



USE CASE 10:

Floating Car Data for dynamic insurance services





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Use case 10: Floating Car Data for dynamic insurance services

Use case identification

Table 1. Scope and objectives of use case 10.

ID	Name of Use Case	Geographical scope	Cross-sector domains			Interoperability layers
			Electric	Mobility	Data	
BEG.10	Floating Car Data for dynamic insurance services	<input checked="" type="checkbox"/> Local <input checked="" type="checkbox"/> Regional <input checked="" type="checkbox"/> National <input checked="" type="checkbox"/> Cross-border <input checked="" type="checkbox"/> Outermost	<input checked="" type="checkbox"/> Customer <input checked="" type="checkbox"/> DER <input checked="" type="checkbox"/> Distribution <input checked="" type="checkbox"/> Transmission <input checked="" type="checkbox"/> Generation	<input checked="" type="checkbox"/> Customer information <input checked="" type="checkbox"/> Vehicle <input checked="" type="checkbox"/> Energy station <input checked="" type="checkbox"/> Infrastructure <input checked="" type="checkbox"/> Traffic and logistic	<input checked="" type="checkbox"/> Edge <input checked="" type="checkbox"/> Fog <input checked="" type="checkbox"/> Cloud	<input checked="" type="checkbox"/> Component <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Information <input checked="" type="checkbox"/> Function <input checked="" type="checkbox"/> Business

The scope and objectives of the use case

Table 2. Scope and objectives of use case 10.

Scope and Objectives of the Use Case	
Scope	<p>The use case aims to develop an ODP specifically designed for - operating within the European market, based on Vehicle-to-Everything (V2X) technology. This platform will enable vehicles to transmit real-time data about drivers' behavior and environmental conditions to create detailed driver profiles. Insurance companies can use these profiles to offer personalized insurance policies and dynamic tariffs based on driving patterns and risk factors. Vehicle manufacturers will be integral to this system by embedding V2X technology in their vehicles, ensuring seamless data transmission across borders within Europe. The platform will support the monitoring of driving habits, such as route regularity, driving in high-risk areas, and adherence to traffic regulations, allowing for continuous assessment and adjustment of insurance tariff conditions. This approach aims to enhance road safety, provide fairer insurance pricing, and promote responsible driving behavior across the continent.</p>
Objectives	<ul style="list-style-type: none"> Utilize real-time data from V2X-enabled vehicles to monitor driving behaviors and environmental conditions, promoting safer driving practices and reducing accidents. Enable insurance companies to create tailored insurance products based on individual driving profiles, providing more accurate and fair pricing for policyholders. Implement a system of dynamic insurance tariffs that adjust based on driving patterns, route choices, and risk factors, incentivizing safer and more efficient driving habits. Ensure seamless data transmission and usage across different countries in Europe, allowing insurance policies to adapt to driving behaviors and risks encountered in various regions. Partner with vehicle manufacturers to embed V2X technology in new vehicles, facilitating the widespread adoption and effectiveness of the platform. Provide insurance companies with the tools to expand their offerings and reach new customers through innovative, data-driven insurance products.
Reference country(ies)	Spain and Portugal



Related Business Case	Traffic management, Dynamic pricing, Roaming services
Possible Stakeholders	Insurance companies, Vehicle manufacturers, Vehicle owners

Narrative of the use case

The digital age has revolutionized various industries, and the insurance sector is no exception. Traditional insurance models often fall short in providing personalized, dynamic solutions that align with individual user behaviors and needs. With the rise of connected vehicle technologies, particularly Vehicle-to-Everything (V2X) systems, there is a significant opportunity to enhance the user experience in insurance by leveraging real-time driving data. This approach can cover all aspects related to driving, offering tailored insurance products that reflect actual usage patterns and driving conditions.

The ODP for insurances is designed to harness the power of V2X technology to collect and analyze data from vehicles, enabling insurance companies to develop personalized insurance policies. This data-driven approach allows for the creation of dynamic tariffs that adjust based on real-time driving behaviors, road conditions, and geographic factors. By partnering with vehicle manufacturers, the platform ensures comprehensive data integration and seamless functionality across Europe.

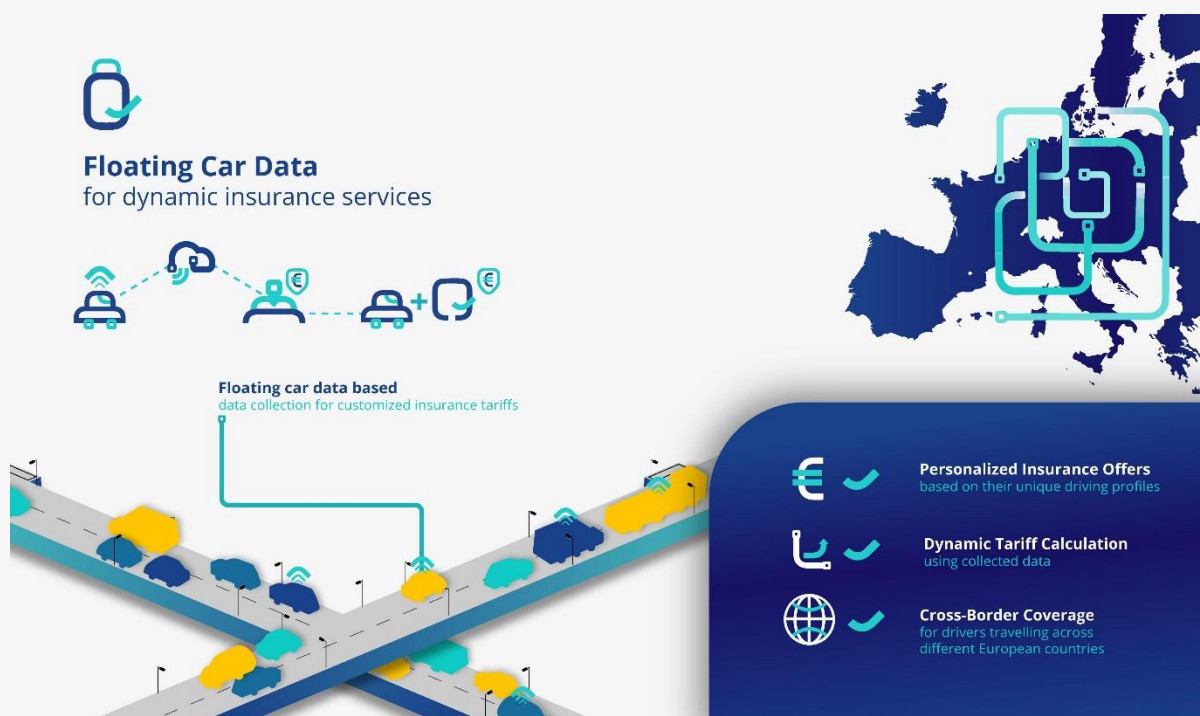


Figure 1. The framework of the use case 10.

The Insurance ODP offers a range of services designed to enhance both user experience and operational efficiency for insurance companies. Key services include:

- **Real-Time Data Collection:** Gather real-time data on driving behaviors, vehicle performance, and road conditions through V2X-enabled vehicles.
- **Dynamic Tariff Calculation:** Use collected data to calculate insurance tariffs that adjust based on driving habits, road types, and usage patterns.



- **Personalized Insurance Offers:** Provide tailored insurance products that meet the specific needs of individual drivers, based on their unique driving profiles.
- **Cross-Border Coverage:** Ensure continuous insurance coverage and data tracking for drivers traveling across different European countries.
- **Risk Assessment and Management:** Analyze driving data to assess risk levels accurately and offer appropriate insurance products.
- **Real-Time Feedback and Alerts:** Real-time feedback to drivers regarding their driving behaviors, encouraging safer practices and immediate corrective actions.

Diagram of the use case

The diagram of the use case 10 is presented in Figure 2. Actors' actions and scenarios' descriptions are presented in Table 3 and Table 4, respectively.

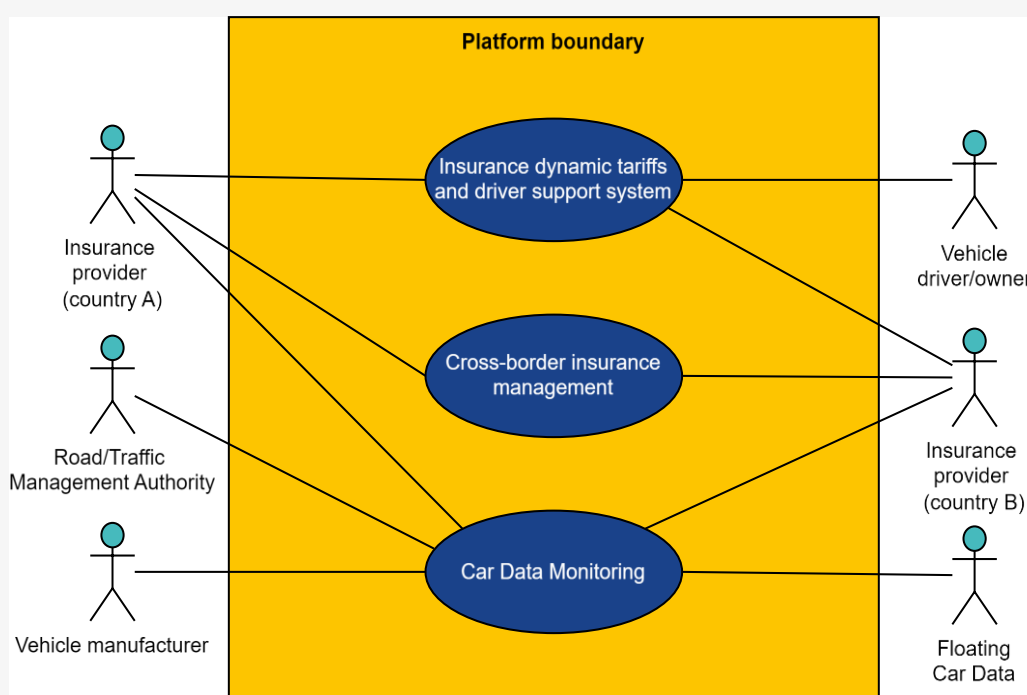


Figure 2. The diagram of the use case 10.

Actors of the use case

Table 3. Description of the actions of use case 10 actors.

Actor Name	Actor Type	Actor description	Actions	Standards
Floating Car Data	System	Embedded vehicle monitoring system connected on GPS and Internet platform	The floating car data register and broadcast the vehicle status, location and driving conditions to the system operator.	GPS and Internet protocols
Vehicle Owner/Driver	Role	The owner or driver of a vehicle equipped with V2X technology	Supplies driving behavior data to the system (e.g., speed, braking patterns, route information). Receives personalized insurance offers and driving feedback from the system.	No



			Uses in-vehicle or mobile application interfaces to interact with the system.	
Vehicle Manufacturer	Role	Company that develops vehicles equipped with V2X systems capable of gathering and transmitting data.	Supplies vehicle data (e.g., diagnostic information, sensor data) to the system. Ensures V2X hardware and software compatibility. Updates vehicle systems to maintain interoperability with the ODP. Collect data about driving conditions to improve the design of vehicles (performance, safety...)	No
Insurance Company (Country A/B)	Role	The entity that provides insurance services to vehicle owners/drivers and uses V2X data for risk assessment and dynamic tariffs.	Receives and analyzes driving behavior and vehicle data to calculate personalized insurance tariffs. Supplies insurance offers, policy updates, and driving safety recommendations to vehicle owners/drivers. Monitors driving patterns and incidents in real-time to adjust risk profiles and tariffs dynamically.	No
Road/Traffic Management Authority	Role	Public authorities responsible for managing traffic flow and road safety.	Supplies real-time traffic and road condition data to the system. Receives aggregated vehicle data to enhance traffic management strategies and maintenance interventions. Coordinates with insurance companies and vehicle manufacturers to improve overall road safety.	No

Scenarios

Table 4. Description of use case 10 scenarios.

S.No	Scenario Name	Triggering Event	Scenario Description	Primary Actor
BEG.10.S1	Dynamic Insurance Tariffs Adjustment	A vehicle owner starts their car and begins driving, transmitting V2X data to the Insurance 3.0 platform.	The Vehicle Owner/Driver begins driving, and the vehicle's V2X system starts transmitting real-time data (speed, location, driving behavior) to the ODP. The Insurance Company receives this data and analyzes it to assess the driver's risk profile. Based on the analysis, the Insurance Company dynamically adjusts the insurance tariff for the trip and sends notifications to the Vehicle Owner/Driver about the new rate. If the driving behavior is consistently safe, the Insurance Company may offer discounts or rewards to the Vehicle Owner/Driver. The Vehicle Owner/Driver can view the updated premium and driving insights through their in-vehicle system or mobile app.	Vehicle Owner/Driver
BEG.10.S2	Cross-Border Driving Assessment	A vehicle owner drives across national borders within	The Vehicle Owner/Driver crosses a national border, and the vehicle's V2X system continues to transmit driving data to the ODP. The Insurance Company receives the cross-border	Vehicle Owner/Driver



		Europe, entering a different country's road network.	driving data and adjusts the risk assessment based on the new driving environment. If the new country's roads present higher risks (e.g., mountainous terrain), the Insurance Company updates the insurance premium accordingly. The Vehicle Owner/Driver receives a notification about the premium adjustment and any specific driving advice for the new country. The Vehicle Owner/Driver can review the cross-border driving data and premium changes through their in-vehicle system or mobile app.	
BEG.10.S3	Accident Notification and Claim Processing	A vehicle equipped with V2X technology is involved in an accident.	The Vehicle Owner/Driver is involved in an accident, and the vehicle's V2X system automatically detects the incident and sends an alert to the ODP. The Insurance Company receives the accident notification, including the location, severity, and other relevant data. The Insurance Company immediately contacts the Vehicle Owner/Driver to ensure their safety and provide assistance. The Insurance Company initiates the claim process by gathering additional details and dispatching a claims adjuster if necessary. The Vehicle Owner/Driver submits any required information through their mobile app or in-vehicle system. The Insurance Company processes the claim and updates the Vehicle Owner/Driver on the status and next steps.	Vehicle Owner/Driver

Policy and digitalisation needs

Table 5. Description of use case 10 policy and digitalisation needs.

Policy needs	<p>Minimum Regulatory Framework</p> <ul style="list-style-type: none"> Ensuring compliance with GDPR to protect user data privacy and secure consent for data collection and processing. Furthermore, compliance with regulations concerning the confidentiality of communications and the lawful collection of data. Establishing unified standards for Vehicle-to-Everything (V2X) communications to ensure interoperability between different manufacturers and systems. Alignment with existing traffic management and road safety regulations to integrate V2X systems seamlessly. Regulatory frameworks guiding the fair assessment of risk and dynamic pricing models for insurance products. Harmonized regulations to ensure seamless insurance coverage and data integration across different European countries. <p>Barriers</p> <ul style="list-style-type: none"> User Consent and Anonymity: Ensuring that users are fully informed and provide explicit consent for data collection, addressing concerns about anonymity and misuse of personal data. Implementing robust security measures to protect sensitive user data from breaches and cyber-attacks. Standardization of V2X Systems: The lack of standardized V2X communication protocols can hinder the seamless integration of data from different vehicle manufacturers and systems. The difficulty in
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	<p>integrating the new platform with existing infrastructure and traffic management systems must be considered.</p> <ul style="list-style-type: none"> • Cross-Border Regulations: Variations in insurance and data privacy regulations across European countries can complicate the implementation of a unified platform. <p>Legal and social factors</p> <ul style="list-style-type: none"> • Liability and Accountability: Defining clear liability and accountability frameworks for accidents and incidents involving V2X-enabled vehicles and data usage. • Public Awareness and Acceptance: Increasing public awareness and acceptance of V2X technology and data-driven insurance models, addressing potential resistance due to privacy concerns.
<p>Digitalisation needs</p>	<p>Data Integration and Management</p> <ul style="list-style-type: none"> • Data Volume and Variety: Managing the large volume and variety of data generated by V2X systems, including vehicle diagnostics, driving behavior, and environmental conditions. • Real-Time Processing: Ensuring the capability to process and analyze data in real-time to provide timely and accurate information for dynamic insurance pricing and risk assessment. <p>Connectivity and Network Infrastructure</p> <ul style="list-style-type: none"> • Network Coverage: Ensuring comprehensive network coverage, especially in rural and remote areas, to support continuous V2X communication. • Latency and Bandwidth: Addressing issues related to network latency and bandwidth to enable seamless data transmission and real-time updates. <p>Security and Privacy</p> <ul style="list-style-type: none"> • Cybersecurity Threats: Implementing advanced cybersecurity measures to protect the V2X communication network and user data from cyber-attacks. • Data Encryption: Ensuring end-to-end encryption of data to maintain confidentiality and integrity during transmission and storage. <p>Cross-Border Data Exchange</p> <ul style="list-style-type: none"> • Harmonized Standards: Establishing harmonized standards for data exchange across different countries to ensure seamless cross-border interoperability. • Regulatory Alignment: Aligning regulations related to data privacy, security, and insurance across different jurisdictions to facilitate cross-border operations. <p>Multi-Stakeholder Collaboration</p> <ul style="list-style-type: none"> • Stakeholder Coordination: Coordinating among various stakeholders, including vehicle manufacturers, insurance companies, regulators, and service providers, to ensure smooth collaboration and data sharing. • Data Sharing Agreements: Developing clear data sharing agreements and frameworks to facilitate collaboration while protecting proprietary and sensitive information.