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## N4U

NeuGRID for you:

expansion of NeuGRID services and outreach to new user communities

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# Table of Contents

- 1 Introduction ..... 4**
  - 1.1 Purpose of the Document ..... 4**
  - 1.2 Document Organization ..... 4**
- 2 Document Preview ..... 5**
- 3 Dissemination Activities and Results..... 5**
  - 3.1 General Public ..... 6**
  - 3.2 Political Stakeholders..... 8**
  - 3.3 Potential Users ..... 9**
  - 3.4 Current Users..... 13**
- 4 Initial marketing strategies ..... 13**
- 5 Training Activities and Results..... 14**
  - 5.1 Not-assisted training tools..... 15**
  - 5.2 Assisted training tools..... 16**
- 6 Dissemination and Training Toolkit..... 18**
- 7. Quantitative and qualitative analysis ..... 21**
- 8. Conclusions ..... 23**
- 9. Annexes ..... 24**
  - 9.1 NeuGRID Digest..... 24**
  - 9.2 N4U Leaflet for Pharma Companies ..... 25**

# **1 Introduction**

## **1.1 Purpose of the Document**

The D2.8 *Dissemination and Training report* aims to describe all dissemination and training activities performed during the first two years of the project, presenting results and the efficacy in reaching the targeted audiences, which range from general public and political representatives, to potential and current users.

## **1.2 Document Organization**

This Document is organised as follows:

Section 1 gives a general description of the document, its purpose and its organization.

Section 2 introduces the document.

Section 3 describes dissemination activities performed and materials produced during the first two years of the project.

Section 4 describes the initial marketing strategies.

Section 5 describes training activities and materials completed by month 24 of the project.

Section 6 summarizes all the dissemination and training tools developed so far.

Section 7 shows dissemination and training KPIs

Section 8 draws conclusions.

Section 9 contains Annexes.

## 2 Document Preview

Dissemination and training activities are strategic to ensure the visibility of N4U progress and achievements to expand and developing the neuGRID functional environment. The aim is to create a critical mass of active users and to improve neuGRID service portfolio by establishing a 2-way dialogue with them. This will eventually pave the way to neuGRID longer-term sustainability. To this end, a Dissemination and Training Plan (reported in D2.2 Dissemination and Training plan), describing targets, aims and strategies has been established. The present document describes what has been done and achieved at M24 of the project compared to the plan.

Dissemination and Training activities performed during the first two years aimed at:

- ✓ Raising awareness about neuGRID by illustrating its contribution in finding a solution to the pressing health problem of brain diseases.
- ✓ Getting Politicians, Governmental representatives, and national and international stakeholders' support by improve the knowledge of neuGRID services and related impact and by building connections for future partnerships, collaborations, and information exchange.
- ✓ Involving new users by showing neuGRID new services and technical results to all the interested targets and collecting their valuable inputs.
- ✓ Boosting user commitment, keeping them motivated to use neuGRID and preparing its exploitation.

Audience-specific activities have been carried out, such as the creation of a neuGRID Wikipedia page in English for general public, participation to specific events to liaise with political stakeholders, N4U public website restyle to attract new potential users, and Science Gateway restyle for Current users. The current deliverable presents also improved and new training for users of all levels, from basic to advanced, to fully exploit neuGRID capabilities .

Monitoring and evaluation of such activities is essential to understand which are the best ways to disseminate N4U project and helps prevent and address risks related to unsuccessful communication in the long-term, establishing a positive experience and added value for all N4U users and supporters.

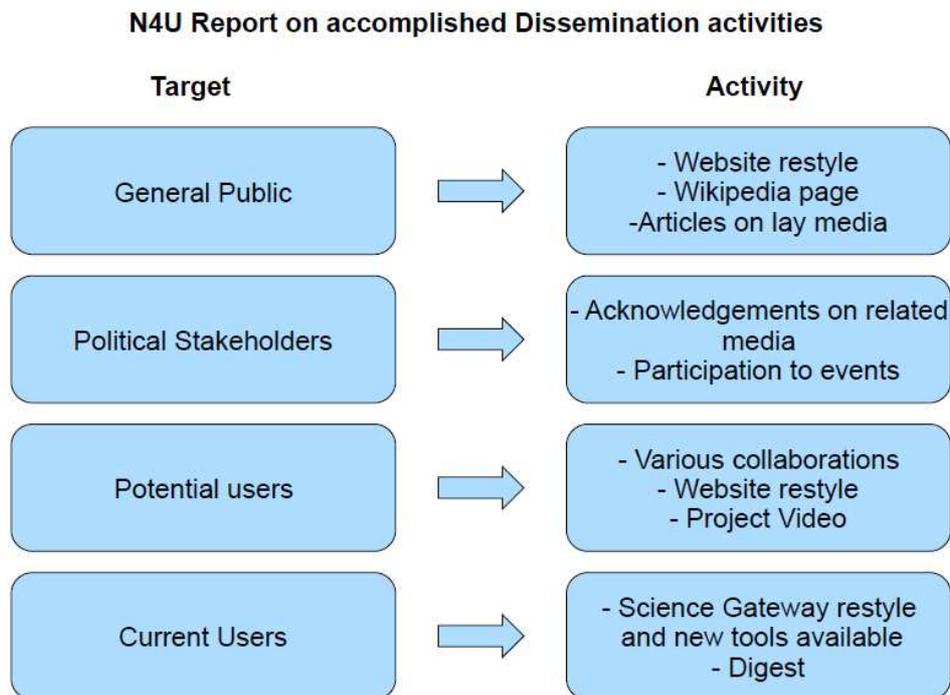
## 3 Dissemination Activities and Results

The main objective in N4U dissemination strategy is to attract a larger and active user community, paving the way for the future adoption of neuGRID functionalities in the application domain, neuroscience, and beyond, being the infrastructure designed to be adapted to other user communities. Therefore, special attention has been devoted to advocacy and promotion of neuGRID to the medical and research communities and world class scientists through personal and public channels by project partners, during international conferences and workshops, and personal communication. Nevertheless, the importance of raising awareness about N4U among political and economic stakeholders has not been neglected, since their endorsement can scale-up N4U outreach. Finally, dissemination towards general public has also been taken into consideration, to make lay people aware that infrastructures as neuGRID can speed up research thus relieving them from the social burden neurodegenerative diseases represent.

To sum up, N4U identified audiences include, in increasing order of importance:

1. General public;
2. Political stakeholders, including EC officials, Ministers, representatives of Governmental and Non-Governmental organizations;
3. NeuGRID potential users;
4. NeuGRID current users.

The following table summarizes the most important activities performed for each dissemination targets.



*Fig. 1 This table collects accomplished Dissemination activities for each target.*

### 3.1 General Public

N4U dissemination strategy aims to lead general public to the awareness of neuGRID contribution towards the understanding and cure of hugely prevalent and burdensome diseases such as Alzheimer’s Disease, Multiple Sclerosis, and Psychiatric Diseases. Individuals have to know that, thanks to neuGRID, there will be a speed up in research and that it will set Europe at the forefront of scientific research and care in brain diseases.

For this reason, an English page about neuGRID has been created on **Wikipedia** (<http://en.wikipedia.org/wiki/NeuGRID>), to spread information about the project among those who are not directly interested in using the infrastructure, but just want to better understand what it is and what its use. Wikipedia is one of the most visited website in the world with thousand visitors per day. On this page people can find information about neuGRID in an easy and public-oriented way. In particular, it is possible to get information about neuGRID targeted communities and fields of interest, the infrastructure operation, its history as a FP7 funded project, and a list of project-related publications. The success of this dissemination activity is demonstrated by almost 200 visits of the page in two months only.

neuGRID Wikipedia pages also exist in French, German, and Italian languages. These pages have been revised and updated, according to neuGRID achievements.

**N4U Website** ([www.neugrid4you.eu](http://www.neugrid4you.eu)) is the main communication tool and the main interface for all target audiences and can be easily consulted also by general public. It has recently been updated, following visitors' feedback, and made more appealing and easy-to-consult. The public website contains information on the project, its history, its partnerships, media announcements and also conferences and events where project results and achievements are presented.

*Fig. 2 New N4U website Homepage*



Finally, general public has been addressed through the publication of **articles on lay media** and sometimes through on-line articles. Since the beginning of the project, almost 15 articles have been published both in national and in international press journal, as well as in specific scientific magazines. Here following a list of the articles:

- Così le nuove piattaforme digitali potenziano la lotta all'Alzheimer. 1st May 2012 - Sanità Il sole 24ore. (Article)
- Salute: Computer Grid per Combattere le Malattie Neurologiche. 12ve April 2012 – AGI.it.(Article)
- O retea bazata pe Google pentru a lupta impotriva bolilor neurologice. 10 April 2012 - Comunicatii Mobile. (Article)
- neuGRID Opens New Channels of Research into Degenerative Neurological Disorders 5th April 2012 – NewsMedical. (Article)
- neuGRID: il Network Europeo dei Marcatori Biologici per la Diagnosi Precoce dell' Alzheimer si Connette con USA e Canada. 5th April 2012 – MicroScopio. (Article)
- Computadores ao Servico da Neurociencia Europeai. 4th April 2012 – SAPO (Article)
- Solving Alzheimer's and Related Disorders Globally. 28th March 2012 - International Science Grid this Week. (Online Article)
- neuGRID, the European Online Diagnosis for Alzheimer's goes Global with outGRID and the United Nations. 20th February 2012 - International Science Grid this Week. (Article)
- Assisting Early Diagnosis of Alzheimer's. February 2012 – e-ScienceBriefings. (Article)

- Project Profile: SHIWA and outGRID. Autumn 2011 - EGI Inspired. (Article)
- Hat trick for Alzheimer's grand challenge. September 2011 - International Science Grid this Week (Article)

### 3.2 Political Stakeholders

Political stakeholders have been addressed to show the benefits of neuGRID adoption at international level mainly through the participation to events. Raising awareness about N4U among political and economic stakeholders is very important since their endorsement can scale-up neuGRID outreach.

neuGRID results have been presented at many **events** organized by national or international political stakeholders, such as:

- At national level, N4U dissemination materials (leaflets, factsheets and so on) have been distributed at the 3<sup>rd</sup> National Conference on Health Research (Cernobbio, 12-13 November 2012) organized by the Italian Ministry of Health to present the new calls for national funded projects.
- At European level, neuGRID was presented at the conference “Healthy brain: healthy Europe –A new horizon for brain research and health care” (Dublin, 27-28 May 2013), organized by the European Commission within the “European month of the brain”, an initiative bringing together key stakeholders, such as policymakers, representatives from ministries, funding agencies, industry, patient organisations, researchers and health professionals on brain research.
- At global level. NeuGRID was presented at the OECD workshop “*Unlocking global collaboration to accelerate innovation for Alzheimer’s disease and dementia*” (Manchester 20-21 June 2013). The event saw the participation of policy makers, academic and private sector researchers, clinicians, health economists, NGOs and technical experts (e.g. from the bio-nano-technology and IT sectors) who lead efforts on Alzheimer’s and dementia research. Besides building contacts with decision makers, this kind of events provide N4U with the possibility enter the public debate on important issues, such as open access policies emerging across OECD countries.

Together with the participation to events, another identified way to reach policy makers is the possibility to **join large-scale pan-European research initiatives**. For example, efforts have been devoted to join Euro-BioImaging, a pan-European infrastructure project whose mission is to build a distributed imaging infrastructure across Europe. This way, neuGRID can get stakeholders’ support since Eurobioimaging has received over 250 expressions of interest from universities, research councils, funding bodies, ministries, and industry partners. To start, the coordinator met the Italian National Coordinating person, prof. Alberto Luini of Biological Imaging, Telethon Institute of Genetics and Medicine to present neuGRID and find out national and international related activities where neuGRID can be involved.

In addition, thanks to dissemination activities, N4U earned **acknowledgements** in important political stakeholder media. More specifically, N4U has been cited in:

- ✓ DG INFSO (now DG CONNECT): N4U has been cited on the DG INFSO website: In the “Success stories” page there is an article about the importance of e-infrastructures, where neuGRID and its European added value is mentioned as the “first and only European effort aiming to offer a distributed working environment to computational neuroscientists.”.

- ✓ DG Research & Innovation: N4U has been cited on the following document of the DG Research & Innovation “Enabling science. EU support to research infrastructures in the life sciences.”, which presents an overview of research infrastructures funded under FP7. N4U has also been cited among FP7 projects for life sciences, considered “the core of the knowledge triangle of research, education and innovation.”.
- ✓ GÉANT: on GÉANT website, the pan-European research and education network that interconnects Europe’s National Research and Education Networks (NRENs), neuGRID is listed as GÉANT user for Health and Medicine. neuGRID is cited as a key resource to identify neuro-degenerative disease markers faster and consequently reduce drug development times, benefiting patients and reducing associated social costs.

Finally, some European Commission related webportals have been used to disseminate N4U, as they offer high visibility to the infrastructure and the possibility to get in touch with other projects or with stakeholders:

- EIP (European Innovation Partnership on Active and Healthy Ageing): this program aims to increase the average healthy lifespan in the EU by 2 years by 2020. neuGRID is registered to this program as marketplace to facilitate cooperation among stakeholders. This platform is very useful as it offers many opportunities such as get in touch with stakeholders, promote events, provide and search information and so on.
- DAE (Digital Agenda of Europe): DAE aims to reboot Europe's economy and help Europe's citizens and businesses to get the most out of digital technologies. N4U registered to the DAE to disseminate its e-infrastructure as it represents a very good opportunity to gain visibility at European level.

### 3.3 Potential Users

Dissemination is the main tool to widen the users base. With that idea, the N4U **website** has been updated: thanks to the new “how to?” portlet, potential users can now easily retrieve information about how to register, how to get started, and how to contact the support center if needed. Moreover, as a motivation both for new and current users, a new section collects “Users achievements” where users can publish news about their successful usage of neuGRID. Users only have to click on the e-mail address on the “user achievements” page and fill the form with required information. Thanks to the Specific Support Center, their information will be made available into the table publicly shown in the same page. This is a very important novelty as user feedback is one of the best ways to show neuGRID potentialities to interest users, as they are based on the real usage of the infrastructure. In addition, users’ suggestions can help improve the infrastructure to make it more and more user friendly.

Fig. 3 Table collecting User Feedback on N4U website

## neuGRID User Achievements

Did you use neuGRID for you analyses ?

[Click here](#) and tell us your story!

Your feedback will be shown in the table below!

User/ Organization	Type of Analysis	Number of Images Processed	Analyses Speed	Most Valuable Service	Added Value/ Major Benefit	Suggestions/ Other Comments
Elisa Veronese	structural T1 w MRI segmetnation (FreeSurfer reconall, FSL bet, FSL segmentation)	>100 MRI volumes	High	Computational resources.	Great speed. No more computational issues.	To provide not only a GUI based service, but also a command-line one. To give the possibility to receive an email when the job has finished running.
Aging Research Center, Karolinska Institutet	T1 whole brain segmentation and parcellation (Freesurfer)	> 900 T1 volumes	High	Parallel processing of several subjects at the same time.	It saved our research center about 1 year of continuous computation.	

Another important strategy to disseminate N4U results is the participation to **scientific congresses and conferences**. Besides traditional way to present the project and its activities (for example with posters or oral presentation), new ways to attract potential users during such events have been identified, for example setting up a booth. The one dedicated to neuGRID at the OHBM (Organization for Human Brain Mapping) Conference (Seattle June 16-20, 2013) was very successful. The OHBM is the primary international organization dedicated to using neuroimaging to discover the human brain. The OHBM organises annual meetings with 2500-3000 attendees each year. At the 19<sup>th</sup> Annual Meeting a neuGRID booth was set up where the Chair of the User Board was available to present neuGRID to those who stopped by: 44 scientists from 24 different institutions showed interest for different aspects of the platform and left their name to be re-contacted. As the whole experience of the OHBM was successful and beneficial to the project, new booths will be organized in the next appropriate events. To be used to attract visitors in stands or booths, a set of charming tools (brain models, neuGRID4YOU Usb sticks) have been produced (see section 6).

Moreover, potential users are being reached by:

- Increasing the number of scientific communities involved in neuGRID

Since N4U wants to expand neuGRID user base besides neuroscientists working in the field of imaging of Alzheimer's disease, neuGRID capabilities has been presented to representative of user communities, such as neuroscientists working in the field of white matter disease (NS-WMD), and of psychiatric disorders (NS-PSY). For example, the Chair of N4U User Board has presented neuGRID, at the last meeting of MAGNIMS, a European network of academics that share a common interest in the study of multiple sclerosis through magnetic resonance imaging. The meeting was held in Milan on November, 8<sup>th</sup>-9<sup>th</sup>

2012. The collaboration led to the result of MAGNIMS involvement and support and the activities related to the preparation of Challenge 2 (AC2), as detailed in “D.6.2NS--WMD Analysis Challenge Specification and Toolbox Portfolio Update Report.

For the PSY community, neuGRID has already been presented, in individual meetings, to several leading institutions’ representatives in the field, such as Steve Williams, founder, director and head of the Centre for Neuroimaging Sciences based at the Institute of Psychiatry and Maudsley Hospital, King’s College London and Paolo Brambilla of the Unit of Brain Imaging and Neuropsychology (RUBIN) of the University of Udine and University of Verona, WHO Collaborating Center for Research and training in Mental Health and Service Evaluation. To reinforce the contacts, these researchers and their coworkers have been invited at neuGRID meetings or user sessions co-localized during important scientific conferences (such as the one held in Florence co-localized with the AD/PD Conference (March 8<sup>th</sup> -9<sup>th</sup> 2013). These contacts resulted in some researchers of these institutions becoming neuGRID users (such as Elisa Veronese from RUBIN).

- Expanding the range of neuGRID users from PhD students to senior neuroscientists

Familiarizing young researchers to the use of neuGRID gives them the opportunity to take part to advanced experiments in computational neuroimaging and allows N4U to stay tuned for the current trends in computational neuroscience that may create new user requirements and to build long-term relationship between neuGRID and its users. So far, the approach has been to offer the use of neuGRID to PhD students working in the most active research groups. For example, thanks to contacts with Prof. Jakub Hort at the University of Prague, some of his PhD students have been familiarized with neuGRID and became users (i.e Zuzana Nedelska)

- Engaging the medical community

Actions have been carried out to familiarize physicians with the clinical tools available on neuGRID. For example, since March 2013, neuGRID has been involved in the preparation of the project “Evaluation of the impact on the confidence of diagnosis of five algorithms for the assessment of MTA: an EADC study”, which is currently under discussion with the EADC, a network of over 60 European centres of clinical and biomedical research excellence working in the field of Alzheimer’s disease and related dementias . In the project, neuGRID will be used by physicians to run 3 (AdaBoost and Freesurfer, SPM) of the five algorithms necessary to assess the MTA in patients. If successful, this project will be a huge step towards the evolution in computer-aided diagnosis of chronic brain diseases through imaging markers and will ease neuGRID penetration in the clinical community.

- Involving Algorithms and software developers

One of neuGRID assets is its ability to distribute algorithms for authors who do not have the resources to do so themselves. This element makes also developers a future neuGRID customer segment (see D2.6 Exploitation Plan (release 2).

During the projects lifetime also developers are familiarized with neuGRID through WP6, the Work Package in charge of finding, implementing and assessing algorithms to be available on neuGRID. So far also developers have been addressed by their involvement in the Analysis Challenges. In particular, the AC2 focuses on assessing algorithms for the automatic detection of white matter lesions in MRI images. This requires the installation of several new algorithms, useful for the detection of lesions in white matter, which will be

available for all users. From M19 N4U started contacts with the authors of some new algos and for 2 of them (CASCADE and Lesion-TOADS ). The implementation in neuGRID is almost finalized and work is ongoing for a third (EMS).

- Probing the interest of the private sector

As detailed in D2.6 Exploitation Plan (release 2), Pharma companies are an attractive target for neuGRID, because they represent the ideal neuGRID users and future customers: they have large datasets collected in clinical trials, but they do not own the infrastructure enabling computational intensive data analysis. This is why normally Pharma Companies subcontract the task of data analysis to external academic institutions. NeuGRID can, instead, allow Pharma companies to insource services that they normally subcontract. The main obstacle for neuGRID penetration is that even in large companies, few people are devoted to imaging. Dissemination, thus, plays a key role in pushing through the concept of the benefits that an online environment for developing, testing, and servicing imaging biomarkers, as neuGRID, can bring.

To convince Pharma companies to become neuGRID users, and then paying customers, the following actions have been carried out:

- ✓ Personal contacts with Key Opinion Leaders working for Pharma Companies in the imaging sector. So far, three people from big Pharma Companies (Lilly, Roche and NextGen Sciences) have been contacted.
- ✓ Project presence in important academia-industry events. Here some examples of this kind of events:
  - The Wellcome Trust Scientific Conference on “Biomarkers for Brain Disorders: Challenges and Opportunities” held in Cambridge This conference brings together leading neuroscientists from academia and industry involved in genomics, proteomics, diagnostics, imaging and regulatory affairs. N4U partners took part in both its first and second edition (the latter was held on 3-5 February 2013)
  - The Joint IMI – C-Path event “Collaborating for Cures - Leveraging Global Public-Private Partnerships to Accelerate Medical Product Development”. The N4U coordinator took part at this first ever public conference co-sponsored by IMI and C-Path, held in Brussels on 7<sup>th</sup> March 2013 . At this event, participants discussed challenges and opportunities in the rapidly evolving public-private partnerships space. The objective is adopting best practices on data sharing, intellectual property, and other crosscutting issues which are critical for N4U.
- ✓ Concertation with projects in which Pharma companies participate. Effort has been devoted to involve neuGRID in ongoing projects under the Innovative Medicines Initiative (IMI), which is the largest public-private initiative in Europe aiming to speed up the development of better and safer medicines for patients. IMI is a joint undertaking between the European Union and the pharmaceutical industry association EFPIA. Many important results have already been achieved: a scientific agreement is under finalisation to use neuGRID for MR computational analyses on data collected in IMI Pharmacog, the largest effort on Alzheimer’s disease so far. Moreover, the currently funded European Medical Information Framework (EMIF), which has a specific topic on “Protective and precipitating markers for the

development of Alzheimer's disease (AD) and other dementias", has a specific task (T3.4) consisting of 600 MRI scans to be processed on the neuGRID platform. This task includes the participation of two big Pharma Companies, Janssen and Pfizer that will thus become very familiar with neuGRID. Finally, contacts have been established with the Coalition Against Major Diseases (CAMD), a public-private-partnership aimed at creating new tools and methods that can be applied to new treatments for Alzheimer's disease (AD) and Parkinson's disease (PD). Discussions are ongoing regarding a joint research project entitled "*The history of neurodegeneration on MR in Alzheimer's disease: the natural course and the effect of bapineuzumab*". The results of this project will allow the development of the first longitudinal map of neurodegeneration in AD over a long time course. The map will be a benchmark for future trials of drugs aiming to modify the natural history of neurodegeneration. Images and clinical data will be stored in neuGRID that, thanks to this experience, may accommodate images from clinical trials of drugs other than bapineuzumab (solanezumab, semagacestat, ecc) and may become a working space for a number of research groups working on imaging of candidate disease modifying drugs.

- ✓ Ad hoc Dissemination toolkit. To be more effective with this important target, a specific dissemination toolkit will be produced., So far a leaflet has been created focussed on the neuGRID assets that can be appealing to Pharma Companies (see Annex 9.2).

### 3.4 Current Users

Currently, the majority of N4U users are neuroimaging researchers. This kind of audience is regularly updated on the development of the infrastructures (new features and so on) and trained (see section 5).

The "**neuGRID Digest**" (see Annex 9.1) is a new tool developed to disseminate the latest developments and new services available on the infrastructure, in order to keep N4U users and partners updated about neuGRID progress. The Digest is a publication that will be circulated after each N4U quarterly in-person meeting, in order to highlight and recap latest project achievements. So far, this has been used only for internal communication to share project achievements among N4U partners, but users will be soon offered the possibility to receive it by joining N4U mailing lists or by downloading it from the website.

As far as the N4U **website** is concerned, the restyle took into consideration also the Science Gateway, the private part, which concerns registered users. This part has been completely restyled in order to make it easier for users to access neuGRID resources. Thanks to the new graphic changes, users can easily have access to all the resources available into the platform, together with more accessible documentation with information and instructions related to each tool. In addition, some new tools have been deployed for image processing, such as Adaboost and SPM, specific tools deployed for clinicians.

## 4 Initial marketing strategies

The promotion of the use of neuGRID has the final aim to attract potential customers, spreading and generating expectations about the project results in order to prepare its exploitation, focusing on the segmentation of identified potential customers: researchers, clinicians, algorithm developers, and Pharma companies. The strategy is to offer neuGRID services for free during the project lifespan and to convert them into paying customers once the project is over, so that the project lifetime might be considered a free trial. The strategy identified for the future

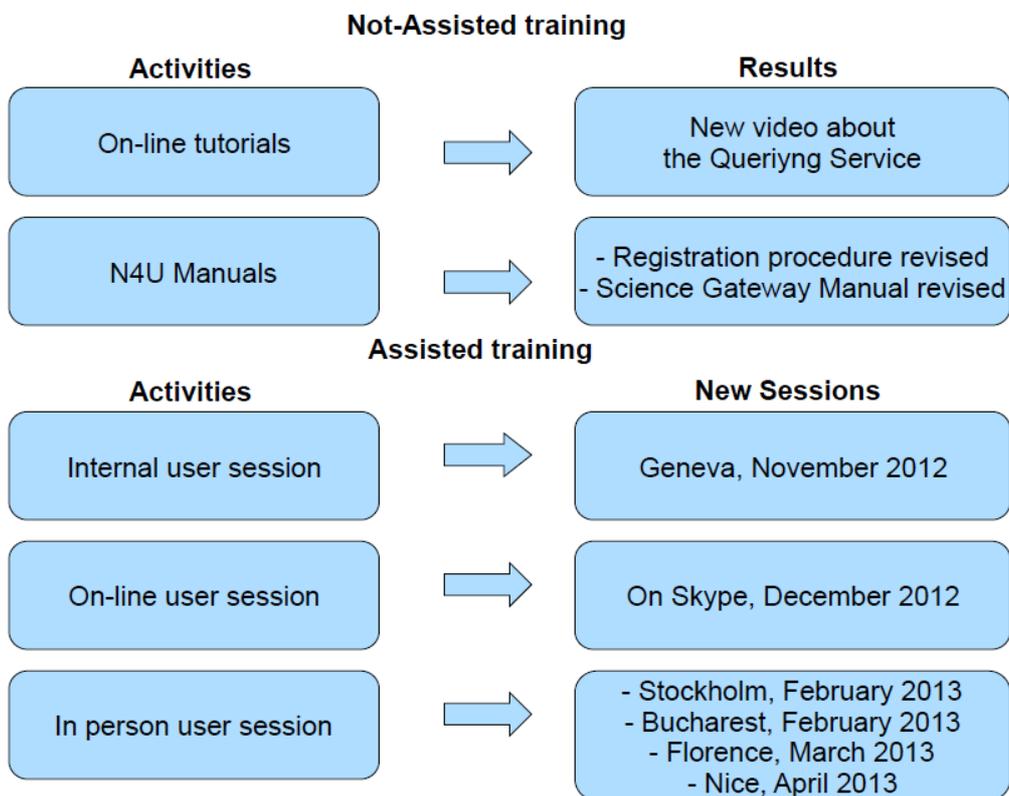
company is described in D.2.6 section 5.4.3 Customer Relationship. Even if during the project lifetime neuGRID services are free of charge, some business-oriented elements have already been introduced: in the main menu of the N4U website, the item “costumers” has been added. Here each of the identified targets (Pharmaceutical companies, Clinicians, Neurologists, and Algorithm Developers) can find specific web-pages, where they can easily find information about which services neuGRID can specifically offer them. Moreover, a new section to ask for quotation has been created to allow users in the next future to know the price of neuGRID services. For the moment, in this section, users will be informed of this issue and that N4U services won't be free of charge forever.

## 5 Training Activities and Results

N4U developed new training modules with the aim to improve the knowledge base needed to use the neuGRID infrastructure. As already described in D2.2, N4U training program is based on assisted and not-assisted tools made available to users. In both cases new activities have been implemented.

In the following scheme accomplished Training activities have been summarized.

### N4U Report on accomplished Training activities



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## 5.1 Not-assisted training tools

Into the Science Gateway, under “Support” section, users can find all the latest support tools on the infrastructure produced both by N4U partners and the user community. New documents and new tools developed so far in N4U are described below.

### *Online Tutorials*

Video tutorials for general users explaining the potentiality of the infrastructure have been developed. Their aim is to show to potential users neuGRID applications and services in order to attract them to use the platform. These tutorials are meant to be very user-friendly and do not require users to get registered or to have a certificate from their grid national authority. These tutorials will be realized per each interface that will be made available on neuGRID. Here following a list of tutorials already available:

- [N4U Interactive Tutorial](#): This is a short tutorial about some of the N4U capabilities, addressing in particular researchers. It starts from the Science Gateway, showing the Desktop Fusion to run workflows using the LONI pipeline and the BrainBrowser applications.
- [VIP Tutorial](#): VIP is a web platform to facilitate data sharing and access to computing resources for medical image simulation. VIP can be accessed through the N4U Science Gateway and offers users functionalities to store, share and process files.
- [Persistency Service Tutorial](#): The persistency service provides appropriate interfaces for storing the meta-data of datasets (e.g. ADNI datasets) into the "Analysis Base", the major hub for all neuGRID Information and Analyses services. As such, the persistency service allows those datasets, which are actually stored on the neuGRID infrastructure (or other similar repositories), become indexed into the analysis base. This way the Analysis Base can offer an integrated medical data analysis environment to optimally exploit neuroscience pipelines, large image datasets and algorithms.
- [Analysis Base Querying Web Interface Tutorial](#): This is the latest tutorial developed. The Querying Service is part of the Analysis Base available into the Science Gateway. It facilitates N4U users and services to retrieve information from the neuGRID Analysis Base, as concern for example data or image files location, retrieving the provenance or analysis details of any given image or data files, searching of pipelines or algorithms created.

### *N4U manuals*

Various manuals are available for N4U users concerning available tools as well as a guide about registration procedure. As concern registration procedure, the following documents have been developed since the beginning of the project:

- [N4all Guide \(version 1.0\)](#): it helped users understand why they need a certificate and how to obtain one for neuGRID. It also explained how the security of neuGRID works and users role in upholding that security.
- [N4U Registration Procedure Guide \(Version 2.0\)](#): this is the current version of the guide and it has been updated due to the new registration procedure. It is available in the “How to?” section on the public part of the website. The guide is divided into two parts: the first part consists in a succinct but clear description of the necessary steps to register to the portal, in order to create either a Basic or a Premium Account. The second part

describes in detail the whole procedure, with a step-by-step explanation further accompanied with screenshots.

The Consortium also devoted particular attention to the release of useful documents to access neuGRID services:

- Science Gateway presentation (version 1.0): this document was thought for potential users, where they could find information about all the steps required for accessing the Science Gateway and information on neuGRID services and resources. This document is no more available to users as it is an old version.
- N4all Science Gateway Manual (version 2.0): this was the second release about the Science Gateway which gave a full explanation about Science Gateway available tools.
- N4U Science Gateway Manual (Version 3.0): version 2.0 of the manual has been rearranged according to the new release of the Science Gateway and according to the new tools deployed (Freesurfer, Adaboost, and SPM). On the current version, users will find information about all the tools available in the Science Gateway. This manual is available into the Science Gateway only for registered users.

Other useful guides developed for users are:

- ExpressLane Manual: This guide aims to show how to run an application through the API ExpressLane. ExpressLane is a simple method allowing the submission of jobs in the N4U grid infrastructure. The benefit for the users is to submit quickly and easily many analyses
- GLITE commands: it is a list of commands users need to know in order to be able to use the GLITE tool, which provides a framework for building grid applications tapping into the power of distributed computing and storage resources across the Internet.

The manuals will be kept constantly updated.

### *Training demo*

A training demo has been developed for basic, intermediate users. It consists of a presentation guiding users through the steps of an image analysis example:

- Training demo for basic users: this training demo is focused on visualization tools: users are provided with some input files together with some simple viewers for 3D data, such as FSL-view and BrainBrowser, with the semi-transparent colour-overlay.
- Training demo for intermediate users n.1: this training demo shows how to use the LONI pipeline.
- Training demo for intermediate users n.2: this training demo shows how to run analyses using automatic algorithms like SienaX which runs tissue segmentation to estimate the volume of brain exploiting the Command Line Interface of Express Lane.

## **5.2 Assisted training tools**

### *Internal User Sessions*

N4U offers online and in-person training courses according to the targeted research communities and to users' expertise. Other than in-person training courses described in D2.2, a set of new ones has been delivered. An **internal user session** was carried out on **November 20th 2012** in Geneva. It was a practical session for users with different level of computing

expertise showing how to utilize two tools of the neuGRID portal, ExpressLane and VIP. This training session has been useful as even basic users have been able to run jobs thanks to the proper available documentation giving explanations about the usage of such tools. Documentation on neuGRID tools is thus essential, this is why Science Gateway manual has been updated and other explanatory materials will be created to ease users running their jobs.

#### *Online User Sessions*

An **Online user session** took place **via Skype** on **December 17th 2012**, where neuGRID e-infrastructure was presented to about 5 users with different levels of computing expertise. This was the first interaction of these users with the N4U grid, so they have been introduced to the platform. Thanks to this training course, Skype sessions revealed not to be the best solution to introduce the users to the neuGRID platform. On the other hand, Skype sessions are very good when users are comfortable with the infrastructure and they need help with specific details.

#### *In person User Sessions*

Other two **user sessions** were organized in **February 2013**, one in Stockholm and the other in Bucharest, aiming to teach users, from basic to advanced, how to execute the ExpressLane. During this session, users suggested some changes to the Science Gateway in order to make it more user friendly.

In **March 2013** a **user session** was held in connection with the 11th International Conference on Alzheimer's and Parkinson's disease, in Florence. Here the N4U team gave a short introduction about the basic functionalities of the grid to novice and basic users.

Finally a **user-information session** was held in connection with the 21st European Congress of Psychiatry in **April 2013** in Nice. In this occasion the N4U team gave an extensive presentation of the N4U grid functionalities to basic and advanced users. As feedback, users showed a big interest for the NUSDAST dataset that will be made available through the N4U. In addition, both VIP and ExpressLane were agreed to be acceptable ways of running data, although ExpressLane was considered extremely advanced and that it requires very detailed knowledge.

During the first two years, users in need of ad hoc N4U training have been contacted by the Chair and the co-Chair of the User Board through Skype teleconferences to organize and carry out appropriate training modules. In the next period of the project, tools will be integrated into the website so to make available online courses, such as webinars. Online training will be chosen over in-person ones for budget reasons but many opportunities will be taken, mainly during projects events or scientific conferences, to deliver in-person training, above all for the most complex neuGRID features (e.g. ExpressLane).

E-learning tools have been replaced with other learning materials, such as online videos and tutorials.

The online Help Desk, accessible through Redmine, is a useful tool for users who need assistance concerning the usage of resources available on the Science Gateway. About 100 issues have been solved through Redmine thanks to the help on N4U team. Questions and answers are publicly visible to registered users, so that in case users face the same trouble, it is easier and faster to get information and solutions. Thanks to the Science Gateway restyle, the on-line Help Desk became easier to access.

## 6 Dissemination and Training Toolkit

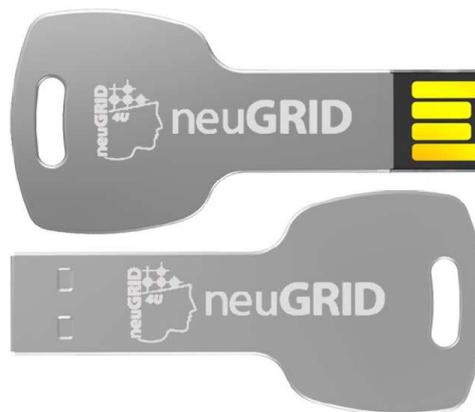
### *Dissemination toolkit*

N4U Dissemination and training toolkit includes all the tools the Consortium developed aiming to raise awareness about the project among different identified communities, as well as specific tools for current users. Dissemination is seen to be effective when multiple communication channels are considered. For an effective dissemination of N4U, a clear message for each identified audience was developed.

The initial toolkit has been revised and updated. New tools have been added with the aim to create specific dissemination materials for each community. As an example, a specific leaflet has been created for Pharma companies (see Annex 9.2), which are among the most important target to address to raise awareness for post-project sustainability. This leaflet is distributed during specific events related to Pharma companies and also during other relevant events.

The Consortium also developed personalized gadgets as neuGRID4YOU USB sticks and writing pens with USB incorporated, always with neuGRID logo, containing relevant documentation on neuGRID, to be distributed during events. These tools have been distributed for the first time during the OHBM Conference and will be distributed by project partners during next relevant events.

*Fig. 5 neuGRID4YOU USB sticks.*



*Fig. 6 neuGRID4YOU writing pen with USB incorporated.*



Finally, 2 Crystal Blocks with neuGRID logo representing personalized brain models have been produced to attract visitors in stands or booths. They were shown for the first time at the OHBM

booth to attract the interest of potential users. These charming tools are generated thanks to the available resources on neuGRID and can be ordered and purchased. These brain models are crystal blocks with high-resolution shape morphology of the cortical mantle showing precisely all the sulci and gyri of the brain reconstructed from the MRI examination processed with neuGRID pipelines. Other crystal blocks will be used as incentives for volunteers and physicians participating to the Study “Evaluation of florbetapir (18F) PET” sponsored by Avid Radiopharmaceuticals Inc. This way, the crystal blocks can be considered at the same time as a tool to build collaborations, offering neuGRID services in other projects, or as a mean to charm Pharma companies which are one of the main target in the N4U exploitation strategy.

*Fig. 7 neuGRID4YOU Crystal Block.*



#### *Training toolkit*

Even the training toolkit has been revised and updated. New training videos are freely available for users . Due to the new release of the website, its related manuals have been updated and new ones have been added for the new application available.

It is essential to keep the training toolkit updated both for potential users and for current users, as it demonstrates the special attention of the project towards its users and its effort to satisfy their needs aiming to develop an infrastructure as user-friendly as possible.

All the new and updated tools have been described through the document. The table below summarizes all the materials developed for each target community.

Fig. 8 This table lists Dissemination and Training toolkit for each N4U community.

AUDIENCES  TOOLKIT		GENERAL PUBLIC	POLITICAL STAKEHOLDERS	POTENTIAL USERS				CURRENT USERS
				Scientific communities	Phd Students	Pharma Companies	Algo Developers	
D I S S E M I N A T I O N	Project leaflet		X	X	X	X	X	
	Project Poster		X	X	X	X	X	
	Project Video		X	X	X	X	X	
	Yearly newsletter							X
	Scientific articles		X	X	X	X	X	
	Articles on lay media	X						
	Specific leaflet (e.g. Pharma)					X		
	Digest							X
	Website	X	X	X	X	X	X	X
	Wikipedia	X						
	Brain models		X	X		X		
	Personalized USB							
Personalized pens								
T R A I N I N G	Video tutorials				X			X
	Infrastructure Manuals							X

## 7. Quantitative and qualitative analysis

This paragraphs is devoted to the quantitative and qualitative analysis of the dissemination results described above.

The following table lists quantitative indicators used to analyze N4U performance, and reports for each indicator the status at month 24 and the expected result at the end of the project.

*Fig. 8 This table lists Dissemination and Training toolkit for each N4U community.*

Indicator	Target	Status (M24)	End of N4U (M42)
<b>Dissemination</b>			
Visits to neuGRID Website	All	1544	15000
Visits per month to the neuGRID Wikipedia page ( <a href="https://it.wikipedia.org/wiki/NeuGRID">https://it.wikipedia.org/wiki/NeuGRID</a> ) published at M23	All	190	2000
Number of searches for neuGRID website trough search engines (i.e. Google)	All	5346	15000
Number and ranking of participants to the final event of the project.	All	N/A	50
Number of acknowledgments in stakeholder media (i.e. success story reports in DG INFSo, GEANT websites)	Politicians, Stakeholders	3	10
Number of events organized by stakeholders (Concertation Meetings organized by the EC, EGI forum) in which neuGRID is represented	Politicians, Stakeholders	8	20
Number of references in scientific publications	Potential and Current Users	6	20
Number of publications in lay media	All	10	
Number of scientific events in which neuGRID is represented (Posters presentations, events in which dissemination materials are distributed)	Potential Users	10	30
Number of scientific events where neuGRID is formally invited (Number of keynote speeches , oral presentations, panel debates, chairing/moderating)	Potential and Current Users	15	40
Numbers of attendees to project events and seminars	Potential Users	60	500
<b>Training</b>			
Number of user sessions organised	Potential Users	10	50
Number of hints for the training materials for neuGRID users	Current Users	92	1500
Number of hints for the training materials publicly available	Potential Users	3	11

In addition to this quantification, each dissemination indicator can be evaluated from a qualitative point of view, in order to measure the real value of dissemination activities.

The qualitative evaluation of dissemination activities helps the project to better understand which are the best tools for a successful dissemination and will serve to refine the dissemination activities accordingly.

The first part of the table lists dissemination activities and their related achievements in quantitative terms. These values have been evaluated also from a qualitative point of view, because the impact of some of these indicators is different according to their relevance in qualitative terms. As an example, participation of N4U to European and international events gives the project a higher visibility compared to the participation to national events. The same, articles on the infrastructure published on scientific magazines have a higher value than articles printed on local journals. Here following dissemination results are thus described according to their qualitative impact.

As already stated above, neuGRID received **acknowledgments** in some important stakeholders media, such as the DG INFSO, GEANT website, and the DG Research & Innovation. From a qualitative point of view, these acknowledgments can be considered a very positive dissemination achievement due to the importance of such stakeholders as well as to their high visibility.

The same, **events** organized by stakeholders where neuGRID is represented can be positively measured from a qualitative point of view. Dissemination of neuGRID through events such as “Healthy brain: healthy Europe –A new horizon for brain research and health care” (Dublin, 27-28 May 2013) at the European Commission or “Unlocking global collaboration to accelerate innovation for Alzheimer’s disease and dementia” (Manchester 20-21 June 2013) at the OECD is definitely highly effective and gives neuGRID visibility at international level compared to an event like the 3<sup>rd</sup> National Conference on Health Research (Cernobbio, 12-13 November 2012) organized by the Italian Ministry of Health, which gives neuGRID visibility only at national level. Other relevant events that can be qualitatively evaluated are for example the Alzheimer's Association International Conference on Alzheimer's Disease, which took place in Boston, July 2013, where a poster about neuGRID achievements was presented, and the OHBM, described above, which was rated as a very positive event as a huge number of potential users showed much interest on the infrastructure. Scientists from different fields took part to these events, thus there has been the possibility to raise awareness among a wide range of potential users. In relation to events, an important indicator concerns the number of attendees to projects events and seminars. The high number of participants registered so far, is the demonstration of the high interest on the infrastructure and of the quality of such events.

Another significant qualitative indicator are **scientific publications**. Some scientific works about neuGRID have been published in important scientific magazines, such as Nat Rev Neurol, J Neurol, Psychiatry Res, which are widespread and among the most relevant scientific journals. The same, **press articles** about neuGRID were published in several magazines. Their qualitative impact depends on where articles appeared: as an example, the article about neuGRID published on a national newspaper (Sanità Il sole 24ore) such as “Così le nuove piattaforme digitali potenziano la lotta all'Alzheimer.” has a lower impact compared to the article “Solving Alzheimer's and Related Disorders Globally” which was published on International Science Grid this Week.

The qualitative analysis of training activities is mainly based on user feedback. As described

above, several **user sessions** have been organized since the beginning of the project. These sessions are of utmost importance both for users to get informed on the available tools and on their functioning, and for the project management, which collects user feedback on these sessions. The importance and the utility of these sessions is thus demonstrated by users feedback, which so far have been very positive. They consider these sessions very useful to practically test neuGRID functionalities with the direct assistance of experts. This is why many other user sessions will be organized from now until the end of the project.

## 8. Conclusions

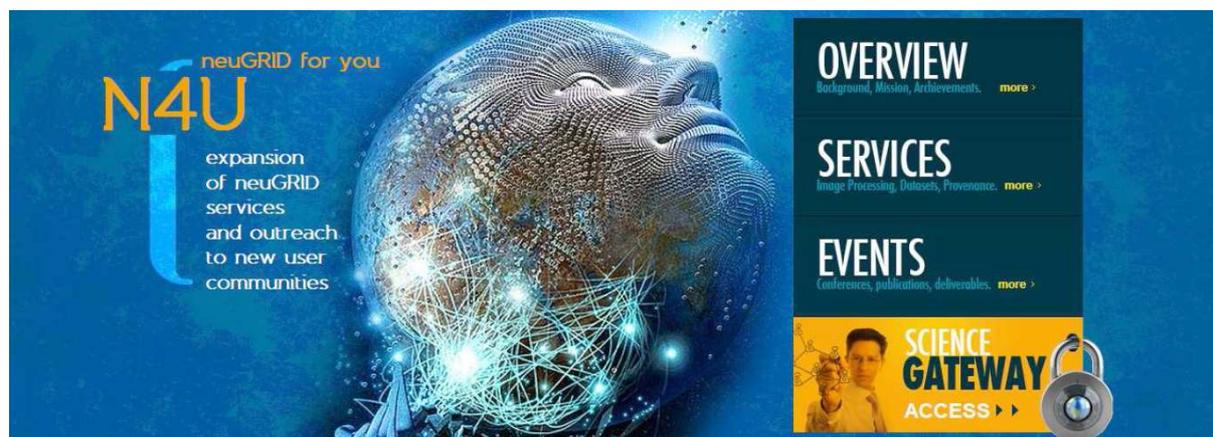
This deliverable explains the achievements of the N4U Consortium regarding dissemination and training activities. It represents a report referring to the Dissemination and Training plan (Deliverable D. 2.2), describing all dissemination and training activities undertaken towards defined targeted communities during the first two years of the project.

The activities implemented during this period of time have been very useful to concretely determine which are the best ways to disseminate information about the infrastructure with reference to each identified target. Such activities have also been useful to identify which are N4U dissemination weak points so that to improve the actions during the next period of time.

As concern expected results, Dissemination activities proved to be effective, as shown by the growing interest of users and by the collaborations N4U will start soon. Thanks to these two years of experience, Dissemination activities proved to be essential for the success of the project.

## 9. Annexes

### 9.1 NeuGRID Digest



#### **NEUGRID AT WORK:**

Very encouraging data have been shown in Stockholm:

Until May 2013, 10 complete projects, among which 9 conducted by external users, have been successfully run on neuGRID, meaning that almost 2000 scans have been processed, 165.671 jobs have been submitted.

Project type	PI / Institution	Study Name
Internal	A Redolfi, FBF	Quantitative evaluation of two cortical surface reconstruction algorithms in ADNI: a cross sectional and Longitudinal study
External	A. Prestia, FBF	Diagnostic accuracy of markers for prodromal Alzheimer's disease in 2 independent clinical series
External	A. Prestia, FBF	Testing the dynamic model of Alzheimer's disease in two European memory clinics
External	M. Kivipelto, KI	CAIDE study: Structural MRI and cardiovascular risk factors
External	S. MacDonald, Victoria University	Cortical thickness and intraindividual variability in working memory
External	A. Simmons, KCL	White matter lesion load in the London cohort
External	F. Galeazzi, GARR	H2H Decide/N4U algorithm
External	J. Miralbell, University of Barcelona	The Stroke ASIA study
External	R. Rossi, FBF	BipoBorder Study
External	J. Braga Perreira, University of Barcelona	Cortical thickness in a PD cohort

#### **NEUGRID SUCCESSES:**

Very good feedback from neuGRID booth at the OHBM Conference (Seattle, June 16-20 2013): 44 scientists from 24 different institutions showed interest for different aspects of the platform, offering very valuable comments and questions which will be used for further improving neuGRID and user experience in the future.

**...KEEP UP THE GOOD WORK!!**

## 9.2 N4U Leaflet for Pharma Companies

### YOUR NEEDS



Are you a Pharmaceutical Company and wish to

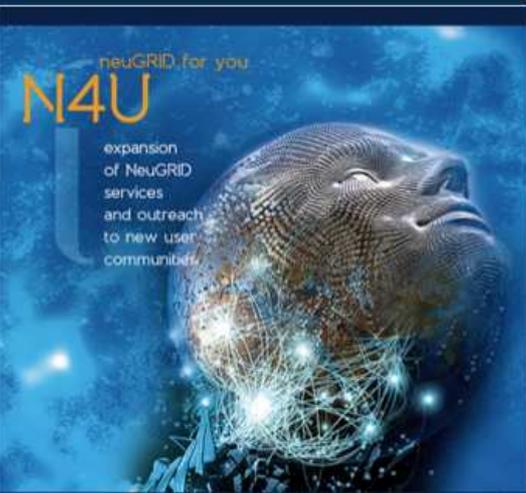
- Set up your own image analysis team with limited investment
- Develop and validate imaging biomarkers
- Use large image datasets (ADNI, OASIS and others)
- Use automated image analysis tools (FSL, Freesurfer, CIVET and others)

## neuGRID is for you

neuGRID for you

# N4U

expansion  
of NeuGRID  
services  
and outreach  
to new user  
communities



A web-based gateway to neuroimaging research  
[www.neugrid4you.eu](http://www.neugrid4you.eu)

# N4U

**neuGRID is a cloud-based system that allows to externalize computational resources**