

# **Build and sustain a community of practice: method applied to F/OSS projects**

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## **Keywords**

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## **1 Abstract**

Technologies such as Web 2.0 has fostered the development of new collaborative way of working in the R&D domain, often evolving towards the creation of an organised community. The increasing connections at international levels raise a need for remote collaboration around the world that emphasis the need to organise the creation and sustainability of such communities. This article present one method, developed within INRIA institute, to build and sustain a community of practice. Our approach, based on five main steps described below, has been assessed on two European projects. 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 method, we hope to foster anyone who would like to launch a community to throw himself into the adventure in more productive manner.

## **2 Introduction**

In the R&D domain, technologies such as Web 2.0 has fostered the development of new collaborative way 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 its efficiency and its dynamism in several domains; more specifically in the development of Open Source Software. Furthermore, the increasing connections at international levels 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.

## **3 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 (i.e network administrator, Linux user groups, Modular Synthesiser User Group). Those people deepen their understanding by sharing their knowledge's, solving problems for others, interacting regularly with the 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 outcomes [4].

## **4 Community Typology**

Briefly, we can distinguish four important kind of communities [3]: Community of Learning (i.e Plume project [5]), Community of Practice (i.e Linux User Group), Community of interest (i.e. Audiofanzine) and Community of Passion (i.e System Administrator participating to the JRES 2009 Conference).

Learning community 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, interdisciplinary approach to higher education. This is based on an advanced kind of educational or 'pedagogical' design [6]. The participants of learning community must feel some sense of loyalty to the group that drive their desire to keep working and helping others, influencing what happened in the community (active and not just reactive). Learning community has enough room to give the chance to the participants to express personal opinions, asking 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 that don't really require a formal community but more threaded discussions for collaboration and knowledge sharing. We may also notice loosely connected groups of people and no strong commitment in terms of delivering something together. They stay well aware on the topics and ask questions [4].

Communities of passion are made of 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].

Communities of practice's structure are less formal and are based on common work specialities. Members have a particular role or speciality (i.e. Security) focused 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.

## 5 Method for building and maintaining of community of practice

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

### 5.1 Analyse

The goal of the analyse 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 group of enthusiastic people but raising the chance of success needs a bit more organisation and processes.

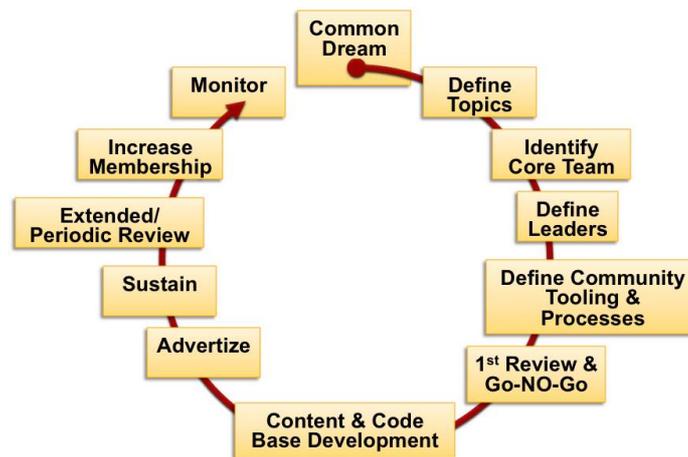


Figure 1: Method to create and sustain a community

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

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

Once the team defined, you should address the means; basically how are you doing to work together? The coffee machine spot may become quickly to small to handle all your brainstorming sessions and info exchange. Those community processes will encompass governance, communication, development life cycle, collaborative environment, dissemination and promotion.

Again paper and pencils will need to be replaced by more sophisticated tools (preferably Open Source) to allow better and more efficient team work. 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 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.

Throughout this process, we should refine a better idea of what you intend to build and achieve. It could be wise to stop at some point in time and have a look around to look for any existing communities or projects sharing the same concern and topics. Joining those initiatives or starting from scratch is a tough decision and involve 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.

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 again the same questions later when passion will come back on the table.

A go decision is even more difficult because the time and effort spent so far are 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 jump now in the second main phase: **Build**

## **5.2 Build**

This phase is where you put bricks and mortals together. You start coding, create documentation's (i.e User Guide, API Development Guide, Use 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. It's time to advertise your existence.

## **5.3 Promote**

You have a team in place, a code base, documentation's and a portal where people can find all needed information to either contribute or use your code. Basically, something to show! Your community is established so you should advertise it: submit articles to newsletter that meet your audience, use mailing list and send broadcast messages, use your own network around you and ask your members to spread the words. You can publish news in (local and international) newspapers and webzines. You may also use Social Networks that are today widely spread (i.e LinkedIn) to publicise about your community.

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

## **5.4 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 (i.e project summit, general assembly), hold periodic phone conferences and publish minutes 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 numbers of people in your community: propose initiatives (i.e 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 incentive to join. Don't hesitate to cross boundaries and collect good ideas from other communities (i.e online video-gaming communities [12]).

Two other factors are very important for external user to contribute actively in a community: recognition [13] and knowledge sharing. Why don't you propose to show who are the latest registered user onto your home page? who are the top bug fixers? Next, you should devote resource(s) to organise the knowledge within the community; propose knowledge sharing facilities (i.e webinars [10], workshop, use case, etc.).

As in the analysis 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 interested to co-operate with. Identify those communities, approach their leaders and propose collaboration [3].

## **5.5 Monitor**

In order to assess progress and trend, and validate results of your actions, we recommend to 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 advice you to monitor the growth of your community, but also 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 at which point your community development is. More guidelines will be detailed in a future paper.

## 6 AspireRFID Community Project

FP7 project partially funded by the EC [2], ASPIRE project aims at developing and promoting 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 code base living beyond the EU project life time funding. Thus, the idea of creating a community of practice (and passion), around (and for) the code base, came across.

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

Being involved in both ASPIRE and the OW2 community, we quickly found a positive match in the RFID domain: on 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:

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

**Improve dissemination and promotion:** we applied the method and get 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.

Finally, the dissemination and promotion successes **increased the exploitation outcome:** in a RFID benchmark made by an industrial consortium, 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 may guess that the method helped to strengthen the product assessment, to publicise the product roadmap, to grow the product reputation and ensure the project long term living.

## 7 Conclusion

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

- The method should be applied right from the beginning to get the most benefits; the project started few month before we started to apply this method.
- People commitment are key. Community is based on people and no method or tools could replace good willingness.
- Devote 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 community member wishes. 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.

## 8 OW2 Consortium and the Europe Local Chapter

OW2 is a global open-source software community which 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. OW2 mission 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 has been 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>.

## 9 Bibliography

- [1] OW2 Europe Local Chapter <http://europe.ow2.org/>.
- [2] OW2 AspireRFID Project <http://wiki.aspire.objectweb.org/xwiki/bin/view/Main/WebHome>, ASPIRE FP7 research project <http://fp7-aspire.eu>
- [3] Implementing a Successful KM Programme (2007) Stan Garfield. Ark Group Australia. <http://stangarfield.googlepages.com/home>
- [4] Communities of practice: learning, meaning, an identity. E. Wenger, Cambridge University Press 1998.
- [5] PLUME Project (Promoting economical, Useful and Maintained softwarE for the Further Education And THE Research communities) - Jean-Luc Archimbaud – <http://project-plume.org/>
- [6] Using Pattern Languages to Mediate Theory-Praxis Conversations in Designs for Networked Learning. Goodyear, P., De Laat, M., and Lally, V. (2006). ALT-J, Research in Learning Technology.
- [7] Cultivating Communities of Practice by E. Wenger, R. McDermott, & W. M. Snyder.
- [8] Producing Open Source Software, Karl Fogel, <http://producingoss.com/>.
- [9] Framework for governance in Open Source communities, C. Latemann, S. Stieglitz, Postdam University.
- [10] OW2 Europe Local Chapter Webinar Platform - <http://www.ow2.org/view/Activities/EuropeLocalChapterWebinars>
- [11] Recommendation as a Mechanism to Induce Participation in Communities of Practice, M. Gouvêa, C.Motta, F.Santoro, UFRJ, UNIRIO, Brazil, 2006.
- [12] Online Community Building Techniques Used by Video Game Developers, C. Ruggles, G. Wadley, M. Gibbs, 2005.
- [13] A Proposal for Recognizing Reputation within Communities of Practice, C.Cruz, M.Gouvêa, C.Motta, F. Santoro, UFRJ, UNIRIO, Brazil, 2008.
- [14] Reputation, trust and the dynamics of leadership in communities of practice, P. Muller, 2006.
- [15] Modèles économiques des logiciels open source et logiciels libres, Fabernovel Consulting, 2007.
- [16] Ethical Leadership for the Professions: Fostering a Moral Community, L. M. Sama, V. Shoaf, 2007.
- [17] McDermott Consulting: Community of Practice, <http://www.mcdermottconsulting.com/communitypractice.shtml>

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**Michel Cezon** has spent over 25 years in IT industries and services, and mostly in innovative technologies (Artificial Intelligence, NLP, e-business, EDMS, Intranet). He led numerous EC 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) or multi-millions projects for large customers. Graduated as an IT Engineer and specialised in Artificial Intelligence, Robotics and Vision, he masters projects management and quality skills learnt with large companies such as Hewlett Packard or Cap Gemini Ernst and Young. Well aware of multicultural issues, he spent years 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.