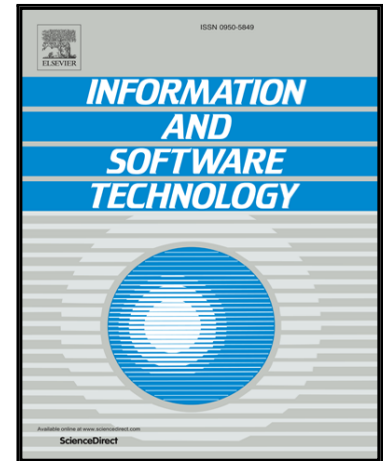


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Empirical Evidence in Follow the Sun Software Development: A Systematic Mapping Study

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Abstract

Context: Follow the Sun (FTS) development is a special case of Global Software Development. It is applied in the context of global projects to reduce the software development life-cycle duration. A number of studies have attempted to aggregate a better understanding of FTS development, but it is still an immature research area.

Objective: This paper aims to investigate the existing empirical evidence about FTS research with a focus on identifying what research has been conducted in the area and which results have been obtained.

Method: To achieve this goal, we performed a systematic mapping study to answer our research questions: “Which FTS studies have been published in the literature?” and “What empirical support is provided for them?” We investigated papers published between 1990 and 2017. The synthesis was made through classifying the papers into different categories (research topics, research methods, conferences and journals venues for FTS research, and countries involved in FTS research).

Results: We selected 57 papers using a predefined search strategy. The majority of the papers discussing FTS were published in the International Conference on Global Software Engineering (ICGSE). The main research topic addressed is processes and organization development for FTS. Case studies combined with the interview as a research sub-method is adopted in the most studies performed in FTS. The majority of the existing research and the most active researchers in this topic are from the United States and Brazil. However, India and the United States are the countries that appear most often in the studies conducted to investigate FTS.

Conclusion: Our findings suggest that FTS software development is an up-to-date research topic in Software Engineering. However, little information about FTS has been published over the last few years. The emergent need in this research is the development of evaluation research for testing FTS feasibility and effectiveness in practice.

Keywords: Global Software Development; Follow the sun; Time zone management; Virtual teams; Systematic mapping study.

1. Introduction

In the past few years, new technologies, solutions, and theories have been developed in the Software Engineering field. They have provided significant advances in terms of how teams should develop software. Nowadays, software is increasingly being developed by global teams. This is a new trend of producing software [1]. In companies of all sizes, projects are being set up across several development sites. These sites are separated by distance, time zones, and cultural differences [2]. Such software development is called Global Software Development (GSD).

GSD research focuses on studying aspects of software development of global scale. The GSD phenomenon began in the early 1990s and has become a powerful competitive strategy over the past 10 years [3, 4]. Since that time, studies have been offering an understanding about GSD, but it is still considered an immature research area [5].

In the software industry, many companies run globally distributed projects to benefit from

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