Chapter 15
How Fablabs Manage the Knowledge They Create

Sérgio Maravilhas
Universidade Salvador, Brazil

Joberto Martins
Universidade Salvador, Brazil

ABSTRACT

A collaborative space for stimulating creativity is a place of learning through the exchange and sharing of knowledge and experience among its members. It allows the leveraging of innovation through the use of technological resources available in the space, stimulating the creativity of its participants, enabling the development of products and solutions based on personal projects—do it yourself (DIY)—from ideation, or the construction supported on knowledge developed by other elements together, collaboratively, enhancing the final result—do it with others (DIWO). A research project is being held to create a new lab, or transform and adapt one of the existing lab's, in a Fab Lab or a Maker Space to let students, teachers, and staff give wings to their imagination and develop innovative solutions to solve real problems while they interact and exchange tacit knowledge, making it explicit after concluding their projects when they share their research reports.

INTRODUCTION

Information and knowledge, along with natural and economic resources, proved to be an unprecedented social and strategic expedient (Beuren, 1998; Choo, 1996; 2003; McGee & Prusak, 1995).

The importance of knowledge for organizations is now universally accepted, being, if not the most important, at least one of the resources whose management influences the success of organizations (Davenport, & Prusak, 1998).

Information management relates to the organizational ability to make the right information available for use in decision making (Davenport, 1997), transforming the informational chaos into useful and practical knowledge, leading to benefits for the organizations (Maravilhas, 2014b).

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Maker Spaces, Hacker Spaces, Tech Shops and Fab Labs are collaborative spaces for stimulating innovation, through the exchange and sharing of information, knowledge, and experience among its members (Blikstein, 2014; Troxler, 2014).

They leverage innovation through the use of technological resources available in the space, stimulating the creativity of its participants and enabling the development of products and solutions based on personal projects from ideation, or the construction supported on knowledge developed by other Makers, collaboratively, enhancing the final result (Gershenfeld, 2005; 2012).

With the motto "Learn, Make, Share" (http://www.forbes.com/2008/08/13/diy-innovation-gershenfeld-tech-egang08-cx_ag_0813gershenfeld.html), these spaces aim to empower its members for the realization of sustainable solutions, local and community-based, using open source tools and equipment's whenever possible (open software, open hardware, open design, open learning), promoting Open Innovation (Chesbrough, 2003) to allow all the possibility of creating low cost products, with the ability to very quickly show the viability of these ideas through the acceptance by the community, leveraging improvements that will make these solutions evolve collaboratively (Anderson, 2010; 2012; Gershenfeld, 2005; 2012).

In these collaborative spaces the participation of all community members is nurtured, promoting equality of race and gender, benefiting from cross-knowledge, shared by every culture and subculture, which will enrich the final result.

Teachers, researchers and students, young and more experienced, men and women of all races and religions, small business owners, inventors and entrepreneurs, members of the local community, all in a horizontal relationship, without titles or awards, just competence and mutual respect, working and learning from each other in a common space.

The purpose is to enhance the entry of women in more technical fields and Engineering, but also to attract students and professionals of Arts and Humanities, Design and Architecture, allowing them to materialize their ideas based on available and affordable technology, supporting creative inventions and aesthetic processes that will enrich the research and development results (R&D) (Blikstein, 2014; Troxler, 2014). Youngsters and adults that abandoned formal education can find here the resources to start their own job and company.

It will be analyzed and described how Fab Labs, which are laboratories of digital fabrication, with broad educational, social and economic advantages, manage their knowledge in a formal and informal way, allowing every member to learn by watching and participate in bigger communal projects. ARHTE project from UNIFACS Laureate University in Salvador, Bahia, Brazil will be also described to show how a future Fab Lab is being constructed and be born in a near future.

The methodology used for the successful development of the project consisted, to begin with, on bibliographic analysis from monographs, journal articles, websites, theses and reports, allowing understanding of the topic, its stakeholders and participating entities. Some conversations with key players in the Fab Lab world have helped to structure the project and the knowledge shared helped avoiding some major obstacles and implementation problems that have been dealt with by other Labs in Brazil, Portugal, Italy, Spain, France, and the United States of America (USA).

The analysis of other existing Fab Labs makes possible to propose the introduction of best practices in the collaborative space, through benchmarking, avoiding mistakes and leaping steps for best performance.