Open Call Topic Proposal

SHORT TOPIC NAME
ISOBUS enabler

1 - SPECIFIC CHALLENGE **1.1 Problem and business need** Describe the challenge from a user point of view to be addressed by engaging external SMEs for a 6-month period. Max 600 words
Interoperability is one of the key challenges in agriculture, where interconnection between heterogeneous hardware and software systems plays a key role. The farmers are using machinery coming from different vendors, with their internal systems from another vendor (or multiple vendors covering different processes); which makes it hard to collect the data about machinery and integrate it with farmers systems. The goal is to enable different protocols and standards in the agri-food domain, talk to each other, by enabling machinery to interoperate with other machines and platforms. This would be possible if existing state of the art protocols for machinery (ISOBUS protocol stack) are analysed and appropriate software mapping mechanisms developed to enable collection and communication over ISOBUS protocol stack. The final outcome should be interoperability Gateway software component that implements ISOBUS protocol to cover both technical interoperability defining integration of hardware and software, and semantic interoperability by ensuring that standardised data formats are supported.
1.2 Interoperability challenge Identify and describe which systems needs to be made interoperable and by which solutions Max 600 words
Unfortunately the global agricultural industry has struggled to achieve a basic goal: make it easy for the various systems that a grower wants to use in their business “talk to each other” when it comes to a shared data format. eliminate the major pain points to broad use of precision agriculture data by easily enabling interoperability between different software and hardware applications. **The proposed technology will enable interoperability between different agriculture hardware, tools, and systems without any deep knowledge about the ISOBUS protocol.**

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2 - TOPIC JUSTIFICATION Why is that type of solution important to the DEMETER's ecosystem? Map the topic to the DEMETER project objectives. Max 300 words
DEMETER is focusing on interoperability as the main digital enabler, extending the coverage of interoperability across data, services, platforms, M2M communication, and online intelligence but also human knowledge, and the implementation of interoperability by connecting farmers, advisors and providers of ICT solutions and machinery. The ISOBUS enabler is important to DEMETER as it enable integration of various machinery to DEMETER framework and it will address the project objective for building knowledge exchange mechanism (O2) by introducing additional set of open standards. As the interoperability between different hardware and software systems is of paramount importance, such interoperability component will ensure seamless communication between hardware/ Machinery and software systems.

3 - TOPIC REQUIREMENTS

Identify, if necessary, the requirements that need to be met by the solution or SME in order to ensure the interoperability of the SME solution into Demeter's platform.
(E.g. Technology readiness level needed, use of open source, open standards, use of specific programming language, ethics requirements, security requirements, geographical requirements, data management requirements, intellectual property rights requirements, etc...)

Requirement type	Requirement description	Motivation
Technology readiness level	TRL6	The developed component should be demonstrated at least in one pilot (TRL6)
Source code availability (Open source, etc..))	Open source	Source code for the software should be made available over the DEMETER github
Standards (Open standards, etc..)	ISOBUS stack: -ISO 11783-3: Data Link Layer with PGN handling -ISO 11783-5: Network Management with any amount of working sets -ISO 11783-6: UT Working Set with AUX-N, Multilanguage and multi-mask support	ISOBUS stack has several layers. The component should cover at lest one or more ISOBUS standards that are necessary for smooth execution of the service

	-ISO 11783-7: Application Layer with the data-handling -ISO 11783-10: Task controller client (TC-BAS, TC-GEO and TC-SC) - ISO 11783-12: Diagnostic Services with Level-1 data - ISO 11783-13: File Server client	
Programming language	.NET, JAVA	
Ethics		
Security		
Geographical	/	
Data management	ISO 11783-10 ISOXML Tag;	
Intellectual property rights	GPL	
Other(s)	Experience in the transport domain, software development (API, edge)	

4 - DELIVERABLES

The supported SMEs will be engaged with DEMETER for a 6-month period of time, divided by three sprints of two months. At the end of each sprint, there will be an evaluation process based on deliverables. What type of deliverable should be submitted by the SME at the end of each sprint?
(E.g. Presentation; feasibility test, operational test, integration test, deployment test, training session, ...)
Max 300 words

1st Sprint (M2)
Specification of the requirements and the interoperability architecture for new DEMETER building block.

2nd Sprint (M4)
Implemented and validated API.

3rd Sprint (M6)
Final report.

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5 - EVALUATION Who, within DEMETER, should evaluate the submitted deliverables?
WP2-WP3

6 - RESOURCES PROVIDED BY DEMETER Describe the support activities or components that can be provided to the selected SME(s). E.g. Training, technical support, data sets, infrastructure access, in-site visit, ...	
Support Activity or Component	Within DEMETER, who provides the support or component?
Technical support, infrastructure access	WP2-WP3
In-site evaluation in one pilot during 2nd stage	Pilot with machinery available in scope of the planned work
Mentoring	1 partner from WP3

7 - EXPECTED OUTCOME Identify the expected result of the SME contribution E.g. Increased precision of ???, reduction in time of ???, Improved efficiency of ???, decreased consumption of ???, minimization of ???
Improved interoperability between different equipment and systems. Improved communication efficiency for legacy Machinery.

8 - CONTACT	
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