Motivation and Problem Area

OpenAdap.net

e2007 eChallenges

• Knowledge sharing: social obstacles

CONTRIBUTOR

OBSTACLES TO KNOWLEDGE DISSEMINATION

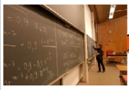
	DALYS[a] (in millions)
Maternal Conditions	29.0
STDs excluding HIV	15.8
Tuberculosis	10.9
HIV	10.6
Cardiovascular Disease	10.5
Rape and Domestic Violence[b]	9.5
All Cancers	9.0
Motor Vehicle Accidents	4.2
War	2.7
Malaria	2.3

[a]DALY (Disability Adjusted Life Year) = a measure of healthy years of life lost due to health-related morbidity or premature death. Every year lost to death is counted as 1 DALY and every year spent sick or incapacitated is counted as a fraction of a DALY, based on the severity of the disability. Four further explanation see (World Bank, 1993).

[b]Rape and domestic violence, which are included in this table for illustrative purposes, are risk factors for disease conditions, such as STDs, depression, and injuries. They are not diseases in and of themselves.

The richness circulating in the Cyberspace is poorly exploited because of **difficulties to share the know-how**. **Delays** appear until newly developed methods of information processing become available even within a specific field or discipline.

CONTRIBUTOR



"INVENTION"

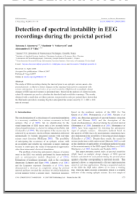
$$N_c^{(r)} = Q(a, c, \Omega) \cdot \tilde{N}_c^{(r)}$$

$$\tilde{N}_c^{(r)} = K \sum_{S_c \in \xi_c} e^{-m(S_c)/K} \cdot \frac{1}{r!}\left[\frac{m(S_c)}{K}\right]^r$$

$$Q(a,c,\Omega) = F(c-a,a) \cdot \frac{\Omega!}{(\Omega-a)!a!}$$

$$K = \frac{(w/\Delta)^{c-1}}{(c-1)!} \equiv \frac{w^{c-1}}{f_\Delta(c-1)!}$$

DISSEMINATION

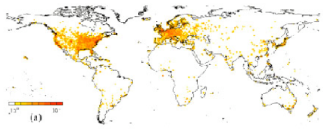


ACCESS

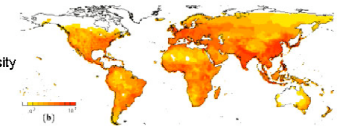
• Digital divide

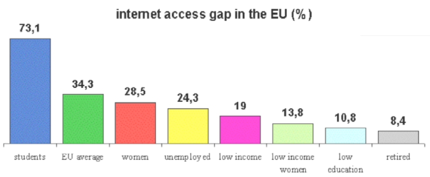
The existence of **barriers** in the flow of information processing **increase the overall cost** of knowledge production and distribution and **restrict its availability to developing countries as well among social classes of developed countries**.

Router density



Population density





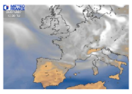
• Transdisciplinarity: technical obstacles

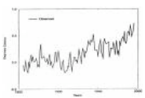
The software is generally based on **tailored needs** and platforms **too narrowly designed**. Due to lack of a transdisciplinary vision **knowledge remains undiscovered** to users specialized in fields of competence other than that of the original author.

LIFE AND CLINICAL SCIENCES

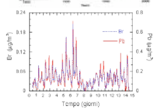
ECONOMY AND FINACE

CLIMATE AND METEREOLOGICAL SCIENCES



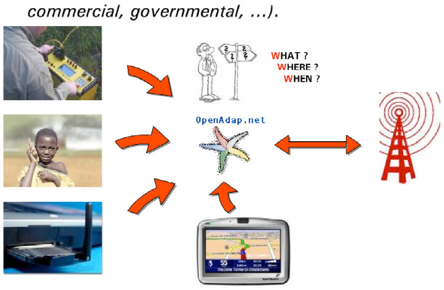


TRAFFIC JAM AND POLLUTION FORECAST



• Project Objectives

- To **avoid the "re-invention"** and **"re-discovery"** of existing knowledge so to **save time and expenses** by the whole society and prevent incorrect applications.
- To promote the development of **Communities with semantically related interests**.
- To provide Communities the possibility to **transparently compose meta- resources**, based on the available resources, by means of a **network-centric operating system** driven by the activity of **intelligent adaptable brokers**.
- To develop a new OpenAdap.net protocol (oan://) for field instrumentation and wireless communication over Internet aimed at **easy ubiquitous knowledge sharing and access**.
- To develop new business opportunities for Third Parties from all over the world, SMEs in particular, aimed at **added value services** *(educational, commercial, governmental, …)*.

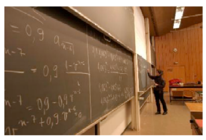


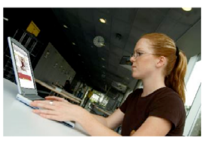
• Target Audience

COMMUNITIES

People who share a **knowledge representation** (common data format) driven by common interests.

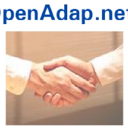
CONTRIBUTOR : people who would like to **share their knowledge** with the Community. They maintain the authorship and keep **control and responsability** over their contribution.





USER : people interested to **process their own information** or **access knowledge stored elsewhere** (e.g., in a public database) and **extract the results of their processing**. They exploit Contributors' applications in a trusted way.

OpenAdap.net

CONTRIBUTORS  ***USERS***

Community members who provide new knowledge become able to **share** their contribution and members who have information to be processed can **access** these services.

USE CASE

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e-2007 e-Challenges

Early adopters:

www.neuralcoding.org
: multivariate time series

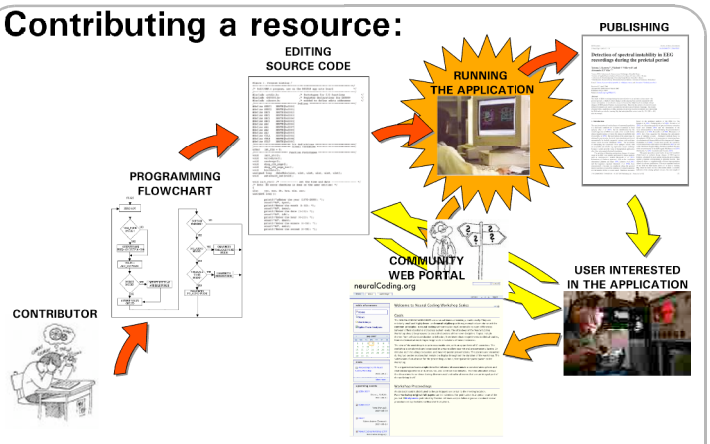
www.gaba-project.eu
: bioelectrical activity (FP6 project)

www.disi.unito.it
: bioinformatics

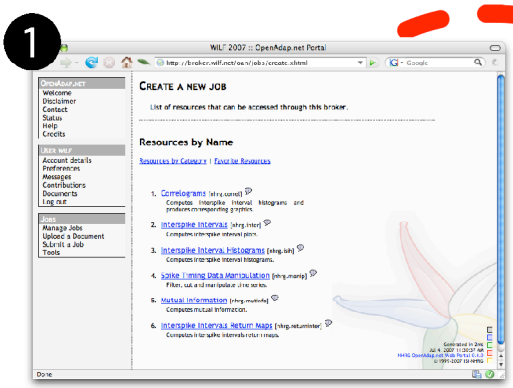
Comparing existing technologies:

	data treatment distribution	hardware resource allocation	hidden execution hosts	application sharing	published application interface	data sharing	highly dynamic system	transparent user/resource connection
Grid	×	×	×					
WS		×	×	×	×			
P2P						×	×	×
OAN	×	×	×	×	×	×	×	×

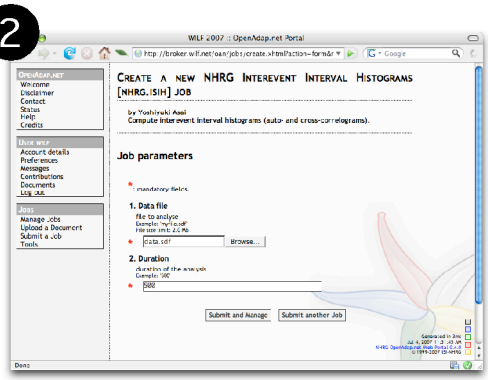
Contributing a resource:



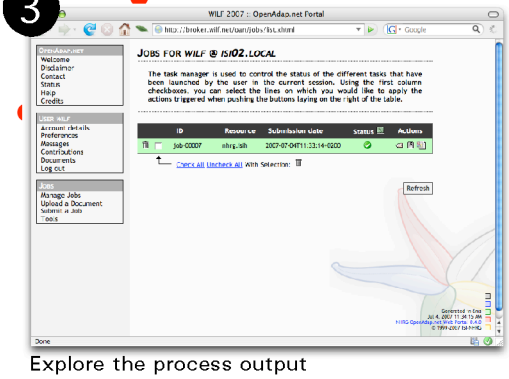
Submitting a job:



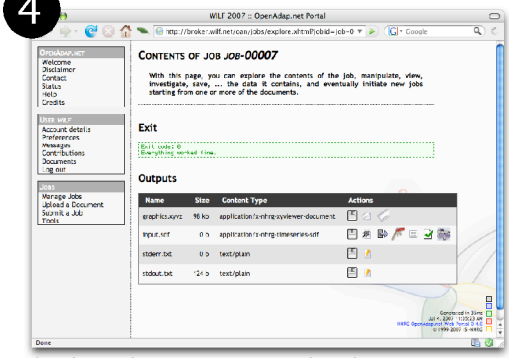
Community web portal



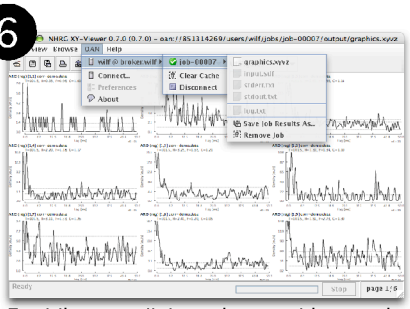
Processing information with a trusted architecture



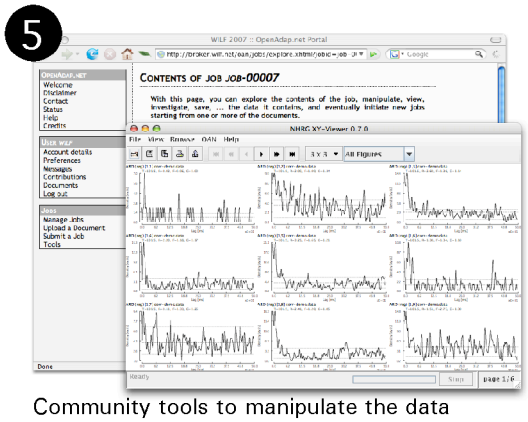
Explore the process output



Apply tools to a content-related output



Enabling a collaborative working environment



Community tools to manipulate the data

TECHNICAL DETAILS

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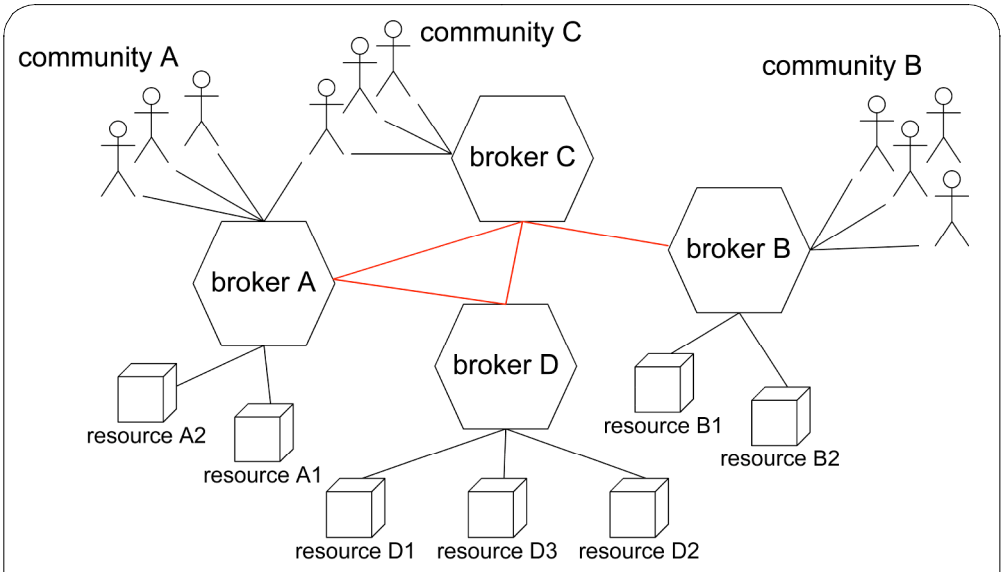
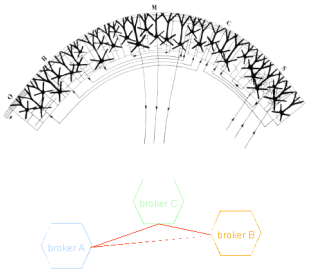
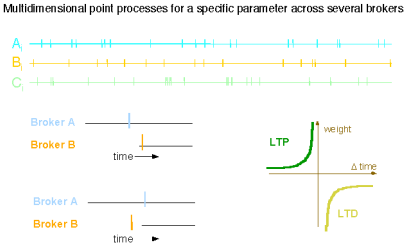
An network of intelligent brokers:



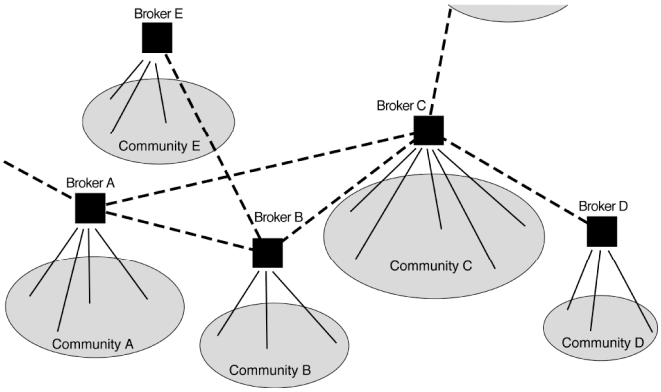
Brokers enable the contributor's traceability, the user's privacy and the security of the system inside and between the communities.

Bioinspired distributed information processing:



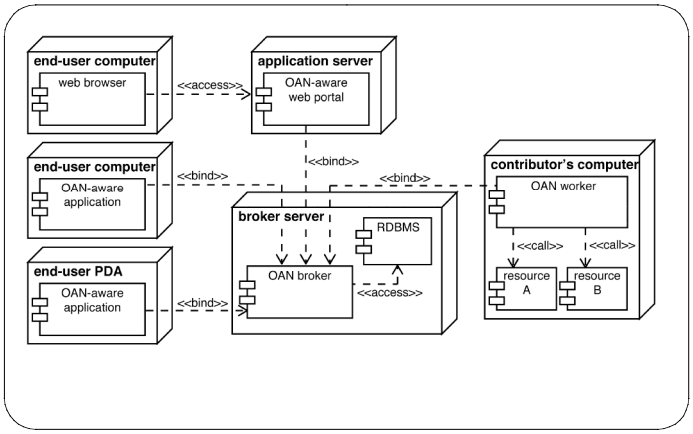


Ontological landscape:

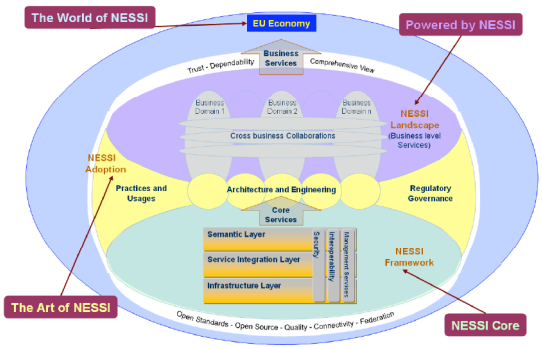


Resources are semantically organized to support transparent cross-border interactions among the communities.

Deployment diagram:

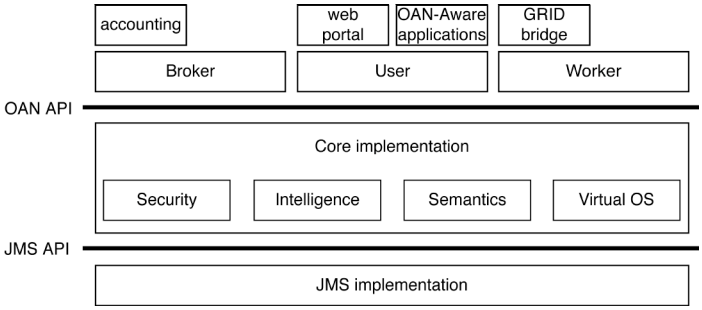


Committed to the NESSI holistic view:



http://www.nessi-europe.com/

A modular Free Software built on existing technologies:



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Information Society Technologies

OPENADAP.NET

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Expression of interest for the 7th FP

New Partners

YOU are Welcome !

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