Project sAFE

After-Market eCall for Forestry, Agricultural and Plant Vehicles (FAP)

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Satellite Applications Catapult

20-11-20

Co-financed by the Connecting Europe Facility of the European Union

Introduction

- **Findings from the sAFE study into FAP Vehicles**
- **Implications for aftermarket eCall**

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sAFE Study

- User Requirements capture and specific needs of these types of vehicle
- Suitable triggering mechanisms and approaches, together with communications options
- Suitable solutions for different vehicle types

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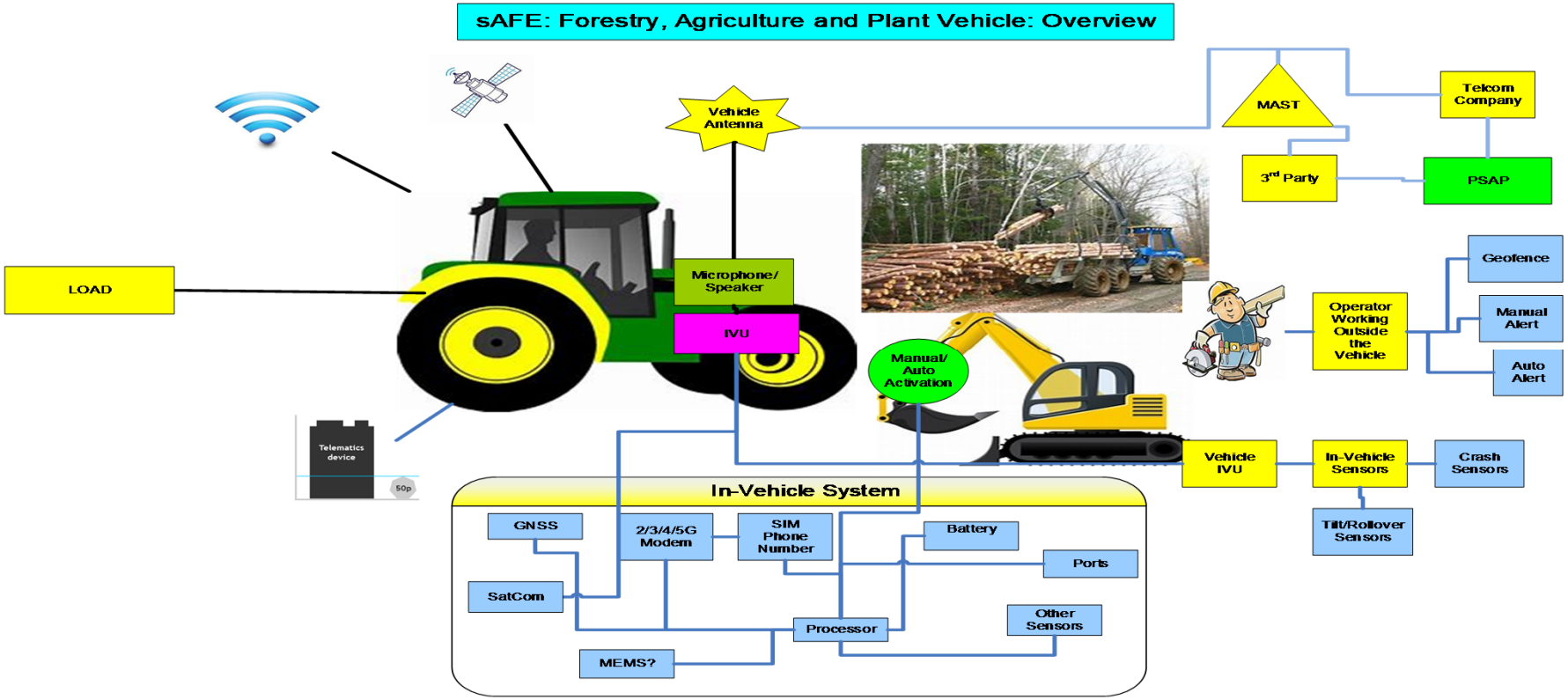
Use Cases



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User Requirements

Req Reference	Req Category	Req Synopsis	Detailed Description	Performance Metric	Must: M, Should: S, Could: C	Testable	Recognised Standard
Please note that the requirements outlined in this section of the document specifically relate to Forestry, Agricultural and Plant Vehicles ONLY and are designed to supplement those requirements outlined in the General User Requirements Section.							
UC1		**Strategic Issues**					
1.1	Legal	The user requires that the final sAFE specification relates to specific relevant categories of vehicles.	UNECE Category T Vehicles: Forestry, Agricultural Vehicles, Trailers and Plant		M	Y/N	UNECE Standards 758

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Vehicle Category Variance-Agriculture

6 Tractor Categories, with sub-categories within each

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Vehicle Categories Variance-Forestry

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Vehicle Categories Variance-Plant

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Added Complications

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Very Harsh Operating Environments

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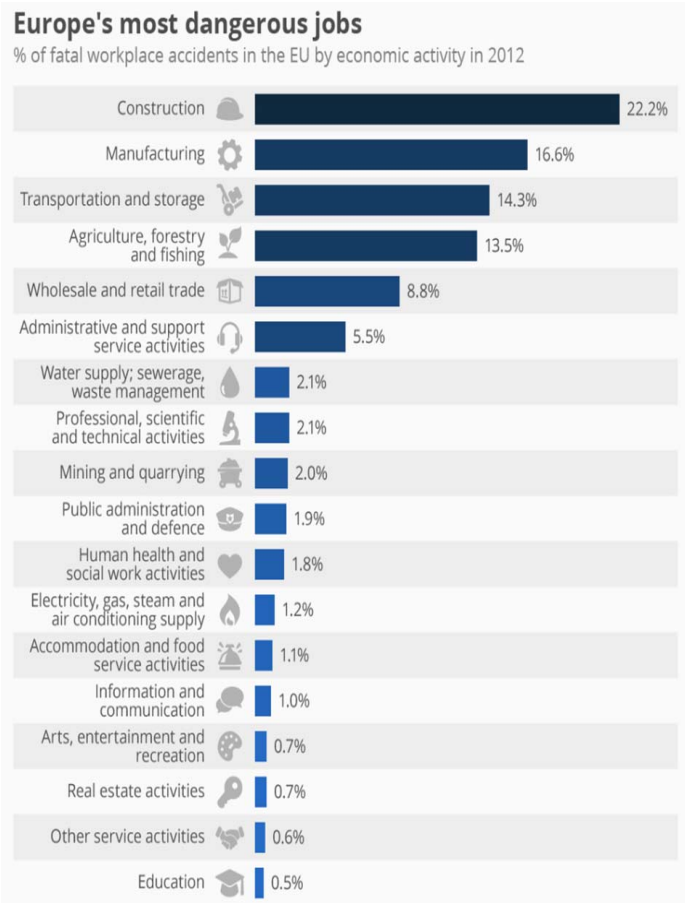
Most DANGEROUS Occupation –EuroStat 2012

Work Place Accident Deaths

Number 1: Construction 22.2% (780) accident deaths

Number 4: Forestry, Agriculture, and fishing 13.5% (474) of fatal workplace accidents.



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Triggering of an automatic eCall

Collisions

Changes in farming (sizes) means tractors are spending more of their time on the road, travelling between farm premises and working areas.

In 2015 Agricultural Tractors were involved in 395 fatal road crashes, 1.5% of the overall total. Therefore, tractors are over represented in fatalities ass they make up <1% of total fleet.

Table 4.1: Casualties from EU collisions involving agricultural tractors by injury severity and year. Source: Analysis of CARE database

Years	Number of casualties				
	Fatal	Serious	Slight	Unknown	Total
2005	563	2053	5324	802	8742
2006	471	1850	4739	789	7849
2007	557	1916	5098	782	8353
2008	449	1698	4660	720	7527
2009	478	1765	4826	695	7764
2010	460	1654	4832	733	7679
2011	441	1651	4677	710	7479
2012	393	1540	4514	686	7133
2013	386	1412	4311	665	6774
2014	404	1515	4515	708	7142
2015	395	1499	4301	547	6742

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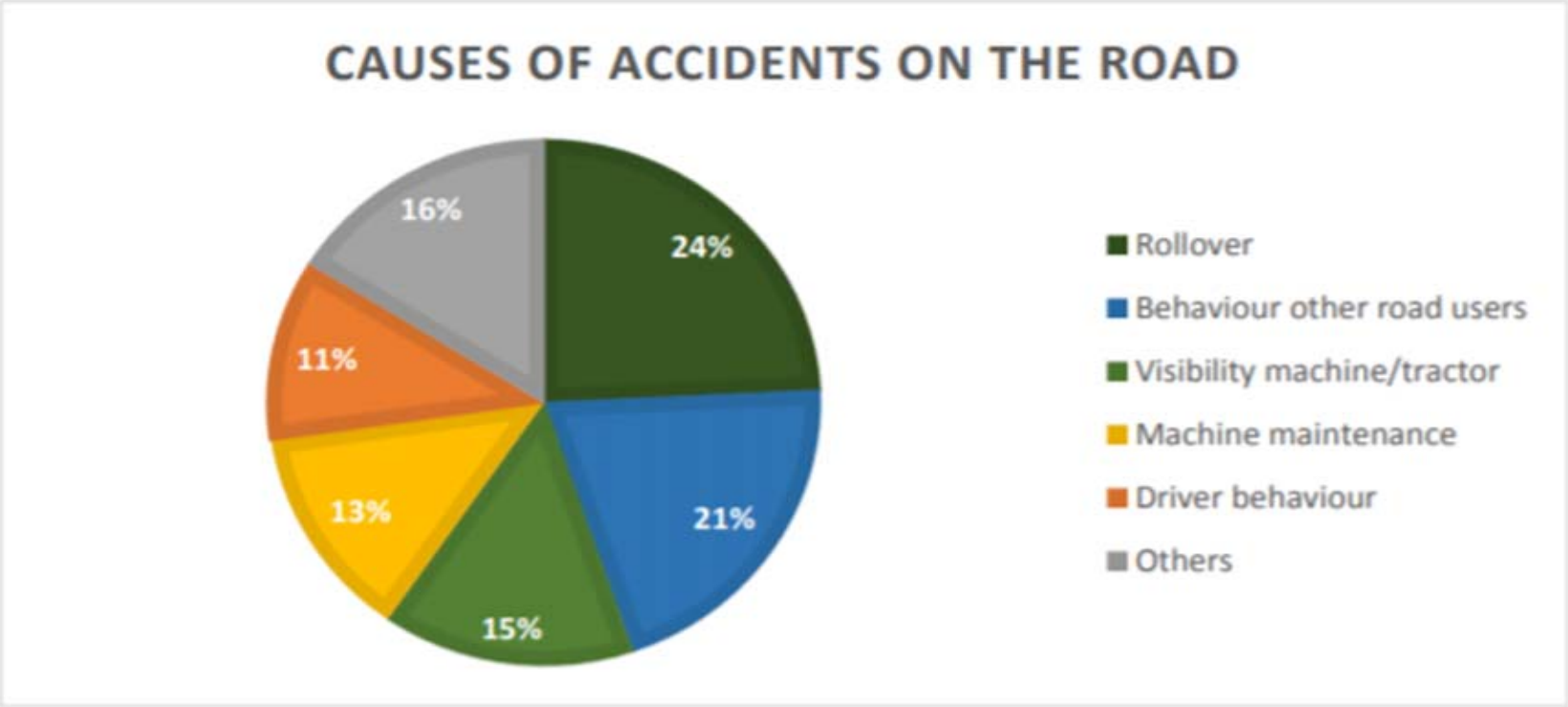
Causation Factors-CEMA Study 2017



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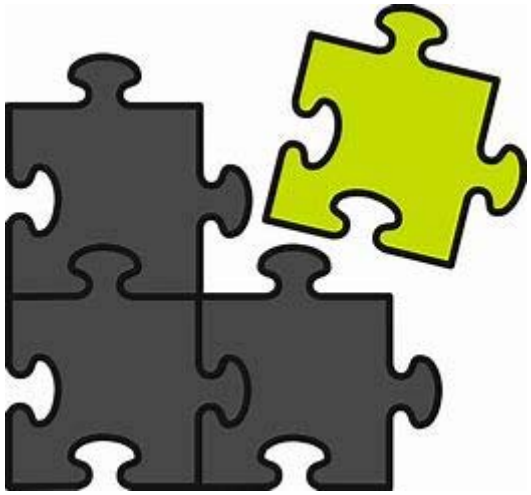
HOWEVER

THIS IS ONLY PART OF THE PICTURE



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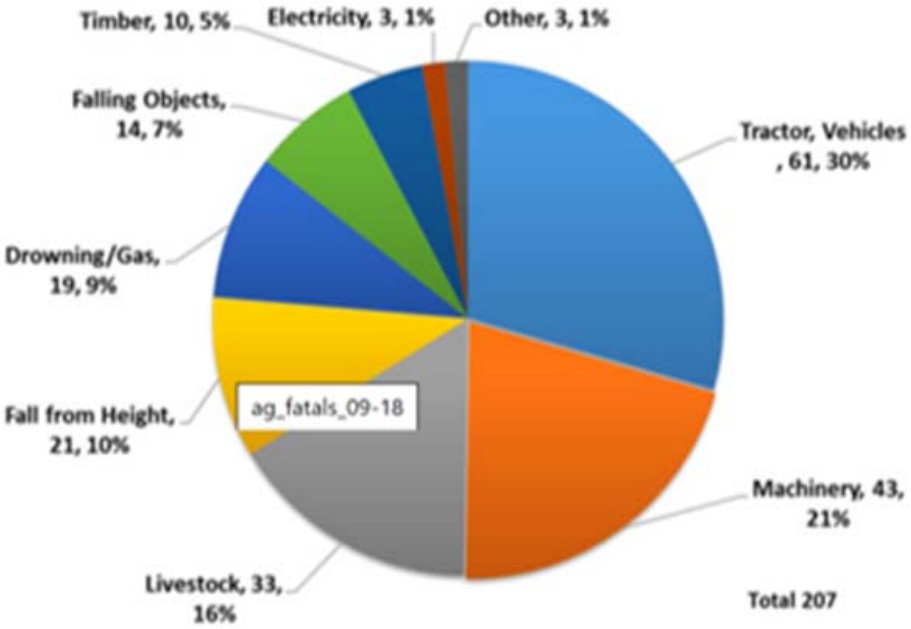
Case Study: Ireland



51% of Agricultural fatalities involved a tractor or associated machinery

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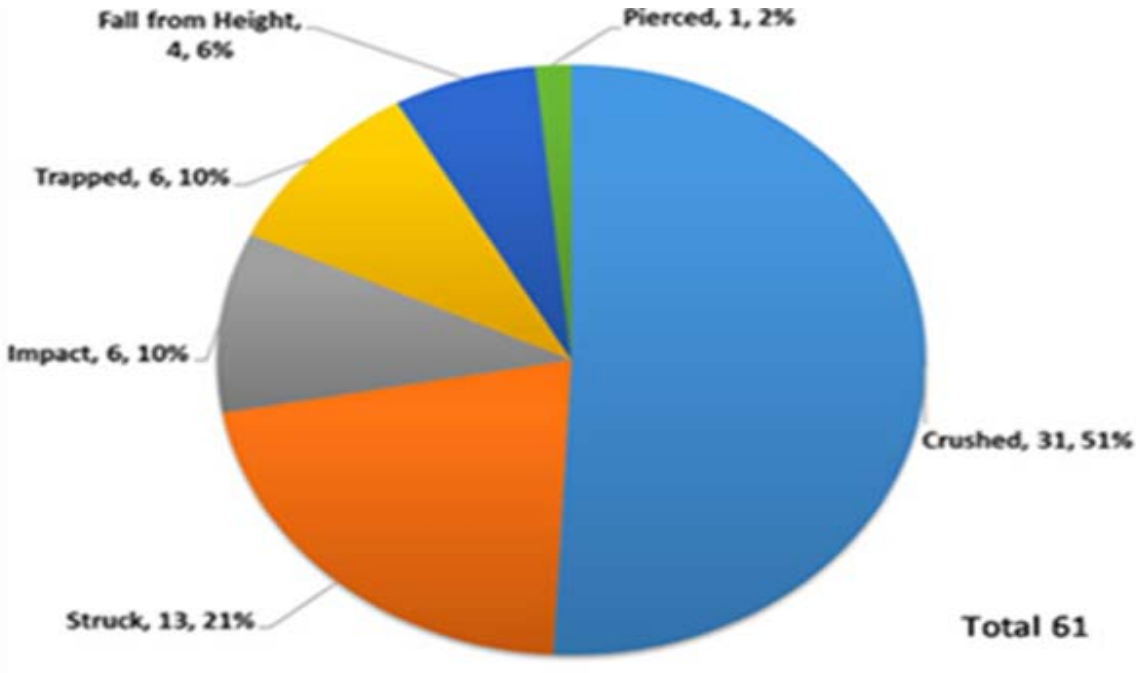
Incidents outside of the vehicle



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Requirement for Remote Activation of eCall

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Rollover-Both Pitch and Roll

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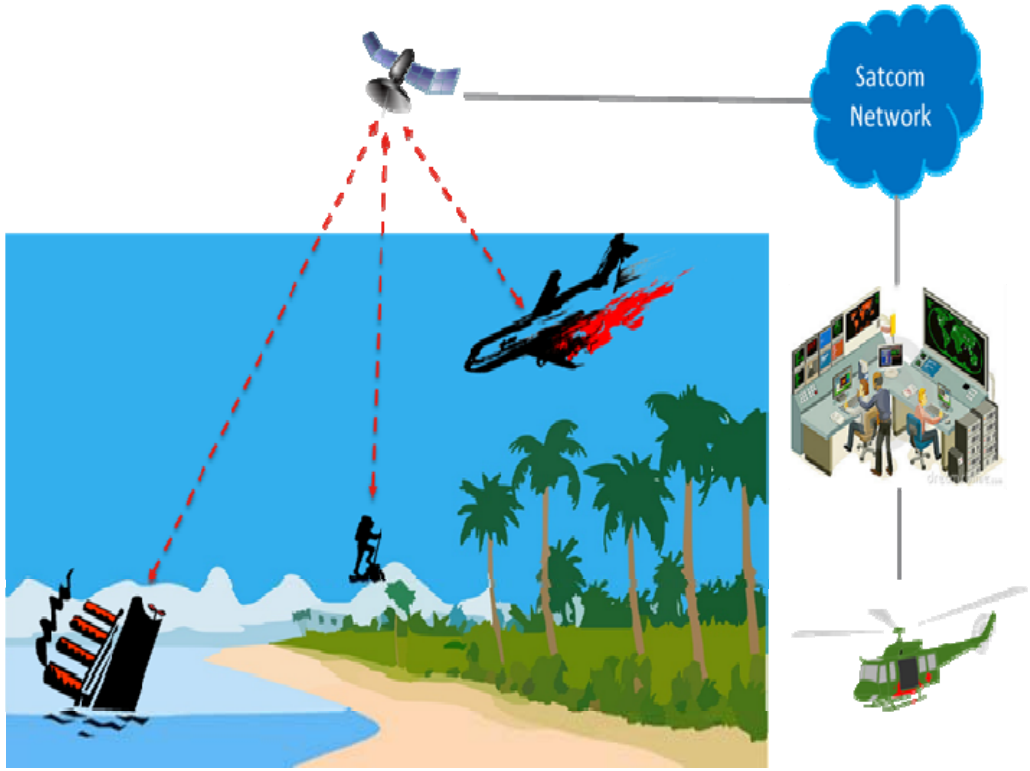
Communications-Remote Locations

Technical specification CEN/TS 17312 ‘eCall via Satellite’ (Jan 2019)

Co- Authored by Ashweeni Beeharee

“Key market areas-‘early’ adoption/use of this technology has been identified as Agricultural and forestry vehicles.”



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Summary

- Vast array of vehicle types within each category AND across vehicle use
- Potentially dangerous towed equipment attached to the main vehicle
- Very challenging terrain and operating environments
- Potential high volume of false calls from automatic eCall collison activation
- Issues with accurate automatic collision detection
  - Risk of death/serious injuries no-road to FAP Drivers/operators relatively low in the vehicle
- Issues of rollover (Both Pitch and Roll) due to challenging terrain leading to operator being trapped
- Issues of communications, due to lack of terrestrial coverage.
  - Satellite communications?
- Very real issue of fatality or serious injury when working around the vehicle and operating attached equipment

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Conclusions

- **Aftermarket eCall for Forestry. Agriculture and Plant Vehicles**
  - Automatic Rollover Detection included both Pitch and Roll
  - No automatic collision detection for aftermarket systems
  - Manual eCall functionality
  - Remote Activation of Manual eCall: Radius of 30m from the vehicle
  - Satellite communications option
- **Additional Elements**
  - Fuel type as part of MSD: Risk to Emergency Responders

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Thank you!

Questions?

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