

## Study on the socialized development environment in the geospatial informations field

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### 1. Introduction

The deployment of the technology and systems for geospatial information is the spread of the open-source movement and culture since 2000, opening up of technology and information has come to be regarded as important in the GIS field (Sui, 2014). This open culture is expected to spread to social, political, and economic areas, such as Open Government. This is an important point for government that have not gone far enough to implement GIS, but the platform is beginning to be wide open.

The major features of GIS technology since the 2010s have been open source code, various code development platforms and interfaces, translation of software documentation, concept creation for application development, and cloud computing which has led to social interaction and cooperation. In this study, mainly in the Free and Open Source Software for Geospatial (FOSS4G), we examine the actual situation of the socialized open developing environment for GIS technology and consider whether that is a problem and what are its effects.

### 2. Platform to support the socialized developing environment

The Quantum GIS (QGIS) is a desktop open-source GIS software from the Open Source Geospatial (OSGeo) Foundation to support the development and publication of source code that has been made available through repositories such as SourceForge. GitHub is a Web-based hosting service for software development projects, which started gaining popularity around 2010. Transifex, which was founded in 2008, has emerged as a Web-based translation platform. It provides variety and takes better advantage of the version control system than Git, and it tracks changes in programs such as forks that incorporate a user's own code as part of the development project, and it provides for fluid use of source code. In fact, we have started to migrate to system of Git from SVN, the platform for Web maps for applications such as Ushahidi. As a localization system on the Web, Transifex provides convenient visualization of progress and a translation interface. Transifex has been used to translate 20 or more OSGeo projects including QGIS software with Japanese versions of all projects. In addition, translations of QGIS user manuals can be incorporated directly into the software, and the translation of case studies of open data, such as in the use case, do not matter, because they are shared as a target.

### 3. Challenges that the effects of social networking bring to openness

Social networking in open-source software development, such as with Transifex and GitHub, is creating many opportunities for GIS technology. For example, Harvard University has developed an open-source package in which geospatial information from various libraries are combined based on Geonode. Also in Japan, use of platforms such as IdeaLinkData and CityData that allow social sharing of regional data is increasing, and more involvement of various actors using GIS is expected. Additionally, with increased participation opportunities for data users and developers through the Web, and to develop open data events such as Hackathon, which began recently in Japan, this trend in data and source code is also becoming a medium to provide resources directly.

However, while open-source social networking accelerates development, product development itself is being subdivided into code for individual functions and, due to different versions in the library, errors can increase. In addition, mutual information exchange between developers is spread by social networking, with smaller contributors able to lead the development as compared to developers from the English-speaking countries. Therefore, it is expected that social networking will contribute to the generation of open data as well as to software development and translation to support visualization and data manipulation of geospatial information, such as the introduction in GIS education and the creation of opportunities for participation.

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