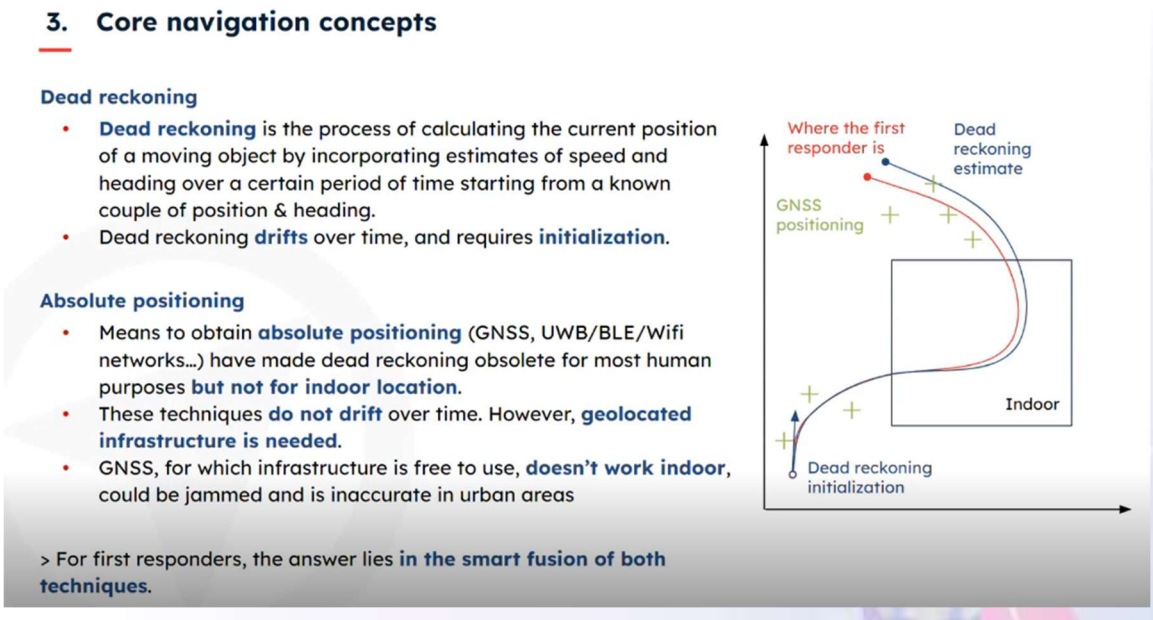
Localisation

SYSNAV

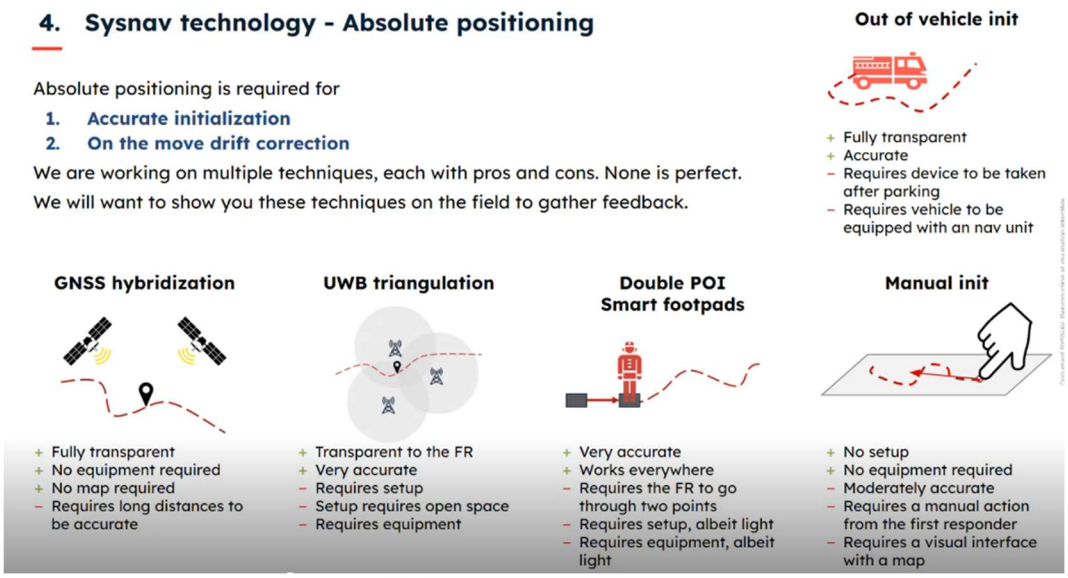
The CLT, led by SYSNAV, focused on various aspects of navigation technologies essential for personal positioning in emergency response scenarios. The session began with an overview of dead reckoning and absolute positioning methods, exploring their practical applications and comparing four different options for absolute positioning. Feedback from first responders was sought to refine these techniques based on their operational needs.



During the session, SYSNAV introduced the FRST (First Responder Smart Tracker)—a device designed to locate and track first responders, such as firefighters and SAR teams, in real-time, even in environments where GPS signals are unreliable, such as inside buildings or underground. The tracker leverages a combination of accelerometers, gyroscopes, magnetometers, barometers, and gait detection algorithms (as it is worn at the ankle) to accurately monitor the wearer's motion in three dimensions, starting from a known point, without needing any pre-installed infrastructure.

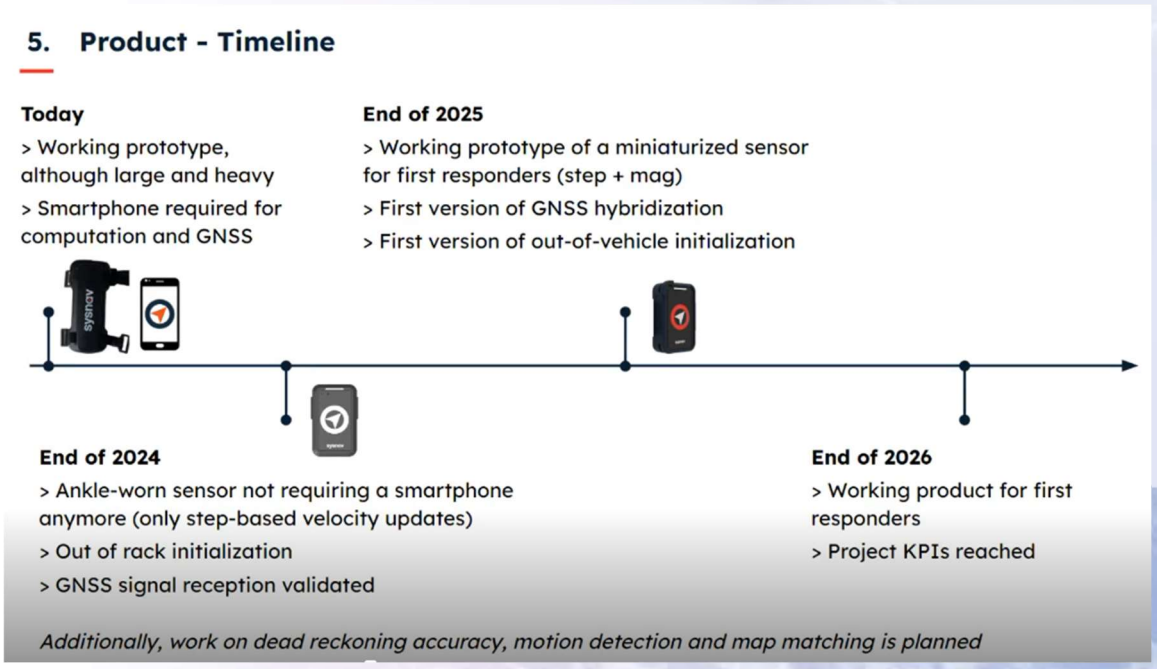
The current prototype of the tracker transmits its position via BLE (Bluetooth Low Energy) to a smartphone, which then sends it to the command center over 4G. A supervision app displays the positions of all wearers, improving situational awareness and coordination, while a personal mobile app allows each wearer to visualize their own position.

Co-funded by the European Union



The discussion then shifted to product design and requirements, including the presentation of prototypes and specifications of the navigation devices. Key performance indicators (KPIs) were clarified, and the team explored optimal design and placement options for the localization device. The boot was identified as the preferred location for the device, with alternative placements considered for different scenarios.

Further discussions addressed the methods for initialization and drift correction, evaluating the trade-offs between various approaches. Input from first responders was crucial in determining the most effective strategies. Additionally, the team reviewed features and options for tagging locations of interest and guiding rescue squads, reaching a consensus on these elements.



The final part of the session focused on ensuring that the device could provide map-compatible coordinates and integrate effectively with the C3I system to visualize different maps. The ease of deployment and accuracy of the navigation system were emphasized throughout the discussion, with feedback from first responders playing a key role in shaping the final product design and functionality