

FICHE PROJET

1.0 TITRE DU PROJET

Titre Greek School Network (Greece)

Acronyme GSN

2.0 DATE DU RECUEIL DE L'INFORMATION (MM/AA : du type 02/03)

15.04.2003

3.0 RESUME

Fournir une description synthétique (10 à 15 lignes maximum) du projet.

The Greek School Network (GSN) has as objective to create a national infrastructure for the elementary and secondary Education: interconnect Greek schools and the administrative offices of the Ministry of Education into an educational Intranet and provide and support advanced telematics services to the school communities. The project establishes a network infrastructure which:

- Supports, develops and renews the learning process in elementary and secondary education
- Offers teaching and learning through communication and collaboration
- Allows flexible information search related to the educational procedure
- Gives the possibility of exchanging information among people geographically distributed
- Gives the possibility to schools and teachers to develop their educational content.

The project is in full operation phase with plans towards more advanced service that includes e-learning and online collaboration.

4.0 CADRE THEMATIQUE

SI et développement économique

SI, éducation et formation

SI et e-administration

5.0 ORGANISME DE PROMOTION ET PARTENAIRES DU PROJET

Organisme de promotion (porteur du projet)

Indiquer la raison sociale de l'organisme, la mission et, si nécessaire, les principales activités/expériences liées au projet.

Ministry of Education and Religious Affairs

Partenaires du projet

Indiquer la raison sociale de chaque partenaire, la mission et, si nécessaire, les principales activités/expériences liées au projet.

The Project has been designed as a Ministry of Education initiative and implemented in collaboration with 10 Greek Universities and 2 Research Centers (12 local nodes in total), that provide network administration and develop the necessary applications software and e-learning tools. As backbone network is used the infrastructure of the Greek Research and Technology Network (www.grnet.gr), which is also provides the Internet access to Greek Universities and Research communities.

Responsable du projet/Personne de référence

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Site Internet (url)

Indiquer, le cas échéant, le site Internet où l'on peut trouver des informations spécifiques sur le projet et sur les produits/services s'y rapportant.

<http://www.sch.gr>

6.0 CADRE TERRITORIAL D'INTERVENTION

- Local ou regroupement infra-régional
- Régional
- Inter-régional (dans le même pays)
- National
- Européen
- Autre (*préciser*)

7.0 ETAT D'AVANCEMENT DU PROJET

Date de lancement (MM/AA)

1999

Etat d'avancement

En cours de développement

Opérationnel

Achevé

8.0 MOTIVATIONS, CONTEXTE, OBJECTIFS ET RESULTATS DU PROJET

Motivations et contexte

Présenter les circonstances, les exigences et les opportunités qui ont mené à l'élaboration du projet. Spécifier si le projet s'insère dans un Plan spécifique pour le développement de la SI (national ou régional) et/ou dans un Programme cofinancé par l'UE.

The Greek School Network Project (1999 – 2006) has been designed and developed with the objective to provide an innovative environment for application, evaluation and usage of new educational methods, by using ICT technologies and e-learning applications. Essentially, the Project responded to Primary and Secondary Education institutions' requirements for innovative educational methods (by leveraging the potential of e-learning technologies and applications), access to digital libraries content and collaboration between distributed groups of users. GSN infrastructure development is funded by the Second and Third Community Support Framework (Operational program for the Information Society – www.infosoc.gr), while Project operational costs are supported by National funds.

Objectifs et résultats

Spécifier les principaux objectifs du projet et pour chacun d'entre eux, définir les résultats attendus, en précisant le cas échéant les indicateurs retenus

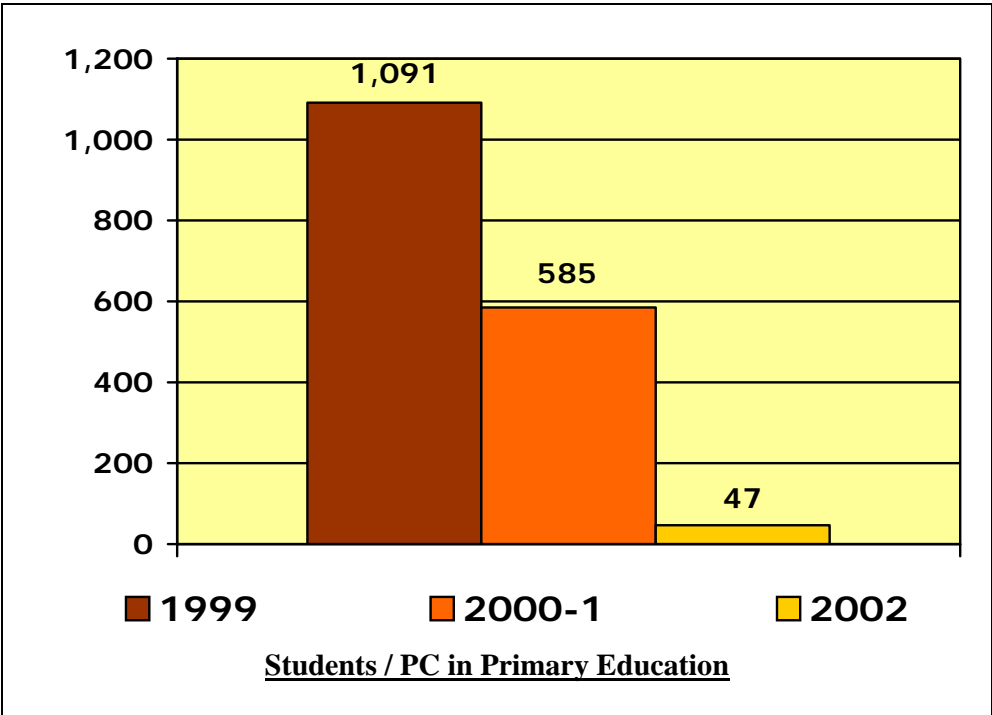
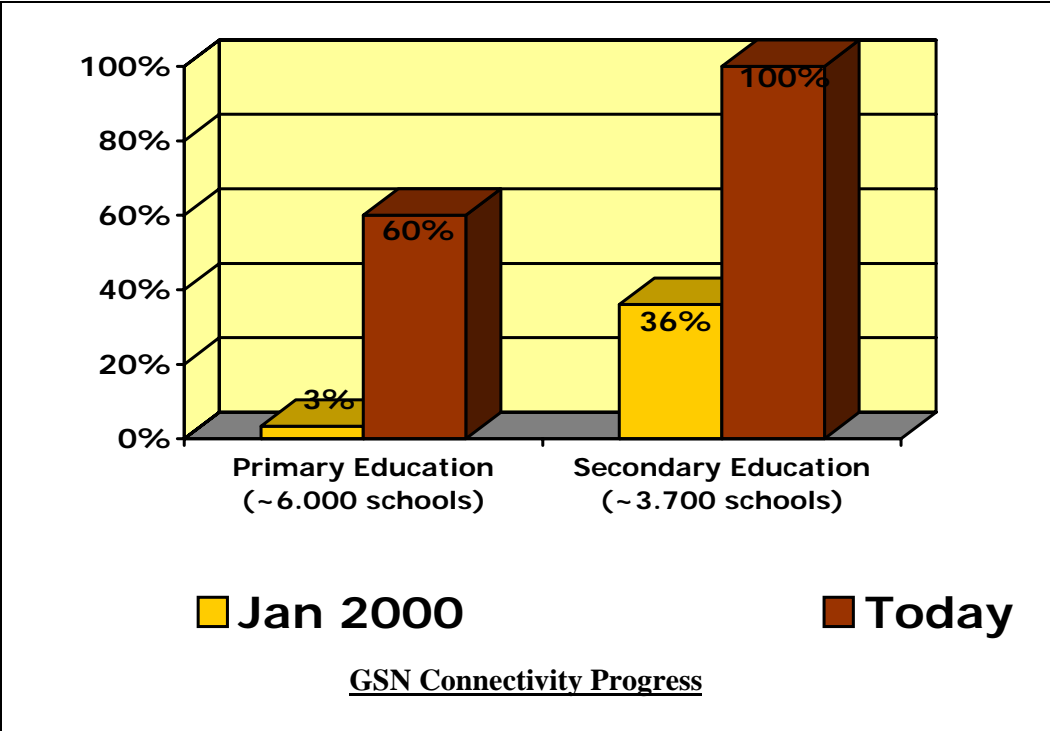
Main objectives of the GSN refer to:

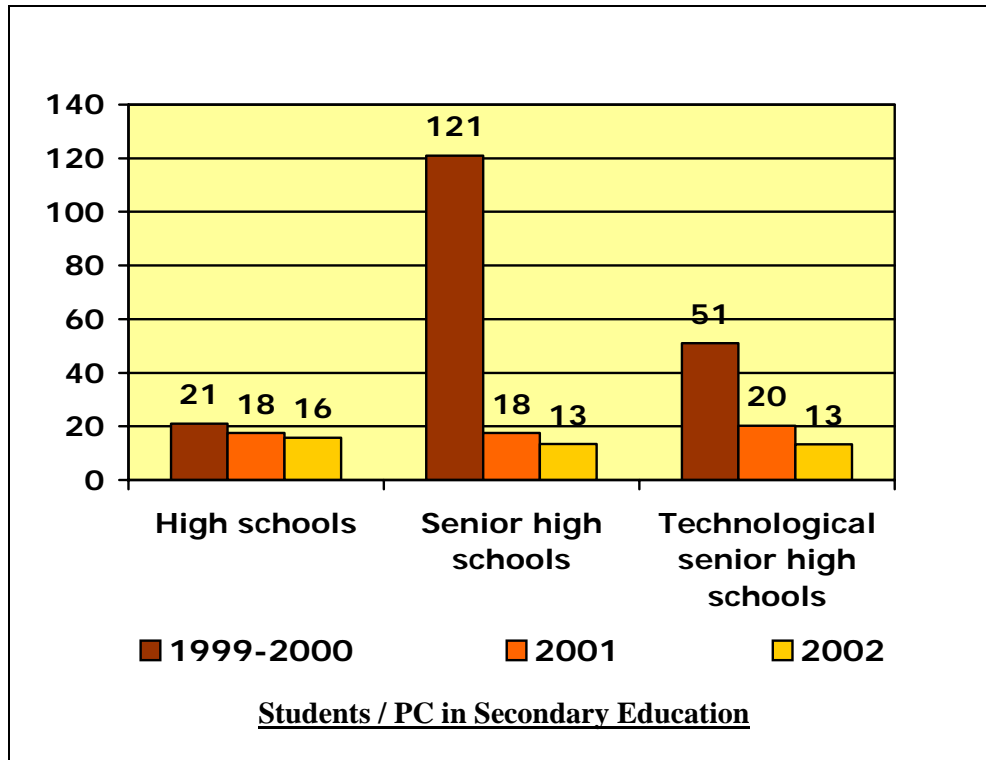
- ▶ Creation of a national infrastructure for innovative education methods and practices
- ▶ Connection of all the schools in an educational Intranet
- ▶ Connection of all the administrative offices of the Ministry of Education (including the administrative units located within schools)
- ▶ Provision and support advanced telematic services.
- ▶ Support the needs of the users of GSN services

The connection of schools and administrative units takes place simultaneously with the upgrade of telecommunication links to the Internet and with the provision of new advanced services to the users. The total number of connected units (educational and administrative) is over than 8.000. The interconnection of the educational units of the secondary education has been completed in December 2001, in accordance with eEurope-2002 target-plans. Also,

more than 3.500 teachers have acquired personal account for access to the services of GSN, after registering through the web site www.sch.gr.

Project progress and (direct and indirect) results are illustrated in the following 3 figures.





9.0 DESCRIPTION DU PROJET

1- Produits et/ou services

Donner une description synthétique des principaux produits/services réalisés et de leurs caractéristiques principales en relation avec les objectifs du projet.

On line services provided to Primary and Secondary Education schools by GSN Project belong to three particular categories, fundamental, basic, advanced:

i) Fundamental

- ▶ Addressing scheme and routing plan
- ▶ Domain Name Service

ii) Basic

- ▶ Dial-up service and connectivity to the network. This service is provided only to educational and administrative units as well as to a large number of teachers.
- ▶ E-mail service than can be delivered using various protocols, such as POP3, IMAP, or webmail (www.sch.gr/webmail).
- ▶ Caching and Proxy Service: This service provides smart exchange of information and improves the whole network's operation.
- ▶ Web Filtering (based on the proxy service). It is transparent to users and establishes the exclusion of access to sites with harmful content.
- ▶ Web-page generator. It allows GSN's users to make their WebPages in a simple and fast way.
- ▶ Web hosting.
- ▶ World Wide Web.

- ▶ Discussion Fora. They allow for communication among members of an educational group
 - ▶ Newsgroups.
 - ▶ Directory Service (LDAP). It provides access to indexes related to users' information (it supports, in the background, the rest of services).
 - ▶ School Network Portal (www.sch.gr). It provides useful information on the organization and the members of the GSN and the profile of the interconnected units. It operates as the single point of reference for the schools' web sites. (Information: info@sch.gr).
 - ▶ Personal Calendar and Address Book.
 - ▶ Users' Administration service (www.sch.gr/usersadmin). It supports a distributed operation and several hierarchical levels of administration.
 - ▶ News service (news.sch.gr).
 - ▶ Statistics (www.sch.gr/statistics). They provide useful information on the network's operation, information that is very useful when the network's upgrades are designed.
 - ▶ Voice over IP. A pilot service, which is provided on a limited scale, mainly to administration units.
 - ▶ Help-Desk (www.sch.gr/user_support). It is based on a distributed structure and obtains the uninterrupted operation of the whole network. The service is accessed by the users mainly over a free phone line, but fax, email or web access is also provided.
- iii) Advanced (in pilot provision)
- ▶ Asynchronous Open Distance Learning
 - ▶ Teleconference
 - ▶ Video on Demand - VoD

It is important to notice that the large majority of the above services have been developed using open source software.

To better understand the educational environment of GSN, we should focus on the different levels of functionality provided by GSN.

First, GSN provides in situ infrastructure: schools participating in the project obtain computer and local network hardware material to organize specific educational needs, called in the jargon of the project, "School Laboratories".

Second, GSN provides network connectivity to these laboratories through a complex TCP/IP infrastructure, organized itself at 3 levels:

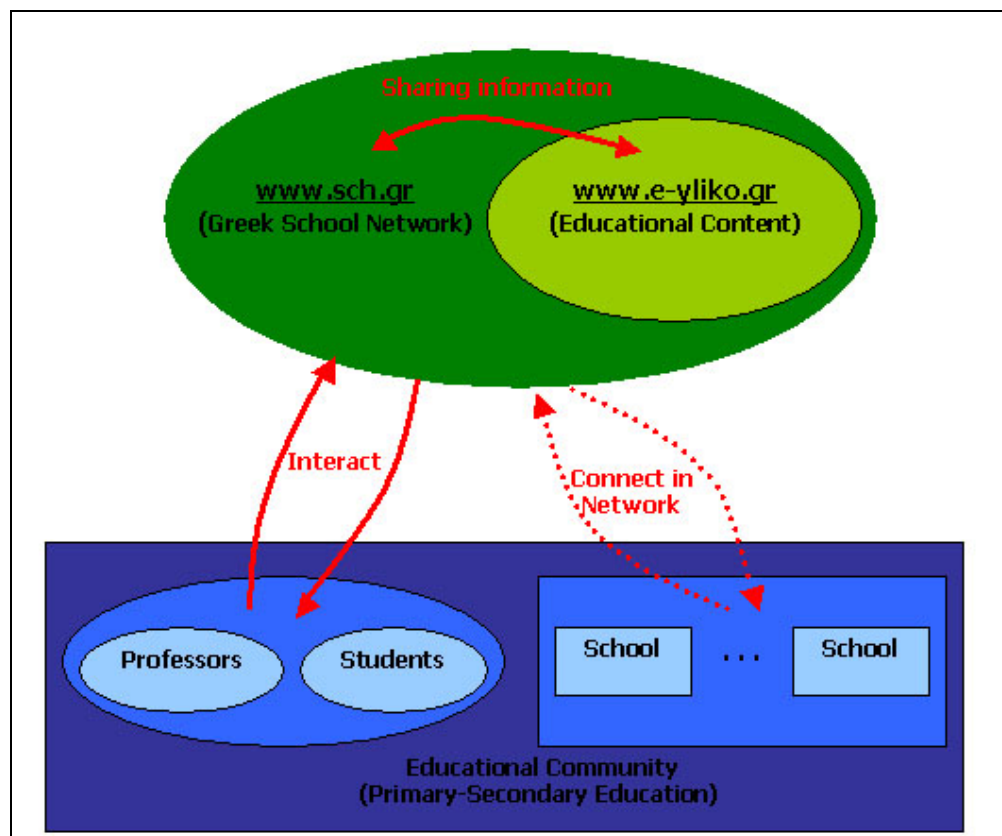
- A backbone network, provided by GRNET (www.grnet.gr). – the same network supports network connectivity needs of Greek Universities and Research Centers.
- A decentralized distribution network that interconnects points of presence (nodes) with the backbone network. Its topology has been designed in order to preserve the operational costs at low levels, which is particularly critical in large geographical region networks. These points of presence (nodes) are distinguished in two categories: Regional Nodes (Points of Presence interconnected directly with the corresponding point of presence of the backbone network) and Prefectural Nodes (Points of Presence interconnected indirectly with the backbone network through connections with the nearest regional node).

- An access network that interconnects School Laboratories (as well as the central services of the Ministry of Education and the Primary and Secondary Education Administration Offices) with the nearest points of presence (POP)¹.

Third, GSN provides to its users (Primary and Secondary Education personnel and students), by using the above computer and network infrastructure, telematic services for education, collaboration and communication purposes (see list of on line services, in the beginning of this paragraph).

Fourth, GSN users can also benefit from educational content, provided through a portal, specifically designed for the needs of the Project (<http://www.e-yliko.gr>): articles and information material, teaching material, software tools for preparation of classes and monitoring of students, useful links, news etc².

The figure below, summarizes the four levels of functionality provided by GSN.



2- Cibles

¹“ Out-of-GSN” schools (for example private schools) interconnect with GSN with dialup lines. Schools connecting with dial-up, may have access to the network services like e-mail (one or more accounts), access to the Internet, web hosting etc. The minimum required equipment is a PC, a modem and a PSTN or ISDN line. In this case the school is responsible for the telecommunication charges.

² Generic information and educational content, especially content that is locally produced, by the personnel and students of schools connecting to GSN, is also available from the web pages of GSN main portal (<http://www.sch.gr>).

Donner la liste des cibles visées par le projet (entreprises, citoyens, administrations publiques, etc.)

GSN addresses educational needs of students and teachers in Primary and Secondary Education levels as well as their communication and collaboration needs.

3- Dimension financière

Indiquer

- *le coût total du projet ventilé entre les principaux postes (personnel, équipement, services)*
- *les sources de financement (avec ventilation)*

The development of the network and applications infrastructure supporting the GSN e-learning environment is estimated, for the period 1999-2006, at 35 MEuros (covered by the 2nd and 3rd Community Support Framework of the European Union). GSN management evaluates the operational cost at 4MEuros per year, cost that is covered by National funds.

10.0 PHASES DE MISE EN ŒUVRE ET METHODES

Étapes de réalisation et rôle des partenaires

Donner une description synthétique des principales phases de réalisation du projet.

The Project has been developed in two main stages:

- i) Infrastructure deployment (implementation of School Laboratories, network and applications development)
- ii) Creation of e-learning tools and educational-informational content (this particular activity has been developed during last year).

Although, the Project has been designed as a Ministry of Education initiative, it has been implemented in collaboration with 10 Greek Universities and 2 Research Centers (12 local nodes in total). As a result, a series of GSN activities (i.e. development of applications software and e-learning tools, operation of Help Centers to handle School Laboratories requests, network management and administration etc.) are distributed and locally organized and supported by the teamwork and experience of scientific-technical experts with acknowledged international experience and qualifications.

Technologies

Donner une description synthétique des principales technologies (plates-formes, normes, etc.) utilisées dans le cadre de la réalisation du projet.

Various technologies and open-source solutions are used at the different levels of network/application hierarchy, from the backbone network to user interface:

Backbone network: GSN uses Greek Research & Technology network, GRNET, with 7 entrance points and total capacity over than 40 Mbps.

Distribution network: The Distribution network consists of 51 nodes (one in each prefecture): 9 main nodes, 42 secondary nodes, equipped with 75 routers, 80 servers, a large number of telecommunication circuits and the appropriate software. These nodes are located

in central installation points of the Hellenic Telecommunications Organization in each prefecture.

Access network: Is the part of the network, which interconnects educational and administrative units with the nearest node – using a variety of access technologies (xDSL, Wireless junctions, analog (M.1020) or digital leased lines, dial-up over ISDN or PSTN, etc.)³.

School Laboratory: In School Laboratories, computing devices and Ethernet networking equipment are installed. This equipment consists of a powerful server (with operating system Windows NT, 2000 or XP Server), approximately 10 multimedia stations (with operating system Windows 98, Me, 2000, XP or Linux), a color printer etc. The Administration Offices use more powerful networking equipment and interconnect through a high-speed line of 1 – 10 Mbps. This equipment provides besides the basic network services, the possibility of voice transmission through the school network.

In addition, GSN uses open-source content management tools to build portal functionality and provides a series of administration and support tools to 12 GSN nodes that, in turn, provide network administration and develop, applications software and e-learning tools for the project needs.

Méthodologies

Donner une description synthétique des principales méthodologies (méthodologies d'identification des produits/services et des cibles.) utilisées dans le cadre de la réalisation du projet.

The principal strategy for the deployment of the Project is based on the formation of local structures for support and day-to-day operation (12 local nodes in total), that are located within Universities and Research Centers and provide, as explained above, network administration and development of applications software and e-learning tools. In many cases, GSN local nodes intersect with Go Online – Training Support local structures (Regional Consortia).

Actions d'information et de communication

³ Regarding wired connections, ADSL (Asymmetric Digital Subscriber Line) is the common broadband technology. ADSL supports maximum a capacity 8Mbps/800Kbps (downstream/upstream), using the existing local loop infrastructure for a distance until 5.5 Km, approximately. Then, as the optical networks are progressively extended, the VDSL (Very high rate Digital Subscriber Line) becomes an attractive choice, especially for the large school units.

Also, a wireless network can be a very attractive solution when the construction of a wired broadband network is impossible for technical or economical reasons. Today, there is a large number of wireless products available in the market. Wireless bridges (IEEE 802.11b – WiFi), which operate in the ICM band (2.4 GHz) and support capacities up to 11 Mbps. Next generation wireless technologies and protocols, such as the IEEE 802.11a and LMDS, supports data rates in the range 34 – 50 Mbps and they can be used in the future by the GSN in order to interconnect its nodes or schools. As a matter of fact, 12 projects are now in operation to provide wireless interconnect to schools. They are designed to include, each one, 20 schools units that are grouped in zones. Each zone contains 3-4 schools that are interconnected with high-speed LANs. One of them host the wireless bridge, directional antennas, router and switch device that support VLAN technology.

The ultimate objective for the access network, is the wide use of optical fibers, where it is possible (long term solution). The deployment of optical fibers will give to GSN the flexibility to select itself the desirable data technology transmission.

Donner une description synthétique des principales actions d'information et de communication menées pour faire connaître aux destinataires les objectifs et les produits/services du projet.

Information and communication activities include organization of workshops and frequent interactions with GSN users.

11.0 EVALUATION DU PROJET

Atteinte des objectifs

The GSN Project seems to have obtained significant results in terms of:

- i) Promotion of ICT related innovations in the education field
- ii) Connection of Greek schools to the Greek Educational Intranet and to the Internet
- iii) Effective network implementation and reduction of operational costs
- iv) Provision of a wide range of telematic services
- v) Formation of local structures (local human networks) to support GSN operation and evolution

Points forts et aspects critiques

Donner une description synthétique des trois principaux points forts et des trois aspects critiques majeurs du projet.

Strong points:

- ▶ Infrastructure rigor and large spectrum of services
- ▶ Extended coverage
- ▶ Early familiarization of students with ICT applications and services

Weak points:

- ▶ School Laboratories (dedicated spaces within schools for using computers) instead of “computers in every class”
- ▶ Non-sufficient educational content (up to now)
- ▶ Incomplete training of educational personnel

Perspectives d'évolution envisagées

Progress in GSN life-cycle targets the creation of rich educational content and the provision of advanced collaboration and e-learning services.

12.0 EVALUATION DU PROJET PAR L'EXPERT

1- Impact

Donner une description synthétique de l'impact du projet sur les destinataires (nombre d'utilisateurs, avantages découlant de l'utilisation des produits/services, taux d'utilisation des produits/services, etc.).

The impact of GSN environment to Primary and Secondary Greek Education is obvious: it improves information flows and allows for non-stop knowledge acquisition processes (with

instant access to GSN, teachers can easily work at home), familiarizes young generations with ICT applications, collective learning through communication / collaboration (e-mail, discussion fora etc.), renders the school environment more friendly to students (the educational process becomes visual...). Of course, the creation of rich content, together with a more application/content focused approach, will increase GSN impact to its user communities.

2- Transférabilité

Indiquer les éléments transférables du projet (concepts, solutions, modèles, structures de système, etc.) et les facteurs déterminants aux fins de la transférabilité (disponibilité de compétences professionnelles, interopérabilité, utilisation de normes, etc.).

The project has the potential to be deployed in other countries, at a regional or national level. Network deployment and distributed management and development structures seem to be the more interesting project aspects.

3- Pérennité (caractère soutenable)

Indiquer les facteurs déterminants du caractère soutenable du projet (stabilité administrative, disponibilité de ressources financières, maintien des compétences critiques, etc.).

Key factors for sustainability include:

- ▶ Continuous public funding in improving School Laboratories and, more generally, local GSN infrastructures
- ▶ Continuous and carefully designed creation of education content and useful / user friendly applications.

4- Innovation

Indiquer de manière synthétique les principaux éléments du projet considérés comme innovants.

Use of ICT technologies and applications in traditional education activities is always a source of innovation by itself.