

# PhD Open Days



## Sustainable and Collaborative Agri-Food Supply Chains

PHD PROGRAMME IN ENGINEERING AND MANAGEMENT

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### MOTIVATION

**Sector Importance and fragmentation** | Agri-food sector comprises 4,1% of Portuguese GDP translated in more than 11.000 companies involved in the entire chain.

**Complex and desynchronized Supply Chain** | The urgency of forward and reverse Supply Chain flows integration.

**Food Waste** | 88 million tons of food are wasted each year across the European Union.

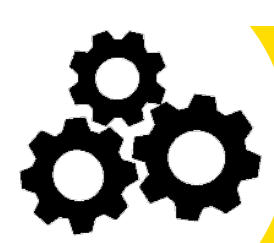
### OBJECTIVES

**Sector and Supply Chain characterization** | Collection of the motivations, requisites and restrictions of the interested parties. Analysis of the sector specifications. Study of the European guidelines for sustainable Supply Chains.

**Development of a sustainable and Collaborative management methodology** | Outlining a decision support methodology with the purpose of fulfilling the tactical, operational and strategic goals jointly defined.

**Collaborative Supply Chain Monitoring** | Design and development of a collaborative dashboard to share and monitor, in real time, the comprehensive set of joint selected Key Performance Indicators. Quantification of economic, social and environmental gains.

### METHODOLOGY



#### METHODOLOGICAL PRIMARY STEPS

1. Agri-food sector characterization with the identification of the sector's motivations; restrictions; requirements; challenges and possible collaborative opportunities to implement. Identify and share the best practices available in the sector.
2. Tool development for holistically map the Supply Chain. This innovative tool intends to add value to the existent scientific literature.
3. Literature review on Collaborative Supply Chain Management with the intention of conceptualize this unexplored and non-well defined concept. Methodology framework proposal that supports the integrated and collaborative management of the logistics processes of the different stakeholders.
4. Literature review and analysis on the pertinent key performance indicators capable of assessing the Supply Chain sustainable performance, evaluating the three dimensions of sustainability (economic, environmental and social). Joint selection of KPIs to monitor.
5. Development of a collaborative dashboard to share vital information to ensure the long-term collaborative relationship. This dashboard will be a decision support tool helping the companies when deciding for collaborative and sustainable opportunities to implement in the chain, comparing the initial situation with a future one.
6. Validation and implementation through case studies.

### CASE STUDY

The methodology will be applied, for validation, to a set of Portuguese stakeholders with distinct roles in the Supply Chain. As case study the methodology will be followed and implemented to two different categories: (1) fruits and vegetables and (2) meat

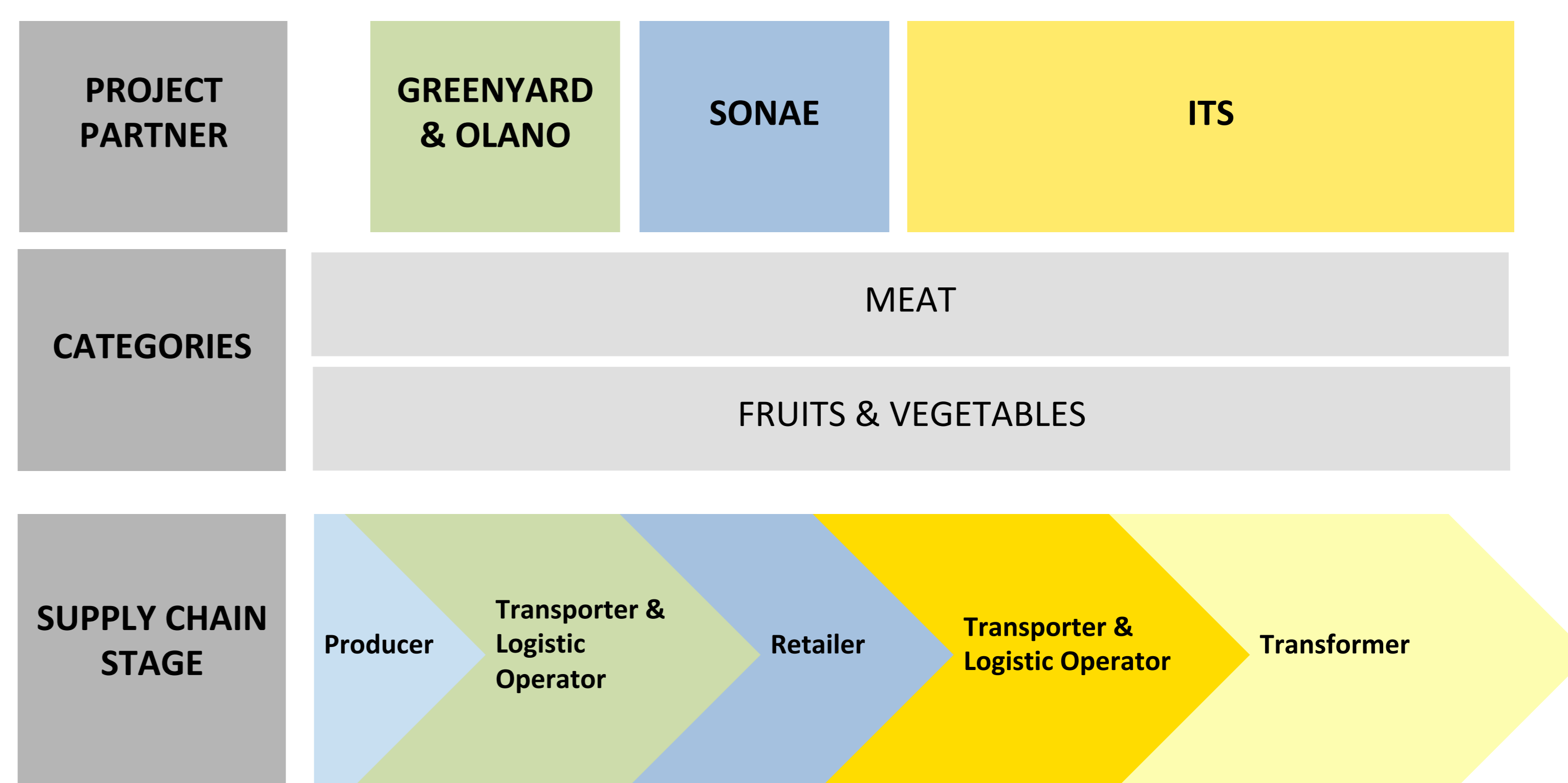


FIGURE 1: Summary description of the project

### EXPECTED DELIVERABLES

**Development of a sustainability matrix** | Sector Characterization and Stakeholders' listing – relate each supply chain level with the respective requirements, challenges and collaborative opportunities.

**Holistic Supply Chain Mapping** | Generic; agile; standard and easy-to disseminate tool for mapping the chain in terms of processes, information sharing and temporal requirements, such as lead-times.

**Design of a collaborative methodology** | Study and development of a valuable management tool so as to guide companies to implement a collaborative and sustainable supply chain management.

**Dashboard Development** | Tool to promote the continuous monitor and improvement of the collaborative and sustainable relationship.

**Methodology Validation** | Application to a real case study and future adjustments and recommendation so as to be adapted to other sectors.

**Promotion of the accomplished results** | Scientific papers publication; conferences submission and participation, and PhD theses.

### ACKNOWLEDGEMENTS

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