

Geographic Information Systems (GIS) for Improved Project Overview and Planning.

1 Background

Many of the projects that are managed in C7 are strongly tied to geographic contexts, such as work areas, roads and ground conditions. Although geographic information is central to these projects, the system currently uses only basic map components, which means there is significant potential to improve how geographic data is integrated and utilized. By strengthening GIS support, project data can be linked to geographic models in a more advanced way, improving overview, planning, and decision-making.

2 About Triona

Triona is a reliable product and consultancy company that improves our customers' daily operations through data-driven insights and efficient resource flows. Our products and expert services serve organizations within the forestry, infrastructure, and transport sectors in the Nordics.

For over 30 years, we have combined deep industry knowledge and expertise in software development to deliver digital solutions that make a real difference for our customers.

3 About C7 Projects

C7 Projects is a project management system that is used in the construction and infrastructure sectors. The system consolidates all project information into a single tool, reducing the need for multiple separate systems and making it easier for users to gain an overview and access relevant data. C7 can be adapted to an organization's processes and integrated with other systems to support information flows and avoid duplicate data entry. It is designed to support daily work by making essential project information easily accessible.

4 General

This thesis is aimed at one or two students. At least 50% of the work should be carried out on Triona's premises.

5 Objective

The purpose of the project is to investigate how GIS data from the national road database (NVDB) can be integrated into C7 Projects in a meaningful, usable, and efficient way to support more informed decisions and improved workflows in geo-related projects.

The project can take either a technical or a design-oriented approach:

Technical approach:

- Investigate how GIS/NVDB data can be linked to existing project data in C7 Projects.
- Analyse different GIS standards, data models, and integration possibilities (e.g., WMS/WFS).
- Develop a technical prototype demonstrating how geographic data can be imported, visualized, and updated within the system.

Design-oriented approach:

- Explore how geographic information can best be visualized and integrated into the user interface.
- Develop a user-centred design concept for map-based views, interactions, and information layers.

6 Scope of Work

The thesis explores how GIS can be meaningfully integrated into the C7 Projects project management system. The student will choose one of two focus areas: a technical implementation focus or a design-oriented focus.

Technical focus:

The technical track involves investigating how GIS data can be connected, synchronized, and managed within the existing architecture of C7 Projects. The work includes analysing relevant GIS standards and data formats (e.g., WMS, WFS), reviewing system interoperability requirements, and identifying how geographic data should be modelled to fit current workflows. The student will develop a technical prototype that demonstrates practical integration, including importing and visualizing geographic information directly within the system. The final outcome should evaluate technical feasibility and provide recommendations for future implementation.

Design focus:

The design track focuses on how geographic information can be presented and interacted with in a way that supports clear understanding and informed decision-making. The work includes studying user needs and analysing how GIS-based insights can create value for different roles within project management. The student will develop a user-centred design concept for map-based views, interactions, and information layers that integrate seamlessly with the existing interface. The final outcome should demonstrate how thoughtful visual and interaction design can make GIS data more accessible, actionable, and meaningful for users.

The scope of work may be adjusted to meet the university's requirements.

7 Expected Result

The project is expected to deliver a clear understanding of how GIS can enhance project management workflows when integrated into a digital project management system. Depending on the chosen focus area, the outcome will consist of either a technical prototype demonstrating how GIS data can be imported, managed, and visualized within the system, or a design concept showing how geographic information can be presented in a user-friendly and value-creating way. In both cases, the thesis should provide practical insights and recommendations that support future development of GIS functionality, with the goal of improving project overview, planning, and decision-making.

8 Budget

Triona dedicates a supervisor for supervision/discussion regarding requirements and functionality, as well as ensures access to work tools (computer, etc.) and a workplace