## Research proposal

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## Motivation

The subject I am going to cover is the phenomenon of Open Source, or to be more precise Free and Open Source Software (FOSS) development. In software development there are basically two different forms or organizations: The Commercial or Closed Source Software (CSS) developers who are organized in a company aiming at profit (like Microsoft), and the Free and Open Source Software developers who operate voluntarily in an online community. The first time I got in contact with Open Source development was during the bachelor thesis ‘E-organizations in the digital economy’, by writing a research paper on online communities. I found it fascinating that geographically distributed individuals who work voluntarily on software development can create significant results. Yet little or no research has been done to what kind of innovation takes place in those online communities. Is FOSS limited to small, incremental improvements or is FOSS able to generate big, successful radical new products? These questions formed the basis for writing this Thesis.

## Problem Field

## Free and Open Source Software

Over the past 10 years, open source software has become an important cornerstone of the software industry (Riehle et al, 2009).

Open Source is often characterized as a fundamentally new way to develop software (Raymond 1999) that could pose a serious challenge to the commercial software businesses that dominate most software markets today (Vixie 1999). Open Source cannot be seen as just a new competitor that operates according to the same rules as the commercial business. It threatens to do it faster, better and cheaper. The OSS challenge is often described as much more fundamental, and goes to the basic motivations, economics, market structure, and philosophy of the institutions that develop, market, and use software (Vixie 1999).

The development process that originates from a freely available source code is radically different from the industrial or commercial style of development. Mockus et al (2002) named the main differences between OSS and commercial development. For once, OSS systems are built by potentially large numbers of *volunteers*. The work is not assigned to people, but OSS developers undertake the work they choose to undertake. Also there is no explicit system-level or even detailed design, no project plan, schedule, or list of deliverables.

The influence of commercial companies entering the Open Source market has led to a movement operating under a new name. No longer do they prefer to be part of the name ‘Open Source Software’, but they call their products ‘Free Software’. The best known group is the *Free Software Foundation[[1]](#footnote-2)*. In essence the same structure and approach is used as in the development of Open Source projects, but they apply a more pure ideology, free of any commercial intentions. The difference lies mainly in the use of licenses. OSS sometimes adds or removes freedoms or copyright privileges to end-users. Simply put: free software is always available as OSS, but OSS is not always free software. In this research both Free and Open Source projects are studied, which in short I will name FOSS projects.

## Radical and Incremental innovation

An innovation is defined as an idea, practice, or material artifact *perceived to be new* by the relevant unit of adoption (Zaltman et al, 1973). What their definition did not emphasize was that innovations can vary in the degree of newness to an adopting unit. The notion of radicalness is a way to capture the distribution. Radical and incremental describe different types of technological process innovations. Radical innovations are fundamental changes that represent revolutionary changes in technology. They represent clear departures from existing practice (Ettlie, 1983). In contrast, incremental innovations are minor improvements or simple adjustments in current technology (Munson and Pelz, 1979). The degree of novel technological process content, in other words the degree of new knowledge embedded in the innovation, is the major difference captured by the labels radical and incremental.

## Aim of Research

The first goal is to identify what kind of innovation takes place in FOSS development. A panel of industry experts will judge 115 FOSS projects on its ‘radicalness’. Furthermore the ‘success’ of each project will be determined. This way I will try to recognize whether FOSS development is more suitable for either incremental or more radical innovation projects.

In order to get a complete picture, the same identification should take place in a closed source or commercial software development. This way it could be determined which development environment is preferred for certain kind of innovation projects. In this research I will focus solely on the FOSS side of the picture. Still, the findings can be interesting for (commercial) software companies who engage in new software development whether or not to get involved in the Open Source movement.

**Radical**

**Incremental**

**FOSS**

**CSS**

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Figure 2.1 Successful radical / incremental projects in Closed of Free/Open Source software development

1. www.fsf.org [↑](#footnote-ref-2)