



PROPART

Precise and Robust Positioning
for Automated Road Transports

D6.2 Project Website

Version: 1.1

Due: 2018-02-14

Completed: 2018-05-04

Project co-funded by the European GNSS Agency (GSA) within the H2020 Framework Programme		
Dissemination level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	



European
Global Navigation
Satellite Systems
Agency

"This project has received funding from the European GNSS Agency under the European Union's Horizon 2020 research and innovation programme under grant agreement No 776307".

Deliverable type: DECLeader in charge of deliverable: **Stefan Nord**Affiliation: **RISE****Authors**

Affiliation	Name
RISE	Stefan Nord

Consortium Members

Organisation	Abbreviation	Country
RISE Research Institutes of Sweden	RISE	Sweden
Scania Scania CV AB	SCANIA	Sweden
Flowscape AB / Waysure Sweden AB	FS / WS	Sweden
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	FhG	Germany
Asociacion Centro Tecnológico Ceit-IK4	Ceit-IK4	Spain
Baselabs GmbH	BL	Germany
Commsignia KFT	CMS	Hungary

Document history**Planned revisions:**

Version	Description	Date
0.1	First Draft	2018-02-08
1.0	Final version	2018-02-12
1.1	Updated with changes according to DRS after GSA review after website was updated accordingly.	2018-05-04

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1 Summary

The PRoPART public website has been implemented in month 3 of the project, and will be maintained over the lifetime of the project. The internet portal works as communication platform to assist the coordination of the project and its activities.

An individual domain has been acquired to host the website. The link to this PRoPART website is:

<http://www.propart-project.eu/>

Within the design phase of the website, perspectives from both specialized and non-specialized visitors have been considered in order to develop the interface.

The website will be the main communication tool for the project, where all the publicly available dissemination materials will be published in a timely manner. The website is an interactive environment that will give access to all the publishable development of PRoPART. It will give a very direct link to the main results and to the hottest project news.

Besides, this website gives a link to the objectives, partnership, activities and events related with the project, and it is planned to give access to all the aspects regarding the new technologies, best practices and recommendations for robust positioning for automated vehicles gathered from the project development. Contributions from the partners will be highly important to maintain the project's website updated, in order to improve the website positioning in search engines and to reflect an active attitude to Internet users. In addition, partners are asked to link their website and platforms to the website of PRoPART project. In this sense, a SEO positioning analysis will be performed to ensure higher visibility in web search engines.

The following points describe the different sections and functionalities of the website, supported by screenshots to better understand its use.

2 Home

The “home” area of the website is composed of different sections:

Top bar and upper area: Project logo and structure of the website including a menu and search field. The tabs and sub-tabs included may be modified over the project lifetime according to the needs of PRoPART. As a very first impact, visitors see dynamic slides giving key messages of the project.

In the middle area, there is a short project abstract, and also a link to the PRoPART LinkedIn-group. In the lower part, latest news will be visible, as well as partner logos and information about the funding contract.

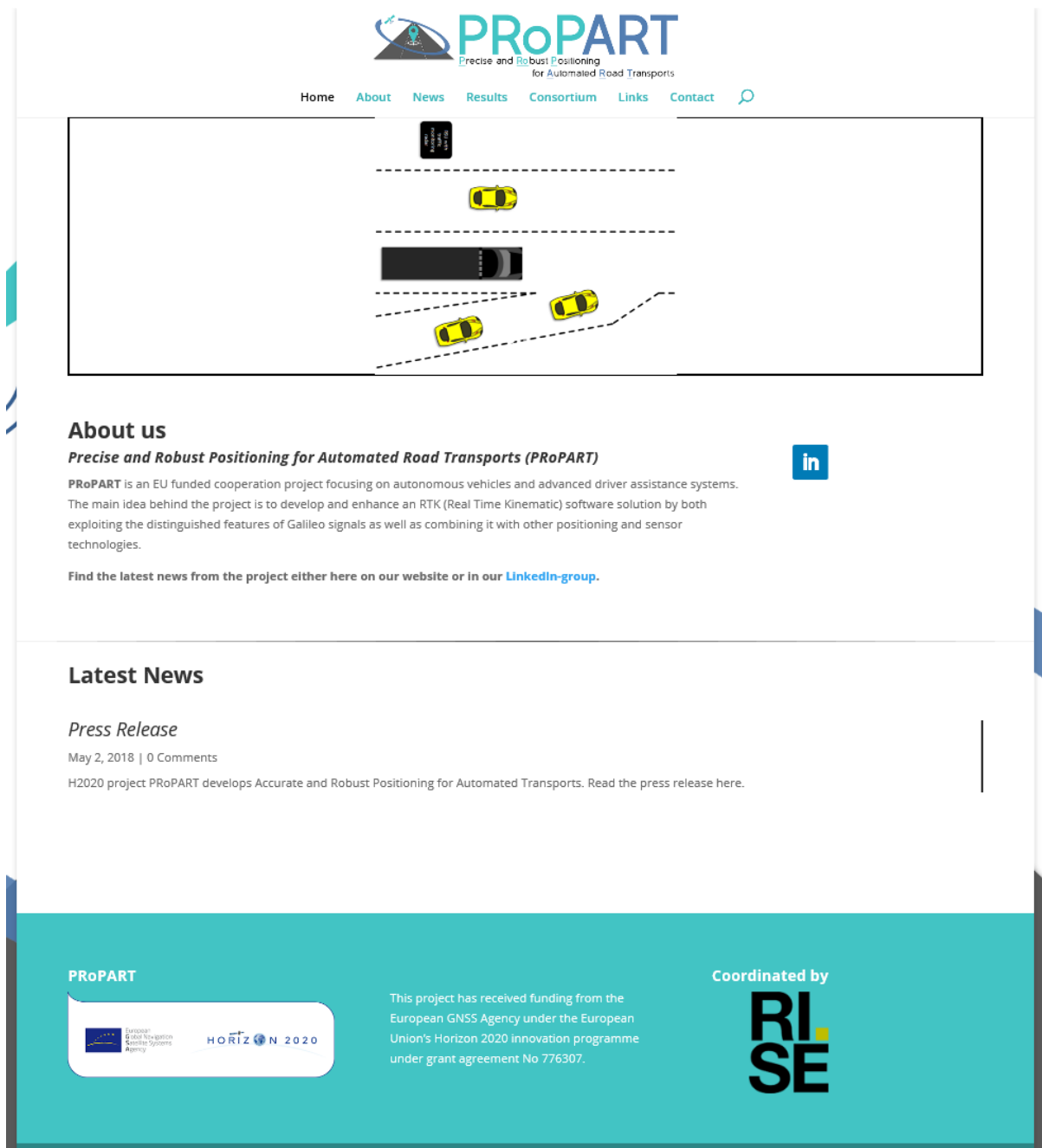


Figure 1 Screenshot: PRoPART homepage

3 Sections

3.1 About

This section is broken down in 4 tabs: Rationale, PRoPART Objectives, Work Packages, Target Markets and Customers and Expected Benefits. Additional Tabs may be added if needed.



PRoPART
Precise and Robust Positioning for Automated Road Transports

Home About News Results Consortium Links Contact

Rationale Project Objectives Work Packages Target Markets and Customers Expected Benefits

Autonomous vehicles and advanced driver assistance systems contribute towards "Vision Zero", i.e. a future where no humans are killed or impaired by accidents. Predictions indicate that these technologies will also contribute to reduced traffic density through increased road efficiency and will create new business models for mobility. It has already been proven to reduce both the number and extent of injuries and insurance costs^{[1][2]}. Precise and robust positioning is a required key technology in both advanced driver assistance systems and connected autonomous vehicle applications. The main idea behind the PRoPART project is to **develop and enhance an RTK (Real Time Kinematic) software solution by both exploiting the distinguished features of Galileo signals as well as combining it with other positioning and sensor technologies.**

To define the correct requirements for precision and robustness of the PRoPART combined positioning solution a **collaborative automated vehicle function demonstration** in a representative traffic situation **will be defined and developed**. This ensures that the PRoPART RTK positioning solution fulfils the different needs of vehicle OEMs, and serves as a demonstration for the validation of the developed solution. The selected application is a collaborative automated lane change function that enables safe and robust lane change of an automated heavy commercial vehicle by using object detection sensors as well as position and time information from both the ego vehicle as well as similar information from road side detection units by means of V2I communication.

Today, there are several types of sensors used in autonomous vehicles such as cameras, laser scanners, ultrasonic, radar etc. The connected and autonomous vehicle applications currently under development are based on the cooperation between different solutions to determine the absolute position of the vehicle on the road and relative to any obstacles. No single technology has the ability to solve this in all situations and when combining different technologies, it is vital to understand the dependability of the available information.

RTK is a technique widely used for precise GNSS positioning based on the use of code and carrier phase measurements from the primary GNSS constellation(s). The use of carrier phase measurements allows cm-level accuracies at the expense of having to solve the integer ambiguity of such carrier signals, which is a sophisticated process with a certain convergence time. The main inconvenience of the RTK technique is that it requires a reference station relatively close to the user so that the differential satellite and transmission medium errors are negligible, of which ionospheric delay is the largest contributor. A way to partially overcome such inconvenience appears with network RTK (NRTK or virtual RTK) which uses a set of reference stations to provide correction data local to the user. In any case, RTK/NRTK approaches works well with baselines no longer than about 15 km for single frequency solutions with the required precision of autonomous vehicle applications. Where multiple GNSS frequencies are used the ionospheric error can be accounted for as it has a frequency dependent effect increasing the operational baseline length.

By combining the innovative solutions in the current RTK SW from Waysure with features of Galileo signals from Fraunhofer solution and extending it with positioning augmentation provided by the UWB ranging solution from Ceit-IK4, PRoPART will be able to deliver an emerging solution for the future mass market of autonomous road transport. The requirements supplied by Scania and development of a collaborative autonomous lane change application using C-ITS technologies (e.g. V2X) from Commsignia and sensor data fusion tools from Baselabs will secure that the PRoPART positioning solution will fulfil the needs of the end user.

[1] <https://www.media.volvocars.com/global/en-gb/media/pressreleases/45468>

[2] I. Isaksson-Hellman, M. Lindman. "Real-World Performance of City Safety Based on Swedish Insurance Data," 24th International Technical Conference on the Enhanced Safety of Vehicles (ESV). No. 15-0121, Gothenburg, Sweden, June 8-11, 2015.

PRoPART

Coordinated by

RISE

This project has received funding from the European GNSS Agency under the European Union's Horizon 2020 innovation programme under grant agreement No 776307.

European Global Navigation Satellite Systems Agency

HORIZON 2020

Figure 2 Screenshot: About tab

3.2 News

Any news related to the PRoPART project will be posted in this section, either prepared internally by the consortium or any external news linked to the project topic.

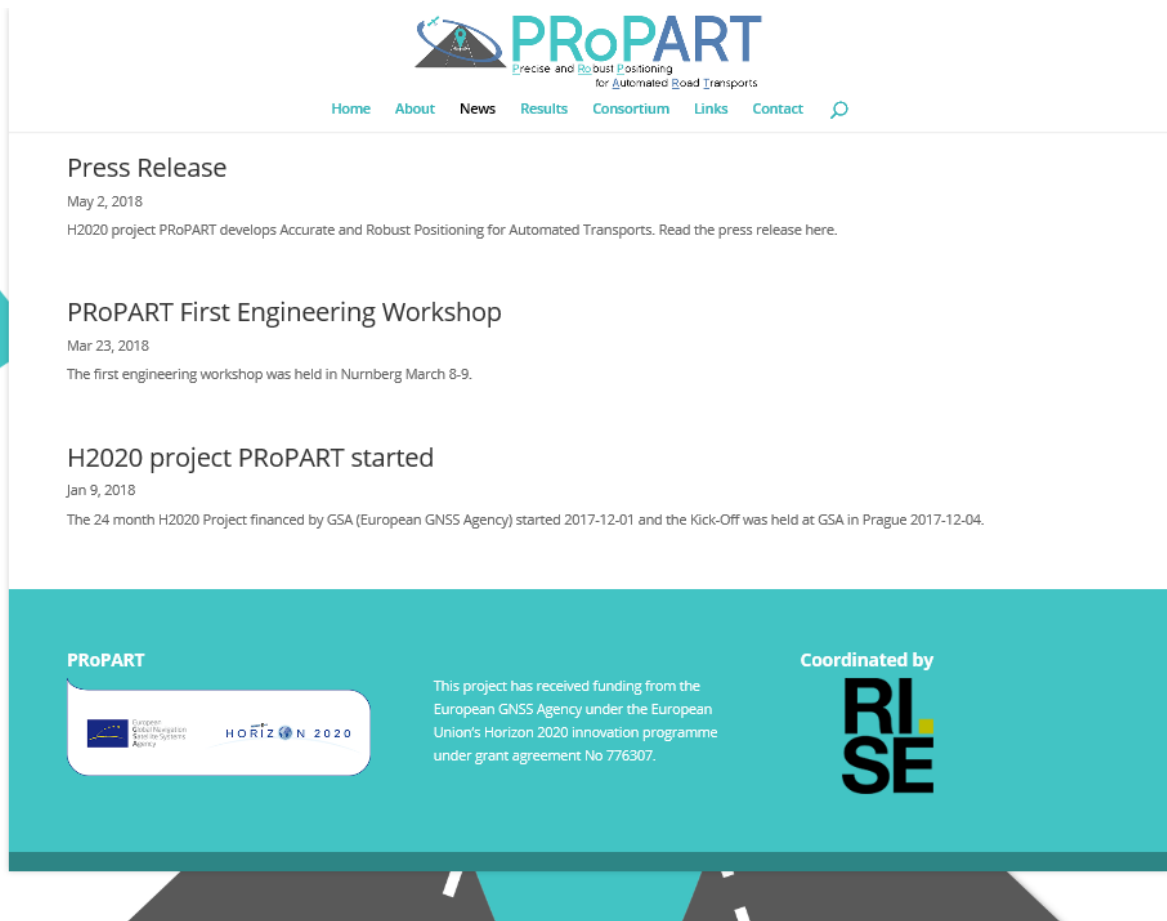
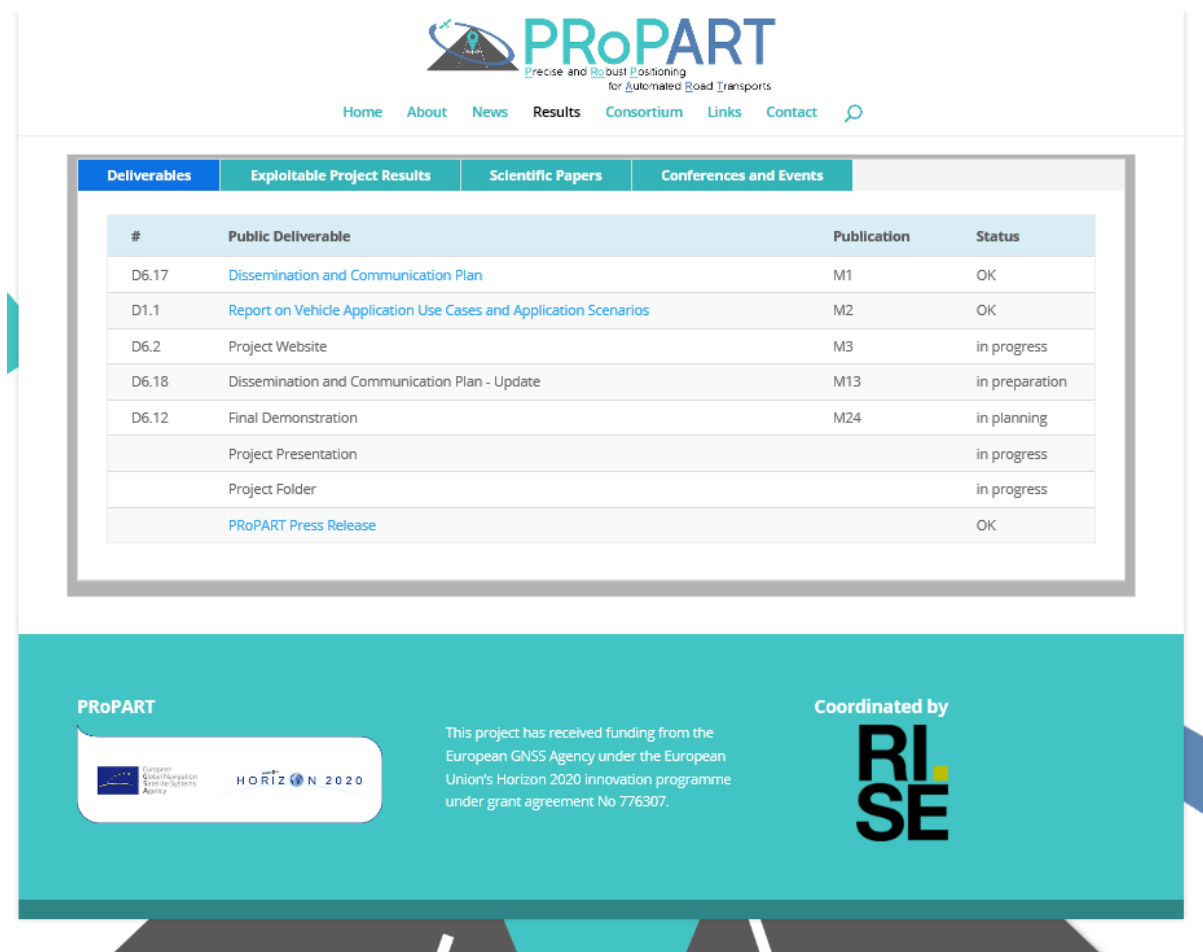


Figure 3 Screenshot: News tab

3.3 Results

Within this section different public documentation will be posted, keeping the website updated with the results obtained. This section is divided into 4 tabs: Deliverables, Exploitable Project Results, Scientific Papers and Conferences and Events. In particular, the following materials are considered to be uploaded in this section:

- Project public deliverables
- Project results
- Public Scientific Papers



The screenshot shows the PRoPART website with the 'Results' tab selected. The page features a navigation bar with links: Home, About, News, Results, Consortium, Links, and Contact. Below the navigation bar, there are four tabs: Deliverables, Exploitable Project Results, Scientific Papers, and Conferences and Events. The 'Deliverables' tab is active, displaying a table with the following data:

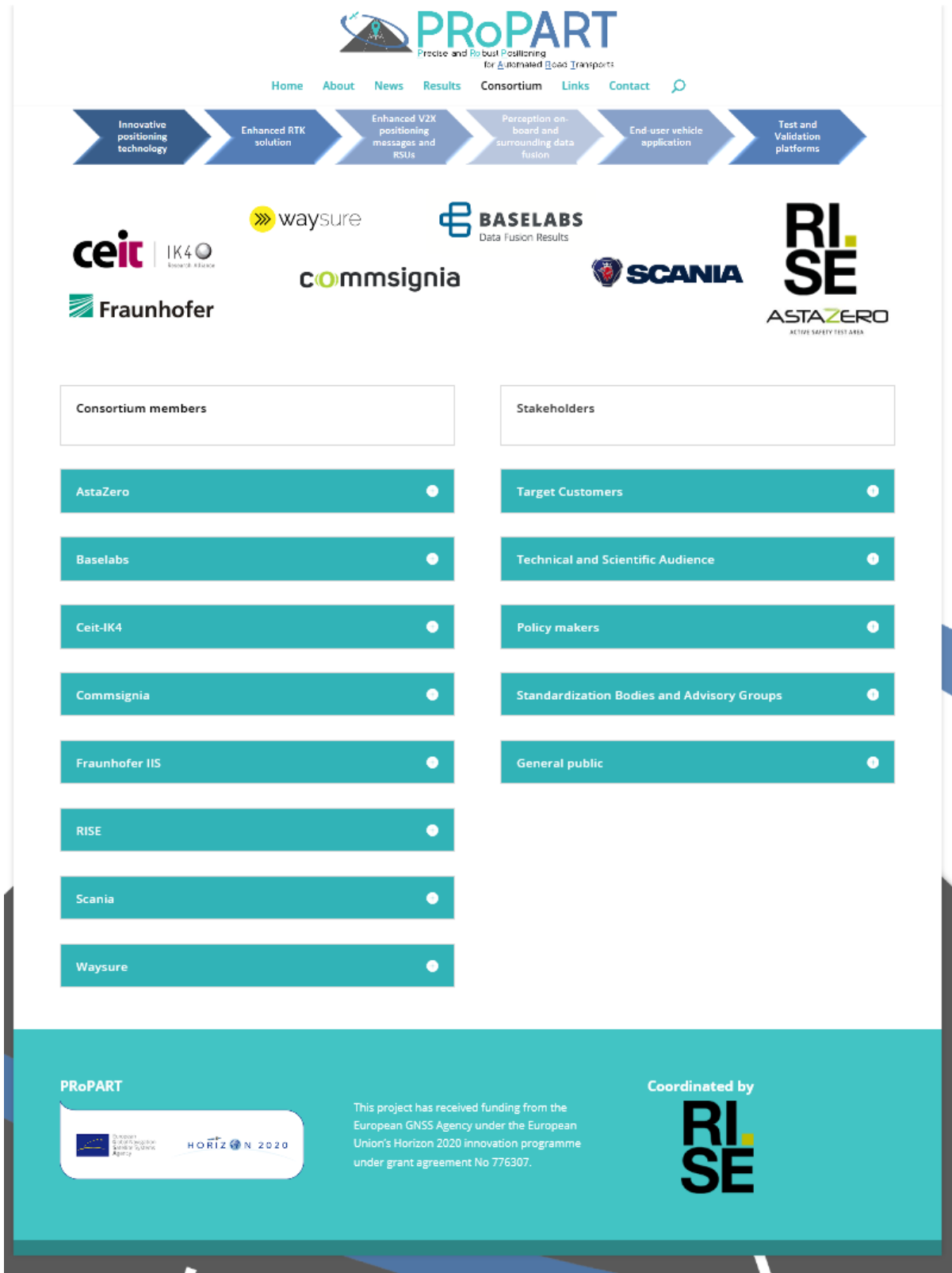
#	Public Deliverable	Publication	Status
D6.17	Dissemination and Communication Plan	M1	OK
D1.1	Report on Vehicle Application Use Cases and Application Scenarios	M2	OK
D6.2	Project Website	M3	in progress
D6.18	Dissemination and Communication Plan - Update	M13	in preparation
D6.12	Final Demonstration	M24	in planning
	Project Presentation		in progress
	Project Folder		in progress
	PRoPART Press Release		OK

At the bottom of the page, there is a teal banner with the PRoPART logo, the Horizon 2020 logo, and text stating: 'This project has received funding from the European GNSS Agency under the European Union's Horizon 2020 innovation programme under grant agreement No 776307.' The banner also features the 'Coordinated by RISE' logo.

Figure 4 Screenshot: Results tab

3.4 Consortium

Information about the consortium partners with a description of their roles, their entity and links to their webpage as well as information and links to different Stakeholders.



The screenshot displays the PRoPART website's Consortium tab. At the top, the PRoPART logo is followed by a navigation menu: Home, About, News, Results, Consortium (active), Links, and Contact. Below the menu is a horizontal timeline of project goals: Innovative positioning technology, Enhanced RTK solution, Enhanced V2X positioning messages and RSUs, Perception on-board and surrounding data fusion, End-user vehicle application, and Test and Validation platforms. The middle section features logos of consortium partners: ceit IK4, Fraunhofer, waysure, commsignia, BASELABS Data Fusion Results, SCANIA, RISE, and ASTAZERO. Below the logos are two columns of links. The 'Consortium members' column lists AstaZero, Baselabs, Ceit-IK4, Commsignia, Fraunhofer IIS, RISE, Scania, and Waysure. The 'Stakeholders' column lists Target Customers, Technical and Scientific Audience, Policy makers, Standardization Bodies and Advisory Groups, and General public. The bottom section has a teal background with the PRoPART logo, a funding statement from the European GNSS Agency under Horizon 2020, and the RISE logo with the text 'Coordinated by'.

Figure 5 Screenshot: Consortium tab

3.5 Links

Within this section, links to relevant pages e.g. organizations, projects etc, can be added for reference.



Figure 6 Screenshot: Links tab

3.6 Contact

This section provides links to the project coordinator, the project sponsor as well as the website administration.

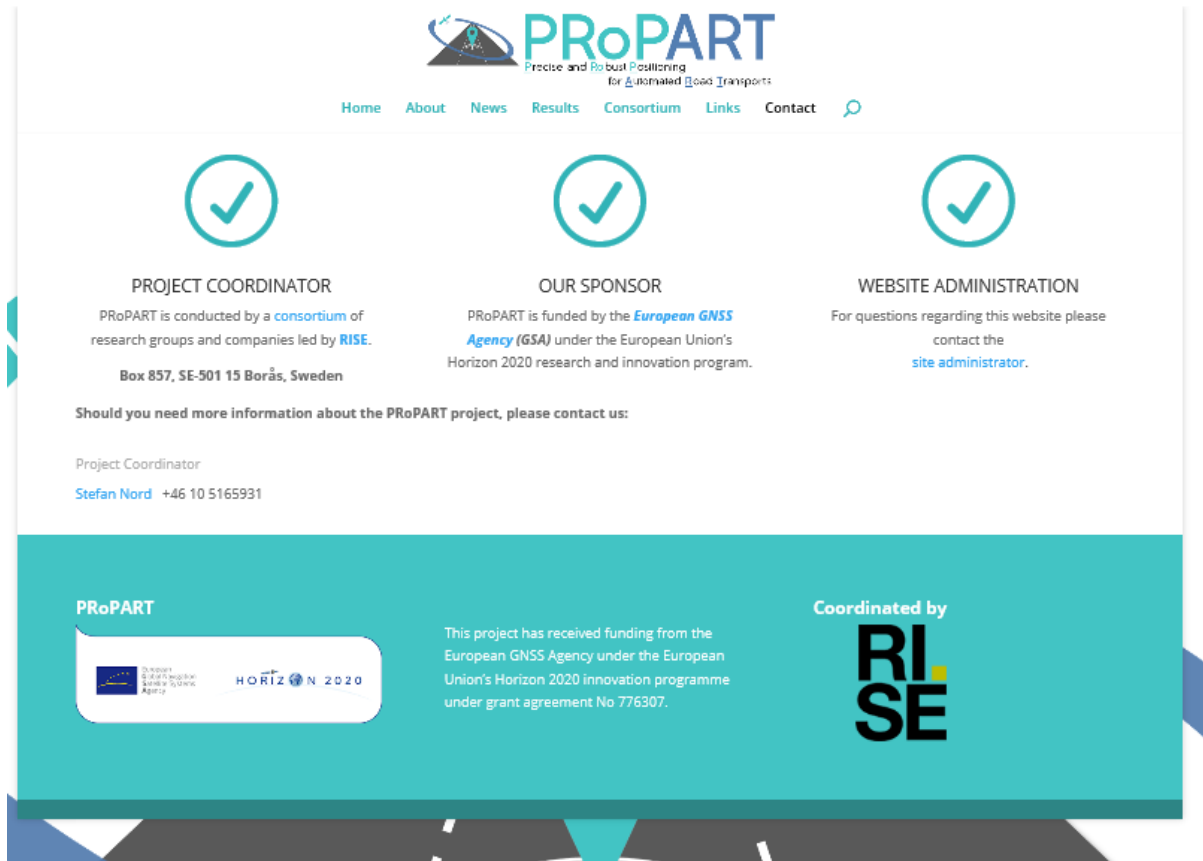


Figure 7 Screenshot: Contact tab