

# Outcomes from six years of Software Process Improvement Networking in Rio de Janeiro

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**Abstract.** The aim of this paper is to present the results of a six-year experience in organizing and maintaining a SPIN (Software Process Improvement Network) in Rio de Janeiro, Brazil. The paper presents data, extracted from a survey submitted to SPIN-Rio participants, about SPIN-Rio meetings and discusses the factors that have made it successful and active to date. It also discusses some impact indicators of SPIN-Rio activities in improving professionals, organizations and the local software market. Finally, the paper presents the objectives of a research project, which aims to provide alternatives to facilitate collaboration and knowledge management among professionals.

**Keywords:** social networks, software process improvement.

## 1 Motivation

SPIN-Rio is one of the most active software professionals networks in Brazil [1]. SPIN-Rio was conceived in 1999, following the SEI's model for software professionals' network [2]. Basically, it comprises the meeting organization aiming at discussing demanding software engineering themes by the local software market.

This paper presents data on SPIN-Rio meetings and discusses the factors that have made it successful and active until now. The paper also discusses the results obtained from a survey submitted to SPIN-Rio participants so as to identify a number of SPIN-Rio activity impact indicators in improving professionals, organizations and the local software market. This survey also points out issues that can be changed in order to continuously improve the SPIN-Rio model and its benefits.

## 2 Goals and objectives

SPIN-Rio was started through the interest of only four persons. This group comprised members from both academy and industry, interested in software improvement research and practice: this combination of viewpoints made SPIN-Rio a 'consensus building' element right from its start.

By the end of the 90's, we still had a very small number of organizations attempting to adopt the CMM or another software process quality framework in

Brazil, and the need for practical experience and discussion was immense. This group was able to understand what the discussion needs could be for the local software market, since industry members already had the experience of deploying CMM in a financial organization and academic members were able to outline special themes that could bring new insights to SPIN-Rio participants. Additionally, as SPIN-Rio had a strong relationship with the academy, participants felt from the beginning that it was a group that could freely criticize and discuss this theme, without any bias whatsoever.

SPIN-Rio's main target is any professional, both from industry and research, interested in software quality subjects, establishing what we can call a community of practice [5] on software process. SPIN-Rio main discussion list at Yahoogroups! ([spinrio-noticias@yahoogroups.com.br](mailto:spinrio-noticias@yahoogroups.com.br)) comprises 439 participants, a fact which makes us realize that this is the group size.

### **3 Methods and tools**

SPIN-Rio's main objectives are discussion and dynamic networking. Discussion can only happen if we bring together people who have experience as well as those who have doubts. Networking can only happen if people meet somewhere, physically or virtually. Knowledge sharing can only happen if we have a person who knows about a subject and others interested in learning about it. Thus, the main element for promoting discussions within SPIN-Rio was organizing special meetings in which a specialist is invited to present a talk, with attendants being able to discuss about it. Another important point in our strategy is making meetings free of charge: knowledge and discussion must come forth for free.

To infuse dynamics to the group, it was decided that every meeting should take place at a different company/institution. SPIN-Rio participants then become the company's guests for that particular meeting, with professionals from the host company also allowed to participate in the meeting. SPIN-Rio meetings took place at private and government institutions, universities, software providers, and software consumers. This dynamics has proven to be suited to help us visit new organizations, to learn about infrastructure and to feel their culture. SPIN-Rio meetings are social encounters. We enjoy making people feel free, being open to discussions, meeting other people and having pleasant hours of learning, discussion, and networking.

### **4 Procedures and artifacts**

SPIN-Rio meetings always bear the same structure: 1) a professional is invited to present a talk about a selected subject; 2) three/four other professionals also skilled in, or displaying great practice on the theme, are invited to make up a round table; 3) participants are free to ask questions both to the guest speaker and to the round table; 4) a 'coffee-end' or social interaction time is organized, so that after being aroused by ideas and discussions, people can talk, interact and network.

The meetings themes are planned and chosen by the organizing group. Again, since we have participants from both industry and the academy, we were able to chose

highly interesting themes for SPIN-Rio audience, following the market and research needs and expectations. The themes discussed so far are as follows: The Brazilian Quality Prize (PNQ), CMM, CMM and Project Management, experience in software process improvement, peer reviews, experience in deploying total quality programs, process assessment, metrics, software testing, project management, quality models and how to use them, outsourcing, MPS-BR (the Brazilian process quality model), writing good requirements, CMMI, how to migrate from CMM to CMMI, risk management, and the eSCM.

The SPIN-Rio web site [1] serves as a knowledge base for the meetings, recording participants' registration and presentation slides which are made available for SPIN-Rio members. Recently, we started to build meeting briefings/reports organizing the main issues discussed during the meeting in order to improve knowledge capture.

## 5 Characteristics and metrics for benchmarking

The metrics we have used to date for benchmarking SPIN-Rio activities are especially related to the level of participation in SPIN-Rio meetings. Since September 1999, SPIN-Rio has organized 22 meetings, having received a number of participants as detailed on the table below:

**Table 1.** Participation in SPIN-Rio meetings

Year	Number of meetings	Number of participants
1999	2	26
2000	5	178
2001	3	141
2002	2	94 (estimated)
2003	2	112
2004	3	215
2005	4	130
2006	1	30
participants x meeting		42

It is important to mention that participants in meetings displayed different origins, not being restricted to SPIN-Rio members registered in the discussion list. Often, professionals from the host organization joined the meeting with new participants always coming up. We have also attempted to quantify the different levels of participation from private and government industry organizations as well as from universities. Our records show that 25% of the participants came from government organizations, 56% came from private organizations and 19% came from universities.

### 5.1. Survey

We have performed a survey to identify and demonstrate the results obtained by SPIN-Rio during these years. This survey had as its main objective identifying SPIN-

Rio activity impact indicators in improving professionals, organizations and the local software market. Additionally, the survey attempted to point out issues for continuously improving SPIN-Rio model and activities. The main question we were striving to answer was how SPIN-Rio participants recognized the benefits of partaking in the group and in its activities and how SPIN-Rio was achieving its original objectives.

The main instrument for conducting the survey was an on-line questionnaire [3] made available to the group (a total of 439 persons registered in the discussion list). 42 participants answered the survey, comprising 10% of the group, a fact which leads us to understanding that these answers are representative. The results collected by the survey and some of the comments registered by SPIN-Rio members were as follows:

<i>“The topics discussed in SPIN-Rio meetings are useful for the work you perform in your organization?”</i>	Yes. The discussed topics have helped me to better understand my organization software processes.	64%
	Yes. The discussed topics have helped me to deploy my organization software processes.	28%
	Yes. I have been able to better participate/discuss my organization software processes.	42%
	Yes. In other ways	9,5%
	No. Knowing the topics discussed in SPIN-Rio makes no difference to my work.	-
<i>“SPIN-Rio meetings have been useful to you individually?”</i>	Yes. SPIN-Rio meetings have helped me to follow market tendencies.	76%
	Yes. SPIN-Rio meetings have motivated me to search for more information.	62%
	Yes. In other ways	7%
	No. SPIN-Rio meetings are not useful to me.	-

Answers to these two questions show us that one of the SPIN-Rio objectives – to increase knowledge about software engineering practices – is being achieved. The numbers are confirmed by some of the comments registered by respondents, such as: *“Many times we identify that the problems faced by organizations are similar.”* *“There is not only theory, but practice.”* *“After meetings, with the knowledge obtained, I attempt to apply improvements to our internal processes.”* *“I do consulting. The topics addressed in SPIN have been useful to me to participate/discuss the software processes in the organizations in general.”* *“While understanding the models and frameworks presented in the market, I feel more secure in giving opinions about process improvements and organizational change.”* *“I think it is important to know how other organizations are defining their processes and to listen stories which I can tell in my organization. This is a kind of motivation to process deployment.”* *“The meetings are a great opportunity for learning.”* *“When I hear about a new and relevant topic in a meeting, I strive to study it more.”*

<i>“Do you consider SPIN-Rio as a group able to criticize and establish free opinions?”</i>	Yes.	98%
	No.	2%

Answers to this question confirm our strategy of attempting to make SPIN-Rio a free forum for discussion. This perception from SPIN-Rio participants is strongly related to the gratuity for participation, as shown by the answers and comments given in other questions. One participant gave us the following comment: *“I believe that exemption is a general tendency, however it can vary, depending on the participants invited.”* Of course those participants invited to make presentations and discussions

naturally promote their institutions and work and we believe that this is also part of the SPIN-Rio objective for networking. People need to know each other and their competencies.

<b>“Do you use the network offered by SPIN-Rio?”</b>	Yes. During the meetings I exchange information and experience with other participants	36%
	Yes. After the meetings, I keep in touch with some people to continue knowledge and experience exchange.	31%
	Yes. I have already established partnerships (commercial or otherwise) with organizations/participants that I meet at SPIN-Rio.	17%
	Yes. In other ways.	7%
	No.	33%

Common comments to this question were: *“I know many participants and in the meetings I always strengthen the relationship with those I already know.”* Answers to this question give us the understanding that networking in SPIN-Rio occurs predominantly during meetings and that the possibilities for contact and working together are not clearly identified.

<b>“Do you consider that the model of SPIN-Rio meetings is good for knowledge acquisition and networking?”</b>	Perfectly adequate. There is nothing to change.	52%
	Very adequate. I have few improvement suggestions.	33%
	Adequate. It works, but I have improvement suggestions.	14%
	Reasonably adequate. I have many improvement suggestions.	-
	Definitively not adequate. It is necessary to change it completely.	-

Answers made us believe that participants are satisfied with SPIN-Rio meetings model but are willing to capture more knowledge and conduct deeper discussions: *“I would like to suggest longer meetings – an afternoon or even an entire day.” “I propose events like short tutorials and workshops.” “It would be good to increase interaction through the website, the discussion forum, etc.”*

<b>“Do you think that meetings should be paid? Why?”</b>	No.	95%
	Yes.	5%

This issue provided us with interesting reflections. We always believed that free participation (including no financial aid from enterprises) would bring SPIN-Rio exemption, sense of community, and freedom for open discussions. This was confirmed by the answers obtained through the survey and by the following comments: *“Payment would restrict participation.” “Payment would not stimulate new ideas.” “We would have complaints from participants who paid and did not solve all their doubts during the meeting.” “Gratuity motivates people to participate in meetings and to discuss topics that are not sufficiently addressed and organizations face great resistance.” “Paying would restrict different sources of participation – professionals and students – with different views, experience and objectives.” “The philosophy is of an open community.”*

However, there is a feeling that some funding is necessary to enhance learning and interaction possibilities. Additionally, there is a growing feeling that participants are not usually committed to participating in every meeting. Maybe if they had to pay,

they would have a higher level of continuous participation. Some comments: “Payment would decrease participation but would increase commitment and possibly bring participants from outside Rio de Janeiro.” “A small fee could be paid in order to finance minimum costs and meetings would not depend on an host organization.” “Maybe we could ask participants to bring donations.”

“Your participation is voluntary or mandatory by your organization/supervisor?”	Voluntary	100%
	Mandatory	-
“Do you believe that topics and discussions in SPIN-Rio meetings increased your knowledge?”	Definitely.	24%
	It increased extensively.	10%
	It increased.	64%
	No. It did not change.	2%

The above results showed us that participants feel satisfied and feel gains by participating in SPIN-Rio meetings. Additionally, these results confirm that SPIN-Rio is achieving its other objective of helping the local community to increase their knowledge about software engineering.

“What kind of benefits do you believe an organization will have by hosting a SPIN-Rio meeting?”	Participation of its professionals.	74%
	Making people know the organization.	71%
	Reaffirming the motivation for adopting software engineering practices.	62%
	Others.	2%
“How local market can benefit with groups like SPIN-Rio?”	Increasing the discussion on topics of interest.	74%
	Networking	64%
	Establishing actions and partnerships.	59%
	Increasing the knowledge on software engineering topics.	57%
	Others.	2%

These results show that SPIN-Rio is being perceived as bringing benefits for organizations, professionals and for the local market.

“What are the factors you believe that made SPIN-Rio successful through these 6 years?”	Importance of the topics addressed.	83%
	Participants’ knowledge	71%
	Quality of the meeting organization.	54%
	Group exemption.	52%
	Frequency of meetings.	40%
	Number of participants.	19%
	Meeting proceedings.	16%
	Others (gratuity, the SPIN-Rio organization team)	7%

These last results show that the great importance assigned to SPIN-Rio activities comprises the knowledge it makes available.

## 6 Lessons learned

**Performance:** We can affirm that SPIN-Rio is a successful network, concerning the model on which it is based. Performance indicators are obtained from analyzing the number and diversity of professionals that were affected by meetings. SPIN-Rio

meetings reached a total of 926 professionals. Even if we understand that from this total, professionals may have participated in more than one meeting, this number represents high level amplitude of the network. Considering the participation on meetings (42 participants/meetings) and the percentage of participants from government, private and academic organizations, it can be understood that SPIN-Rio shows a good level of diversity, what enriches knowledge and discussion. Concerning the frequency of meetings, we had about 3 meetings/year. Some years have been more productive in organizing meetings than others and this is directly related to the organizers' time availability to organize them. Our actual rate has not reached yet the ideal target of having 4 meetings/year. This fact leads us to a strategy of making the group more collaborative/participative and not to depend on the organization board.

**Success factors.** These factors comprise both organizational factors as well as external and contextual factors. From the organizational point of view, we outline the model of SPIN-Rio meetings which includes: gratuity for participation, voluntary participation in meetings, the focus on updated and highly demanded software engineering themes, the possibility of having the presentations available in the SPIN-Rio site [1], and the interest in keeping discussions unbiased, among others. From the external or contextual point of view, we can argue that there has been great interest from the Brazilian Government in improving software development, including software products and service export. This has made software organizations and professionals believe that a great effort can be made in this area, bringing profits to software organizations and to the whole country economy. This feeling of opportunity brings a favorable context for networking and knowledge sharing within SPIN-Rio.

**Challenges.** Of course, there are challenges in keeping SPIN-Rio 'on the road'. First, all the organization work is voluntary and thus for free. People need to be highly committed to the idea of sharing knowledge and need to have this as a personal ideal. Second, despite the great interest of people in the meetings, it is not so easy to find many organizations/institutions who can promote open meetings. Third, we have to be highly critical in finding people and organizations that will not turn SPIN-Rio meetings into a place for marketing purposes. It is a place for discussion, not for selling things or services. Marketing is secondary and will come just from the fact of being there. We can say that, to date, we have been proud of providing high quality presentations and discussions to SPIN-Rio participants.

## **7 Future work**

Rio de Janeiro is one of the most developed states in Brazil. Despite being one of the most densely-populated regions and one of the national economic centers, there is a growing sense that the software business in Rio has been facing continuous challenges. Great part of software clients have changed to other regions and software companies struggle to sign contracts with the few contractors that have remained, especially, gas, oil, telecommunications and government organizations.

The SPIN-Rio model has proven to be attractive to the local software community to meet, make contact, share information, expectations and doubts about practices and improvement initiatives. However, it has not leveraged the ability of this community to establish social or interest-based ties in order to articulate collaborative actions. Participants feel more as listeners in this community than as active participants.

In this context, we started a research project which aims at leveraging collaboration and knowledge sharing among SPIN-Rio members by adopting the social networks philosophy [4]. The objective of this research work is to build a social network called RCC-Sw which aims at mobilizing software organizations and professionals to perform actions in order to consolidate, strengthen and evolve the local software industry. A web-based environment was specified to support the RCC-Sw/Rio. The key characteristic of the proposed environment, considered as a differential from, for instance, mailing lists, newsgroups or communities of practice, is that it provides features for network members not only to interact but also to easily create and manage collective actions.

The concept of networks has been widely applied to the organization of philanthropic institutions, focused on social, political, health or ecological issues. These networks usually have broader objectives that comprise interests of the whole society. In RCC-Sw, although the network objective has to do with improving the local software market, we do believe that participants will come firstly to feel as being part of it, to have access to knowledge that can benefit them, and to find work and business opportunities. The great question this research work will attempt to answer is, can software professionals share and commit to a common objective?

We are working on the idea that the characteristics of a social network as mentioned before can help participants gradually feel differently and willing to collaborate. The concept and dynamics of social networks are believed to be the factors that will provide agents with commitment, collaboration, effective knowledge sharing, combination and, finally, learning.

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