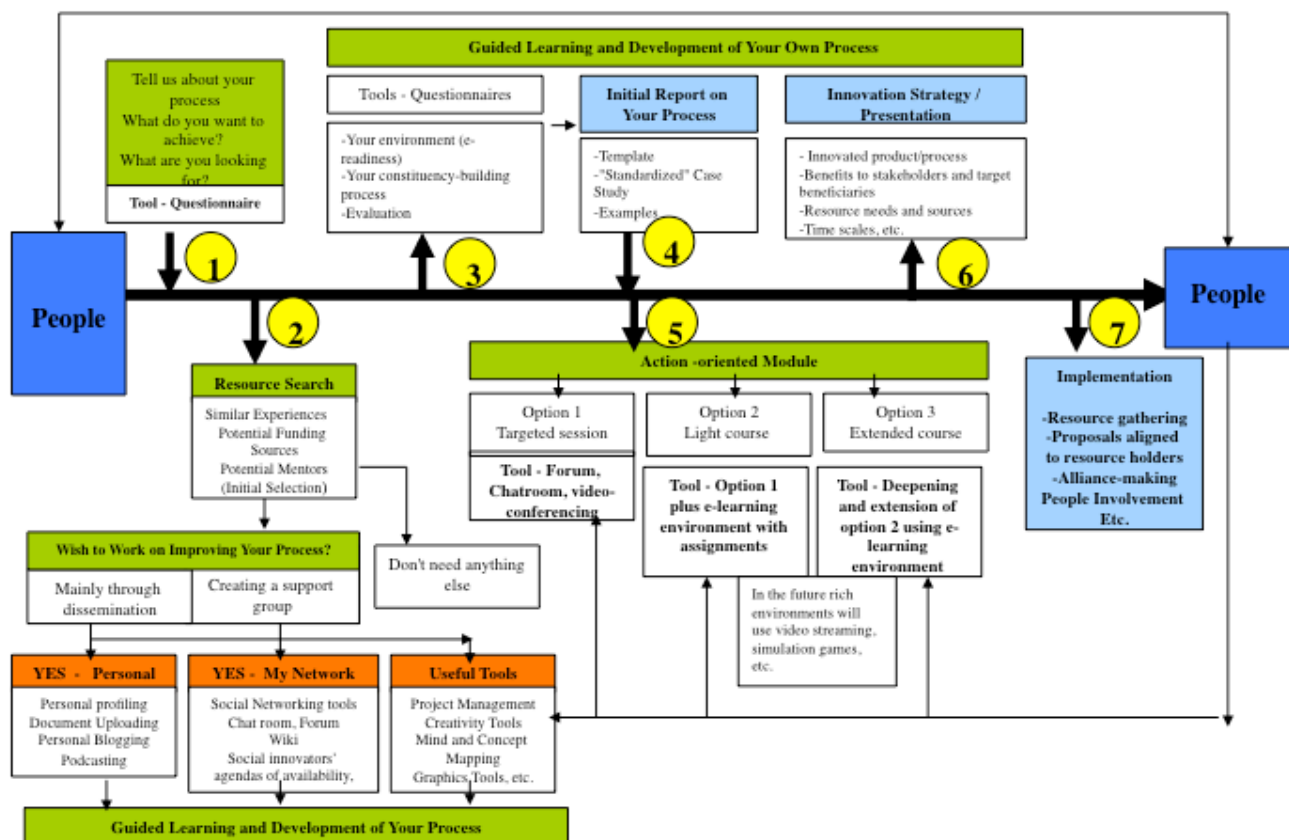


Figure 2. Illustration of Functional e-Innovation Environment

Source. Molina (2007), p.109

A part-time three-person team took shape: the scientific director, the programmer and the graphic designer. They would work for about 3 years in an environment characterized by: (a) rapid evolution of technology, particularly Web 2.0; strong support and expectation inside the FMD; and (c) constant interruptions because of demands for other graphic, programming, servicing and maintenance work, and strategic writing and project development. The material costs were minimal since most of the investment was just knowledge and the belief that it could be done gradually since there was nothing like it in the world. In addition, for the programmer, there was an added incentive. He started an MSc degree and Phyrtual became the subject of his M.Sc dissertation.

The scientific director led the team with the constant support of the general director. He contributed the vision, concept, and kept the last word about the functional evolution of the website. The graphic designer and the programmer lead in their respective areas were they had the greatest expertise. The members of the group saw themselves every day in the informal environment of the FMD, and they also met frequently in more formal working meetings. Decision-making was friendly and fluid, since the final decisions were consensual, following the management style of the scientific director. In addition, the group continuously engaged in talks about the vision and the potential global impact of the website. The interruptions of work were never problematic since everybody was aware of the urgency of other demands when they arrived, after all the three members of the team were involved in these other demands as well. An important factor to highlight is that the members of team were never isolated inside the FMD. One reason is that they worked with all others in the other tasks; the other is the flat organization and informality of the Foundation that made everybody else familiar with the development of Phyrtual. In fact, the General Director was always informed and involved in the main decisions.

The first step to begin to implement the vision directly into a website was for the programmer to research and identify the best FLOSS configurable and scalable environment for a complex interactive site. By 2007, FLOSS systems in the market were offering a lot of functionality that was not available during the first attempt a few years before. Two environments were the most probable, Joomla and Drupal. The decision taken in 2008 was to go for Drupal since it was more powerful for the website envisaged for Phyrtual. It gave access to an unfolding content management framework and this is what the team needed.

Following the choice, the conceptual, graphic and programming work proceeded in a constant dialogue and consensual decision-making. The time taken and the advances in technology meant an interactive evolution in all aspects of the website. The vision, the graphics and the programming co-evolved as a result of research and new technological possibilities. For instance, Drupal arrived at its version 6.0 and this opened new possibilities but also brought the work of migrating the programming already made.

Stabilizing the Fundamental Concept of Phyrtual

By mid-2008, the concept of the website had changed deeply, arriving essentially to the architecture we see today. Figure 3 shows the concept of the Phyrtual working page for projects as drawn by Molina in September 2008 (inside Institutions and People , the example refers to an FMD project of digital literacy for older people). The four major areas: knowledge, community, personal profiling and instruments were established and, under each of these categories, one sees the type

of content envisaged then. There are elements that point towards an evolution of functionality such as Manuals into Courses (e-learning) under Knowledge; Automatic Evaluation Tools is another functionality that must evolve from knowledge codified in templates to more elaborate software tools to evaluate the quality and value of a specific project's activities (e.g., events, courses, etc.). Under Instruments, there is a category called Innovation also intended for automatic evaluation, but this time, evaluation of strengths and weaknesses of social innovation processes represented by projects inside Phyrtual. The content of this software tool is based on Molina's *diamond of sociotechnical alignment*, developed to understand and inform the development of innovation.⁷

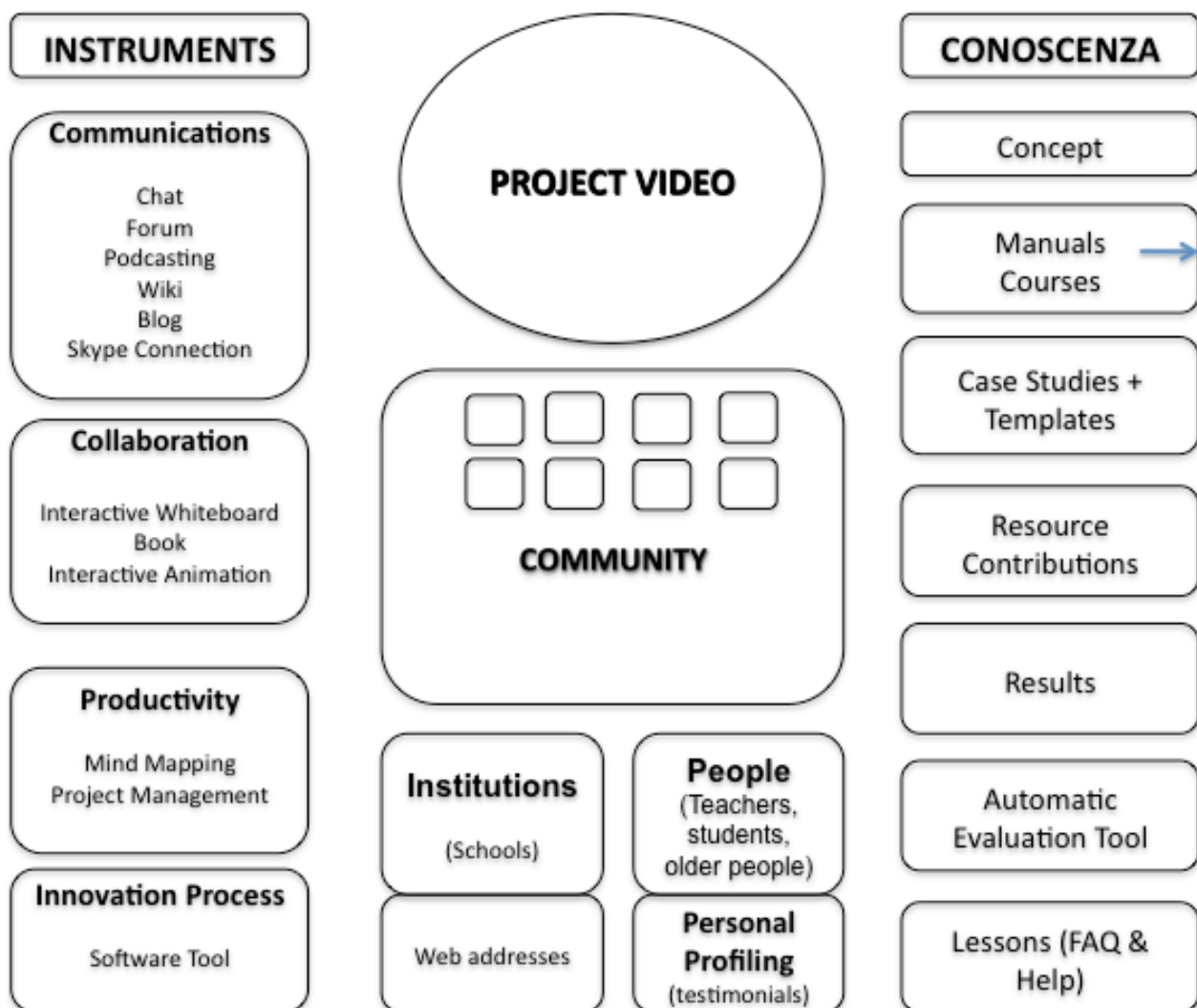


Figure 3. Diagram of Phyrtual Project Working Page (September 2008)

⁷ See footnote 2 for some bibliographic references.

Later on, more features were added to the Phyrtual environment but technically they represented incremental innovations. On the other hand, some of these changes represented an important development from a vision viewpoint. For instance, under Knowledge, Development Plan, Creative Ideas and Wisdom were added. Indeed, the concentration on knowledge gave way to the idea of Phyrtual as an environment for the expression and enrichment of people's multi-dimensionality, that is, the website must empower people and communities pursuing social innovations to work and communicate in the ways they choose, blending knowledge, wisdom, arts, positive emotions and values, social networking and supporting instrumentation. Thus two other categories emerged - Arts and Fun and most likely other will emerge in the future.

Beginning to Go Public and New Changes in the Team

As the website progressed gradually, the concept was presented more frequently in public events and the feedback was always highly motivating, so the energy continued to flow inside the team and, from here to the Foundation as a whole. Also, from e-inclusion the website passed to social innovation since the latter contains e-inclusion and, also, fits better with Molina's theoretical and practical background on innovation.⁸ One outcome was the organization of an international conference on social innovation in October 2009 in Rome.⁹

By May 2010, both the software programmer and the graphic designer had left the Foundation. They had grown in the Foundation and were presented with new opportunities. The programmer had completed his a one-year Master programme supported by the FMD and in April 2010 he was offered an important job in his country of origin. He had always thought that one day he would back to his country, so this was the opportunity. The graphic designer had left in July 2009 to do a Master programme too, since his ambition was to do creative 3-D animations, something the Foundation could not offer and had no need at this stage. The graphic designer was replaced by the other graphic designer (an Italian student of Architecture), who had been honing his skills working together with the main designer in the other graphical jobs of the Foundation. He was able to take up the job of Phyrtual graphics without difficulties. After all, he had been aware of the

⁸ See, Molina, A., *Insights into the Governance-Shaping Process of Bangladesh's Village Phone Strategic Alliance*, The University of Edinburgh Business School/Fondazione Mondo Digitale, Rome, 2008; Molina, A., *Hybridity in Social Innovation and Entrepreneurship. State of the Art and Theoretical Challenge*, Fondazione Mondo Digitale, Rome, 2010; Molina, A., *Understanding Multi-sector Hybridity in Social Innovation*, Fondazione Mondo Digitale, Rome, 2009. These publications can be downloaded from:
<http://www.mondodigitale.org/risorse/pubblicazioni/insights-into-the-governance-shaping-process-of-bangladesh-s-village-phone-strategic-alliance>
<http://www.mondodigitale.org/risorse/pubblicazioni/hybridity-in-social-innovation-and-entrepreneurship-state-of-the-art-and-theoretical-challenge>
<http://www.mondodigitale.org/risorse/pubblicazioni/hybridity-in-social-innovation-and-entrepreneurship-state-of-the-art-and-theoretical-challenge>

⁹ See www.socialinnovationconference.org

development of Phyrtual all the time. A new programmer arrived in May 2010. He had experience of Drupal so he needed only to get up to speed with the Phyrtual vision, architecture and code that, by this time, had acquired considerable complexity. At the same time, another person just graduated from the university came to the Foundation to do 'stage period.' He was experienced in information gathering and management through the running of his own website. At the end of the stage, in November 2009, the FMD offered him to remain since the time had come to start the process of information gathering and development to begin testing the available functionality of Phyrtual, as well as to establish an initial touch with the communities of people involved in the projects of the Foundation. During 2010, all the people of the Foundation became increasingly involved with Phyrtual. The idea was included in FMD projects, communication and presentations and Phyrtual was online, on and off, during this year. It was also decided that, initially, Phyrtual would be in English, Italian, Spanish and Portuguese. Some agreements were established, amongst them, an agreement with the Brazilian association Viração led by Paulo Lima. Viração took the role of translating the website into Portuguese, while another FMD person worked in the Spanish translation.

Today, Phyrtual is beginning its journey as a Beta version to be tried by other organizations in other countries. Translations, legal and ethical codes, videos communicating the vision, documents providing guided tours of the site, etc., are finding their place in the website. Above all, Phyrtual as a project is treated like any other project inside the website Phyrtua.org. This document is part of the content of the project Phyrtual. Thus, the build up of content and a community around the Phyrtual project is taking its first steps and its success is symbiotically related to that of Phyrtual.org.

Concluding Thoughts

The story of Phyrtual suggests some important lessons.

One lesson that transpires from the development of Phyrtual is the need for persistence in pursuit of an ambitious objective. Of course, this must be qualified because time, resources and university practices have played a clear role in Phyrtual.

Time is in fact a resource and for several years the organization had plenty of it to pursue the vision of Phyrtual with very limited financial, human and technical resources. This happened because the vision of Phyrtual comes from the field of innovation. Today in the age of social networking the time resource is extremely small and persistence may quickly lose sense if others

with much greater resources arrive first. On the other hand, social networking allows for much better functionality and dissemination.

Knowledge resources, particularly codified knowledge, have a crucial role in Phyrtual and this is something that comes from the *de facto* alliance between the Fondazione Mondo Digitale and the University of Edinburgh through the presence of a Professor of Technology Strategy as Scientific Director of the Foundation. The vision of Phyrtual as a knowledge-based, community-building environment for social innovation comes from theoretical and practical work started at the university. The Foundation has a policy of knowledge codification for its projects and this has provided the Foundation to develop the knowledge dimension of Phyrtual. It is not common for a small non-profit organization to have a practice of knowledge-codification. At the Foundation this is possible because of its relationship with a University.

The future development of Phyrtual coincides with its full entrance into public life. What happens during the first six months, or a year, of this process will determine completely the medium- and long-term future of the website. The architecture and features of the website play an important part, along with the development (business) model, including governance, chosen for its growth. The potential for Phyrtual to become a global social innovation environment is huge but so are the challenges to make it happen. In fact, a quantum leap in resources of all types is required and, in accordance with the spirit of empowerment and unity, this can only happen through the involvement of countless people and organizations. The technical development must continue but, above all, the challenge moves to the arena of people and organizations. Everybody interested or working in social innovation is invited to join.