

UPGRADE is the European Journal for the Informatics Professional, published bimonthly at <<http://www.upgrade-cepis.org/>>

#### Publisher

UPGRADE is published on behalf of CEPIS (Council of European Professional Informatics Societies, <<http://www.cepis.org/>>) by **Novática** <<http://www.ati.es/novatica/>>, journal of the Spanish CEPIS society ATI (*Asociación de Técnicos de Informática*, <<http://www.ati.es/>>)

UPGRADE monographs are also published in Spanish (full version printed; summary, abstracts and some articles online) by **Novática**

UPGRADE was created in October 2000 by CEPIS and was first published by **Novática** and **INFORMATIK/INFORMATIQUE**, bimonthly journal of SVI/FISI (Swiss Federation of Professional Informatics Societies, <<http://www.svifsi.ch/>>)

UPGRADE is the anchor point for UPENET (UPGRADE European NETWORK), the network of CEPIS member societies' publications, that currently includes the following ones:

- **Informatica**, journal from the Slovenian CEPIS society SDI
- **Informatik-Spektrum**, journal published by Springer Verlag on behalf of the CEPIS societies GI, Germany, and SI, Switzerland
- **ITNOW**, magazine published by Oxford University Press on behalf of the British CEPIS society BCS
- **Mondo Digitale**, digital journal from the Italian CEPIS society AICA
- **Novática**, journal from the Spanish CEPIS society ATI
- **OCG Journal**, journal from the Austrian CEPIS society OCG
- **Pliroforiki**, journal from the Cyprus CEPIS society CCS
- **Tölvumál**, journal from the Icelandic CEPIS society ISIP

#### Editorial Team

Chief Editor: Llorenç Pagés-Casas

Deputy Chief Editor: Francisco-Javier Cantais-Sánchez

Associate Editors: Fiona Fanning, Rafael Fernández Calvo

#### Editorial Board

Prof. Wolfried Stucky, CEPIS Former President

Prof. Nello Scarabottolo, CEPIS Vice President

Fernando Piera Gómez and Llorenç Pagés-Casas, ATI (Spain)

François Louis Nicolet, SI (Switzerland)

Roberto Carniel, ALSI – Tecnoteca (Italy)

#### UPENET Advisory Board

Majjaz Gams (Informatica, Slovenia)

Hermann Engesser (Informatik-Spektrum, Germany and Switzerland)

Brian Runciman (ITNOW, United Kingdom)

Franco Filippazzi (Mondo Digitale, Italy)

Llorenç Pagés-Casas (Novática, Spain)

Veith Risak (OCG Journal, Austria)

Panicos Masouras (Pliroforiki, Cyprus)

Thorvaldur Kári Ólafsson (Tölvumál, Iceland)

Rafael Fernández Calvo (Coordination)

**English Language Editors:** Mike Andersson, David Cash, Arthur Cook, Tracey Darch, Laura Davies, Nick Dunn, Rodney Fennemore, Hilary Green, Roger Harris, Jim Holder, Pat Moody.

Cover page designed by Concha Arias-Pérez

"Falling Upwards" / © CEPIS 2009

Layout Design: François Louis Nicolet

Composition: Jorge Llácer-Gil de Ramales

Editorial correspondence: Llorenç Pagés-Casas <[pages@ati.es](mailto:pages@ati.es)>

Advertising correspondence: <[novatica@ati.es](mailto:novatica@ati.es)>

UPGRADE Newslist available at

<<http://www.upgrade-cepis.org/pages/editinfo.html#newslist>>

#### Copyright

© Novática 2009 (for the monograph)

© CEPIS 2009 (for the sections UPENET and CEPIS News)

All rights reserved under otherwise stated. Abstracting is permitted with credit to the source. For copying, reprint, or republication permission, contact the Editorial Team

The opinions expressed by the authors are their exclusive responsibility

ISSN 1684-5285

Monograph of next issue (August 2009)

### "20 years of CEPIS: Informatics in Europe today and tomorrow"

(The full schedule of UPGRADE is available at our website)



The European Journal for the Informatics Professional  
<http://www.upgrade-cepis.org>

Vol. X, issue No. 3, June 2009

### Monograph: Libre Software for Enterprises (published jointly with Novática\*)

Guest Editors: *Jesús-M. González-Barahona, Teófilo Romera-Otero, and Björn Lundell*

- 2 Presentation. Libre Software for Enterprises: Create your Product, Feed your Community, Eat your Cake! — *Jesús-M. González-Barahona, Teófilo Romera-Otero, and Björn Lundell*
- 5 Libre Software and the Corporate World — *Jesús-M. González-Barahona, Teófilo Romera-Otero, and Björn Lundell*
- 11 Best Practices for FLOSS Adoption — *Carlo Daffara*
- 17 Build and Sustain a Community of Practice: Method Applied to FLOSS Projects — *Stéphane Ribas and Michel Cezon*
- 22 Community Management in Open Source Projects — *Martin Michlmayr*
- 27 The Morfeo Project: an Open Source Approach towards Open Innovation — *Cristina Breña and Andrés-Leonardo Martínez*
- 32 Applying Open Source Software Principles in Product Lines — *Frank van der Linden*
- 41 Addressing Industry Needs in OSS — *Jan-Henrik Ziesing*
- 44 SpagoWorld, the Open Source Initiative by Engineering — *Gabriele Ruffatti*
- 51 An Opportunity for Libre Software Companies: Emerging Market in Developing Countries — *Susana Muñoz-Hernández and Jesús Martínez-Mateo*

### UPENET (UPGRADE European NETWORK)

#### 54 From **Novática** (ATI, Spain)

Mobile Technologies

A Case Study of the Global System of Mobile Communication (GSM) in Nigeria — *Adeyinka Tella, 'Niran Adetoro, and Paul Adesola Adekunle*

### CEPIS NEWS

#### 60 Promoting Skills Development in Challenging Times — *ECDL Foundation*

#### 62 Selected CEPIS News — *Fiona Fanning*

\* This monograph will be also published in Spanish (full version printed; summary, abstracts, and some articles online) by **Novática**, journal of the Spanish CEPIS society ATI (*Asociación de Técnicos de Informática*) at <<http://www.ati.es/novatica/>>.

# Build and Sustain a Community of Practice: Method Applied to FLOSS Projects

*Stéphane Ribas and Michel Cezon*

*Technologies such as Web 2.0 have fostered the development of new collaborative ways of working in the Research and Development (R&D) domain, often evolving towards the creation of an organised community. The increasing connections at international level raise a need for remote collaboration around the world that emphasises the need to organise the creation and sustainability of such communities. This article presents one method, developed within the Institut National de Recherche en Informatique et Automatique (National Institute of Research in Computer and Control Science, INRIA), to build and sustain a community of practice. Our approach, based on the five main steps described below, has been assessed on one European project: the AspireRFID project. Results are reviewed and we believe that transparency, trust, and people commitment are the keys that pave the way to success. Launching a community and developing it successfully is not always a spontaneous action but relies on a structured approach. By presenting such a method, we hope to foster anyone who would like to launch a community to throw himself into the adventure in a more productive manner.*

**Keywords:** Collaborative Environment, Communities, Free/Open Source Software, Knowledge Sharing, Methodology, Social Networking, Web 2.0.

## 1 Introduction

In the R&D domain, technologies such as Web 2.0 have fostered the development of new collaborative ways of working, often based on a peer-to-peer relationship and evolving towards the creation of an organised community.

The creation of such communities has proved efficient and dynamic in several domains, more specifically in the development of Open Source Software. Furthermore, the increasing connections at international level raise a need for remote collaboration with communities of experts around the world.

Developed within the INRIA institute, based on the OW2 Europe Local Chapter experience [1] and the creation of the AspireRFID community [2], this paper describes a methodology to build and sustain a community of practice.

## 2 What is a Community?

A community can be considered as a group of people who share the same interests, the same concerns or the same passion. A community can also be based on roles or specialities (e.g. network administrator, Linux user groups, Modular Synthesiser User Group). Those people deepen their understanding by sharing their knowledge, solving problems for others, interacting regularly with other community members, asking and answering questions, and reusing good ideas [3].

They are keen to participate actively and a new virtual identity is created based upon a strong social linkage that hopefully produces a collective outcome [4].

## Authors

**Stéphane Ribas** (M.Sc, University of Surrey, UK, 1996) has spent 12 years in software industries and services, mostly in innovative technologies such as e-Commerce, Telecom Security, Intranet, Expert Systems, Middleware, Application Server, Java and Open Source. He has spent many years in European countries and has been involved in several important projects as a support and technical consultant for large customers and he has developed very strong skills in building and fostering Internet communities. Through this experience, he has acquired a very strong software technical background. He joined INRIA in 2008 to co-lead OW2 Europe Local Chapter and contribute to several Open Source projects and consortiums (Xwiki Concerto, AspireRFID, QualiPSO, NESSI OSS Working Group). <stephane.ribas@inria.fr>.

**Michel Cezon** has spent over 25 years in Information Technologies (IT) industries and services, mostly in innovative technologies (Artificial Intelligence, NLP, e-business, EDMS, Intranet). He has led numerous European projects (FP4 EPTO-1993, FP6 SUPREME-1997, FP6 RENAISSANCE-1997, FP6 PRORAD-1998) as well as large consortiums on international tender (FP4 MOVIT-1995, United Nations/WIPO-2000) and high-value projects for large customers. He graduated as an IT Engineer and specialised in Artificial Intelligence, Robotics and Vision, gaining project management and quality skills with large companies such as Hewlett Packard, Cap Gemini, and Ernst and Young. Well aware of multicultural issues, he spent time in Singapore, United States, Switzerland and travels frequently in Europe. He joined INRIA in January 2007 to manage and coordinate European projects. He is currently involved in several FP6 and FP7 projects (NESSI-Soft, NESSI-Grid, Qualipso, AspireRFID) and co-leads the OW2 Europe Local Chapter. <michel.cezon@inria.fr>.

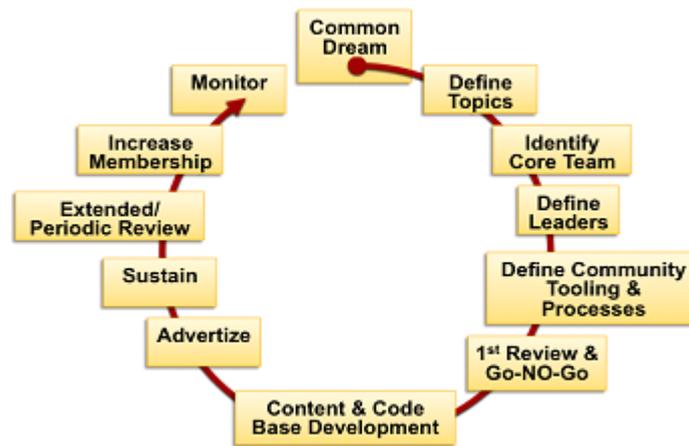


Figure 1: Method to Create and Sustain a Community.

### 3 Community Typology

Briefly, we can distinguish four important kinds of communities [3]: Community of Learning (e.g. Plume project [5]), Community of Interest (e.g. Audiofanzine [18]), Community of Passion (e.g. System Administrators participating in the JRES 2009 Conference [19]), and Community of Practice (e.g. Linux User Group [20]).

A Community of Learning is a group of people who share common values and beliefs and are actively engaged in learning together from each other. Such communities have become the initial template for other types of communities. This is based on an advanced kind of educational or "pedagogical" design [6] that is often considered as an interdisciplinary approach to higher education. The participants in a learning community must feel some sense of loyalty to the group that drive their desire to keep working and helping others, influencing what happens in the community (active and not just reactive). A learning community has enough room to give the chance to the participants to express personal opinions, ask for help or specific information, and share stories of events [4][6].

A Community of Interest could be considered as a group of people that share topics which do not really require a formal community, but more threaded discussions for collaboration and knowledge sharing. These may be loosely connected groups of people with no strong commitment in terms of delivering something together. They stay well aware of the topics and ask questions [4].

A Community of Passion is made up of a group of people with the richest and most formal set of activities, governance, and structure. Members have a particular role (e.g. Network Security Advisor), actively help others members to fit and bloom into this role, and aim at mastering the discipline [4].

The structure of a Community of Practice is less formal and is based on common work specialities. Members have

a particular role or speciality (e.g. Security) and focus on developing expertise and skills in this role or speciality. An important key motivation factor is to learn about the speciality and solve problems [4]. The methodology discussed in this paper was drafted from and applied to this type of community.

### 4 Method for Building and Maintaining Communities of Practice

The method goes through several steps starting from "Dream" up to "Monitor" (Figure 1). Those steps could be organised into 5 main categories [17]: Analyse, build, promote, sustain and monitor.

#### 4.1 Analyse

The goal of the analysis phase [3][4][7] is to start the process and gather all relevant information to understand what we want to do, where we want to go, why and how. As already mentioned, a community could emerge from scratch through the passion of a small, enthusiastic group but raising the chance of success needs a bit more organisation and processes.

In this phase, you should start by dreaming about: how ideally would your community work? How should it be organised? Who will lead it and make things happen? Let your imagination flows freely.

Identifying topics and subtopics will allow clarification of your ideas as well as making sharing ideas with your colleagues. At this point, it is important to identify your core team to know who is committed and willing to actively contribute to the journey.

Once the team defined, you should address the means of operation; basically how are you doing to work together? This will involve further imaginative thinking and perhaps brainstorming sessions and information exchange. These community processes will encompass governance, commu-

nication, development life cycle, collaborative environment, dissemination and promotion.

Now initial jottings will need to be replaced by more sophisticated tools (preferably Open Source) to allow better and more efficient team working. Identify (and use) community tools to organise your collaboration, your structured content and facilitate your dissemination activities (promotion and awareness). Those tools centred around a software forge will enable daily operation and communication, being a central repository of the community and the project. The methodology caters for a set of tools to help during this step.

Through this process, you should arrive at a better idea of what you intend to build and achieve. At this stage stop and research whether there are any existing communities or projects sharing the same concerns and topics. Joining those initiatives or starting from scratch requires an informed decision and involves two different road maps.

At the end of the analysis phase, a go/no-go decision should be made based on all the collected information and the planned roadmap. Criteria for that decision will be detailed in a future paper.

A no-go decision will need to be explained carefully to identify what are the main show stoppers given the current context and to avoid asking the same questions again later when the original idea is revisited.

A go decision is even more difficult because the time and effort spent so far will be much smaller than what will be required to really launch and build the community. Strong commitment and a clear understanding to the roadmap and effort ahead are compulsory, and must be shared by all the core team members.

Providing you selected the "from scratch" option, you proceed now to the second main phase: Build.

### 4.2 Build

This phase is where you put bricks and mortar together. You start coding, create documentation (e.g. User Guide, API Development Guide, User Case, etc.), setup your portal (mission statement, license used, development status, how to install the software, download section, screenshots, etc.), release packages, publish project tasks and roadmap, manage volunteers and external contributions [8]. Your daily activities will be driven by the community governance, intellectual property policy, project life cycle, and communication rules (simple and flexible). More information for that phase will be detailed in a future paper. Having completed those tasks it is time to advertise your existence.

### 4.3 Promote

You have a team in place, a code base, documentation and a portal where people can find all the information needed to either contribute or use your code. Basically, something to show! Your community is established so you should advertise it: submit articles to newsletters that reach your audience, use a mailing list and send broadcast messages, use your own network and ask your members to spread the word.

You can publish news in (local and international) newspapers and webzines. You may also use Social Networks that are now widely spread (e.g. LinkedIn) to publicise your community.

Once your community is up and running and has reached a certain level of recognition, you may enter the next phase: Sustain.

### 4.4 Sustain

You need to keep the momentum and, as a consequence, community leader(s) should have devoted time and leadership to animate and stimulate the community [14][16]. We recommend to hold periodic events (e.g. project summit, general assembly), hold periodic phone conferences and publish minutes and notes regularly, be active on forums, and sometimes even copy interesting topics coming from external sources into your news and forums. We recommend you to stay transparent in any decision you make as well as listening to people (enough room to deal with any topic/matter) [9][11].

You also need to reach a critical mass of members [15] that will leverage your daily operation (System Administration, Bug Trackers, Bug Fixers, Webmaster, Project Manager, Translators...) thus you also need to increase the number of people in your community: propose initiatives (e.g. coding contest, code camp, project summit, etc.), use virtual social networking, show your community values on your portal, explain how people can participate and become a member, offer incentives to join. Do not hesitate to cross boundaries and collect good ideas from other communities (e.g. online video-gaming communities [12]).

Two other key factors are for external users to contribute actively in a community: generating recognition [13] and knowledge sharing. You could propose to show on your home page the recently registered users, and who are the top bug fixers. Next, you should devote resource(s) to organise the knowledge within the community; propose knowledge sharing facilities (e.g. webinars [10], workshops, use case, etc.).

As in the analyse phase, you may also have a look around and search for any existing communities or projects that may be interested by using your code base or that you may be interested in co-operating with you. Identify those communities, approach their leaders and propose collaboration [3].

### 4.5 Monitor

In order to assess progress and trends, and validate results of your actions, we recommend that you define your own monitoring process rather than using predefined templates: identify the goal (why and what would you like to measure), define the metrics, collect data (analyse), identify problems and trends, define accordingly the actions to address both of them, execute the actions and re-assess the project health.

We advise you to monitor the growth of your community, and the health of your project, through metrics such as number of bugs tracked, number of downloads, number of

visits, number of post in forums and email exchanges, number of events organised, etc. Finally, bear in mind that you should also monitor the community at large [9]: Are you in a community starting phase? Or in a community growing phase? Maturity phase? Or are you at the point where you are declining (or reviving)? A survey may help you to discover which point your community development has reached. More guidelines will be detailed in a future paper.

### 5 AspireRFID Community Project

FP7 ASPIRE project, partially funded by the European Community [2], aims to develop and promote an open-source, lightweight, standards-compliant, scalable, privacy-friendly, and integrated middleware to ease the development, the deployment and the management of RFID-based applications and sensor-based applications.

The ASPIRE consortium wanted to create a vibrant community around its Open Source RFID framework and ensure a code base living beyond the European project life time funding. Thus, the idea arose of creating a community of practice (and passion), around (and for) the code base.

We used this project as a test bed for our method, both through project auditing and project recommendations. At the same time, we assessed the method and fine tuned the first version of steps and tools.

Being involved in both the ASPIRE and the OW2 community, we quickly found a positive match in the RFID domain: on the one hand, the ASPIRE project aiming at developing an OSS RFID framework, on the other hand, the RFID initiative was promoted by the OW2 consortium. The first one was taking off while the second one was looking for new contributions. It was a perfect fit and a great mutual benefit. We may highlight three main results achieved so far:

1) **Speed up start up phase:** using the method, we made a review of existing communities and discover that OW2 consortium could help to create the AspireRFID community, and they have a lot of excellent community tools that fit well with AspireRFID community needs. OW2 propose a forge so that the developers start very quickly to code. OW2 also propose awareness and promotion tooling.

2) **Improve dissemination and promotion:** we applied the method and got results very quickly thanks to specific promotion actions such as papers, code camp, coding contest, project summit, user advisory board... We found out that OW2 was a good valorisation and promotion channel through its mailing-list.

3) Finally, the dissemination and promotion successes **increased the exploitation outcome:** in a RFID benchmark made by an industrial consortium PICOM [21], the ASPIRE framework was compared to commercial products. Despite the fact that the project was not finished, and the framework was under construction, ASPIRE was ranked higher compared to its competitors. We conclude that the method helped to strengthen the product assessment, to publicise the product roadmap, to grow the product reputation and to

ensure the longevity of the project.

### 6 Conclusion

As with every new process, the method needs adjustments and improvements. We are working to integrate findings into a revised version but the main outcomes can be summarised as:

- The method should be applied right from the beginning to get the most benefits; the project had started few months before we started to apply this method.

- People commitment is the key. A community is based on people and no method or tools can replace willingness to contribute.

- Devoting time for knowledge sharing is important, as well as finding people with a certain level of creativity and leadership.

- Vision should be shared among the members and clearly publicized.

- Methodology steps are not sequential; overlapping processes will boost the timeline.

- AspireRFID is an FP7 Project where the consortium has to deliver certain deliverables based on a roadmap already defined that can differ from the wishes of community members. Conflicts of interests must be identified and addressed openly as soon as possible.

Definitely the method could be improved: V2 is coming soon. Launching a community and developing it successfully is not a spontaneous (and lucky) action but relies on a structured approach which could benefit from such a methodology as presented in this paper.

### 7 OW2 Consortium and the Europe Local Chapter

OW2 is a global open source software community whose goal is the development of open source distributed middleware, in the form of flexible and adaptable components. These components range from specific software frameworks and protocols to integrated platforms. OW2 developments follow a component-based approach. The consortium is an independent non-profit organisation open to companies, public organisations, academia and individuals. The mission of OW2 is to develop open source code middleware and to foster a vibrant community and business ecosystem.

A Local Chapter is a group of contributors willing to join their efforts and promote the goals of a consortium within a community characterised by its geography or its language. In order to represent OW2 on a European scale, the Europe Local Chapter was approved for launching by OW2 Board on May 15th 2008. The Europe Local Chapter drafted its charter and has defined its strategy through work streams and tasks: foster OW2 Research and Academic community in Europe, help to develop the Europe OW2 Business ecosystem and provide specific support to local community needs.

The objectives are targeted through three Action Tracks: Academia Networking, Awareness and Promotion, Project

Valorisation. More information on our Websites <<http://www.ow2.org>> and <<http://europe.ow2.org>>.

### References

- [1] OW2 Consortium. Europe Local Chapter. <<http://europe.ow2.org/>>.
- [2] AspireRFID Project. <<http://fp7-aspire.eu>>.
- [3] Stan Garfield. "Implementing a Successful KM Programme". Ark Group Australia, 2007. <<http://stangarfield.googlepages.com>>.
- [4] E. Wenger. "Communities of Practice: Learning, Meaning, and Identity". Cambridge University Press, 1998. ISBN: 0-521-66363-6.
- [5] PLUME Project. Promoting economical, Useful and Maintained softwarE for the Further Education And THE Research communities. <<http://www.projet-plume.org/en>>.
- [6] P. Goodyear, M. De Laat, V. Lally. "Using Pattern Languages to Mediate Theory-Praxis Conversations in Designs for Networked Learning". ALT-J, Research in Learning Technology.
- [7] E. Wenger, R. McDermott, W. M. Snyder. "Cultivating Communities of Practice". Harvard Business School Press, 2002. ISBN:1578513308.
- [8] Karl Fogel. "Producing Open Source Software". <<http://producingoss.com/>>.
- [9] C. Latemann, S. Stieglitz. "Framework for Governance in Open Source Communities". Postdam University, 2005. ISBN 0-7695-2268-8.
- [10] OW2 Europe Local Chapter. Webinar Platform. <<http://www.ow2.org/view/Activities/EuropeLocalChapterWebinars>>.
- [11] M. Gouvêa, C. Motta, F. Santoro. "Recommendation as a Mechanism to Induce Participation in Communities of Practice". UFRJ, UNIRIO, Brazil, 2006. ISBN 978-3-540-32969-5.
- [12] C. Ruggles, G. Wadley, M. Gibbs. "Online Community Building Techniques Used by Video Game Developers". Lecture Notes in Computer Science, 2005. ISBN 978-3-540-29034-6. <<http://www.springerlink.com/content/47dc4v3xej51p5m4/>>.
- [13] C. Cruz, M. Gouvêa, C. Motta, F. Santoro. "A Proposal for Recognizing Reputation within Communities of Practice". UFRJ, UNIRIO, Brazil, 2008. ISBN 978-3-540-92718-1.
- [14] P. Muller. "Reputation, trust and the dynamics of leadership in communities of practice". Journal of Management and Governance, 2006 ISSN 1385-3457 (Print) 1572-963X (Online).
- [15] Fabernovel Consulting. "*Modèles économiques des logiciels open source et logiciels libres* (Business Models of Open Source and Free Software)". 2007. <[http://www.fabernovel.com/businessmodels\\_opensource.pdf](http://www.fabernovel.com/businessmodels_opensource.pdf)>.
- [16] L. M. Sama, V. Shoaf. "Ethical Leadership for the Professions: Fostering a Moral Community". Journal of Business Ethics, 2007. ISSN 0167-4544 (Print) 1573-0697 (Online).
- [17] McDermott Consulting. "Communities of Practice". <<http://www.mcdermottconsulting.com/communitypractice.shtml>>.
- [18] Audiofanzine. "French music webzine". <<http://fr.audiofanzine.com/>>.
- [19] JRES 2009. Journées réseaux. <<https://2009.jres.org/>>.
- [20] Linux Online. WorldWide Linux User Groups <<http://www.linux.org/groups/>>.
- [21] PICOM. *Pôle des industries du commerce* (Pole of the trade Industries). Lille (France). <<http://www.picom.fr/>>.