

## A framework for the management of research and innovation projects: mission impossible?

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### The research problem:

- Success or failure of contemporary R&I endeavours is strongly linked to the project management practices adopted by institutions and teams in the collaborative and “open” context under which new knowledge and technologies are nowadays developed.
- R&I projects substantially differ from “traditional” projects and are characterized by high uncertainty, high contextual complexity, and high stakeholder heterogeneity.
- There is a need for “simple”, flexible and lean R&I project management frameworks.

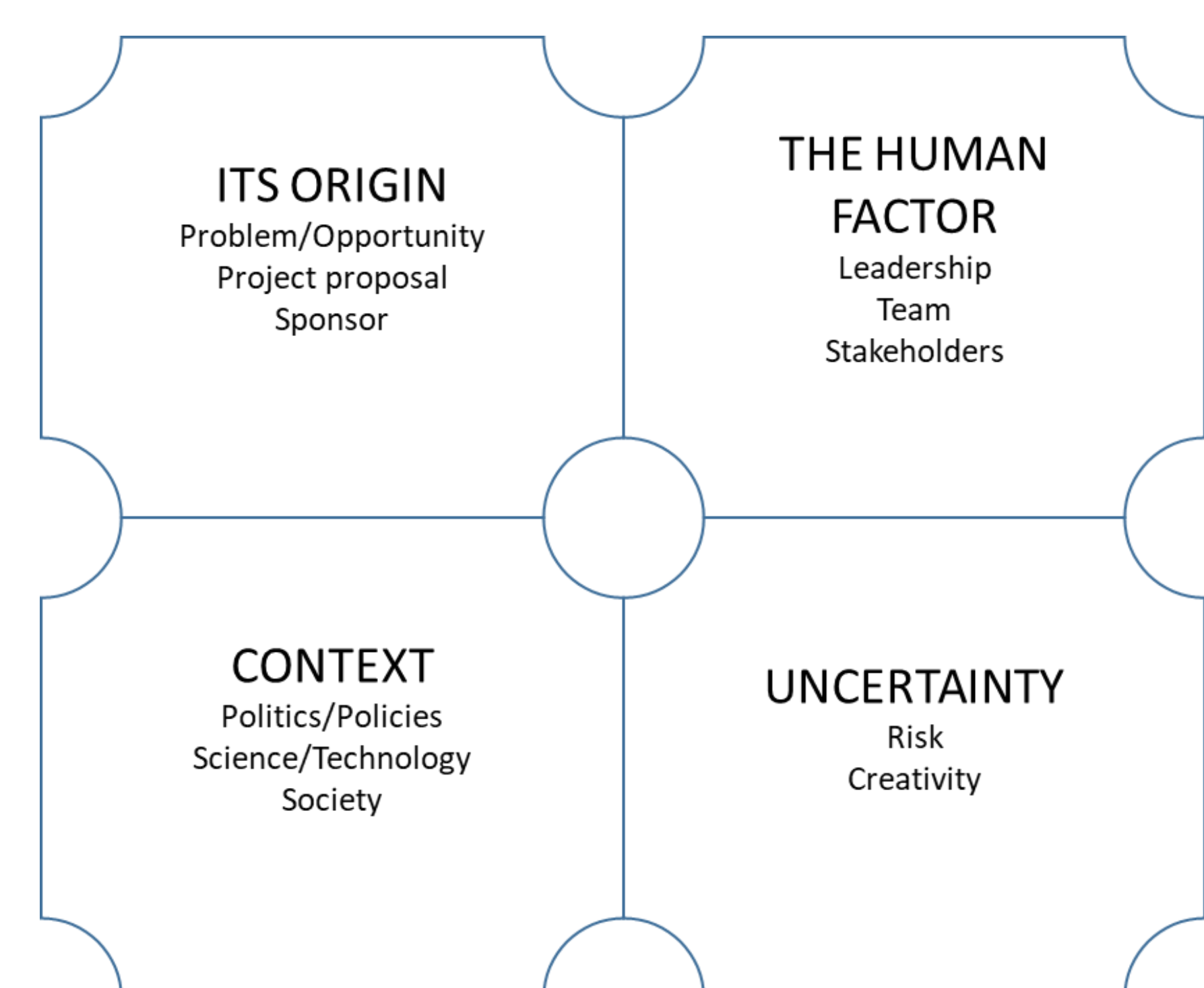
### Methodology:

- 1) Literature review on R&I processes and on project management;
- 2) Action research and participatory observation based on management of “ValorNatural”, a large-scale R&I project dealing with the development of new natural ingredients for the food industry.

### Key characteristics of ‘standard’ project management approaches

	PMBOK	PRINCE2	Agile	Logical Framework
Facilitate clarity of project scope and goals	Project charter	Business case	Flexible project scope.	Short and medium term outputs, long term goal.
Based on standards but adaptable	Yes	Yes	Yes	Yes
Scalable, flexible	Yes, but need to be implemented at higher levels of the work breakdown structure in large, complex projects	Yes, but need to be implemented at higher levels of the work breakdown structure in large, complex projects	Yes, but need to be implemented at lower levels of the work breakdown structure in large, complex projects	Scalable, but difficulties when adapting to high uncertainty projects (e.g. variable outputs)
Model the project workflow	Standardized: Initiating, Planning, Executing, Monitoring and Controlling and Closing	Standardized: Starting Up, Directing, Initiating, Controlling a stage, Managing product delivery, Managing stage Boundaries, Closing a project	Flexible, Iterative: Plan, Sprint, Ship, Repeat	Standardized: ‘Logframe’
Provide tools, techniques, templates	Templates and checklist available.	Templates and checklist available.	Available, although kept to a minimum	‘Logframe’
Provide a project ‘board’ or similar role	Specific knowledge area for project integration management	Specific processes group for directing a project.	Self-organizing project team	Graphic nature implies transparency of management.
Ensure adequate risk management	Specific knowledge area for risk	Management of risks is a key element	Specific tools and techniques (e.g. ‘Risk Burndown Chart’) Extensive communication, focused on team work, although weak formal knowledge management.	Identifies critical assumptions and risks
Facilitate organizational maturity, learning	Specific processes in the ‘closing’ phase	Specific processes in the ‘closing a project’ phase		Documented ‘Logframes’

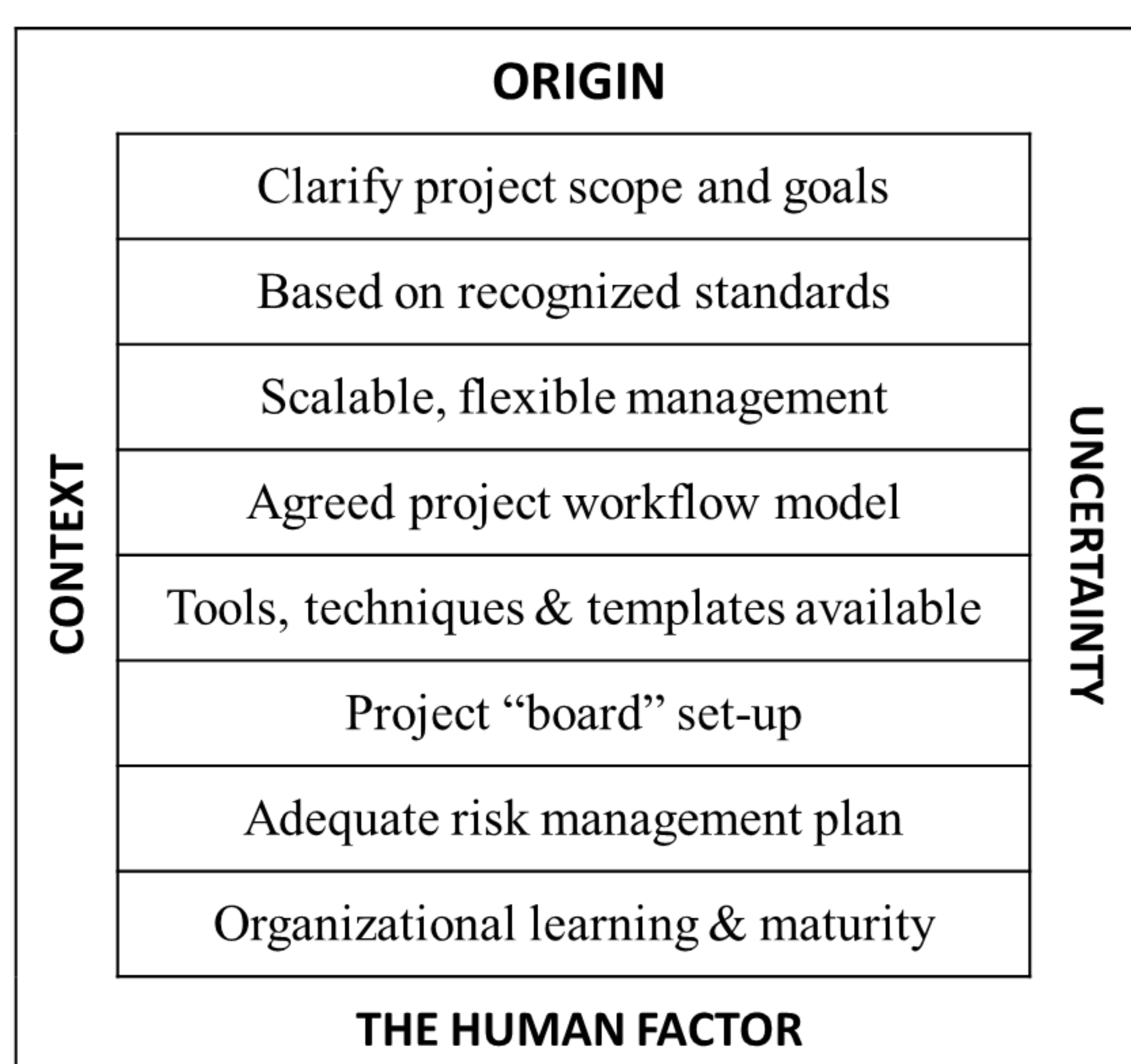
### Schematic representation of key specific characteristics of R&I projects



### Application of the proposed R&I project management framework to ValorNatural

Key characteristic	How it is addressed in the case study
<b>At the R&amp;I activity level</b>	
Origin	Industry-driven, multi-stakeholder, sponsored by P2020
Context	Set at the project charter, managed at the project board and at the advisory board.
Human factor	Project leader is an industrialist, scientific coordinator is a leading scientist, project manager is a certified project management professional. Stakeholders involved in the advisory board.
Uncertainty	Use of a risk register, managed at the project board and at the advisory board. Formal procedures kept to a minimum.
<b>At the project management level</b>	
Clear project scope and goals	Project charter
Based on standards	PMBOK
Scalable, adaptable	Formal procedures kept to a minimum
Project workflow model	Procedures manual
Tools, techniques, templates	Procedures manual
Project ‘board’	Project board
Risk management	Risk register
Organizational maturity, learning	Meetings, reports, lessons learned

### Proposed R&I project management framework



### Conclusions & Future Work:

- A conceptual framework for a tool which can help research managers and administrators in facilitating the successful development of R&D initiatives is proposed.
- It seeks to provide a structured, comprehensive overview of key pillars that should underpin the development and implementation of project management to R&I endeavours.
- The usefulness of this framework to the research management and administration profession is centered on its usability as an effective planning tool, that facilitates the incorporation of best practices in the highly heterogeneous contexts of contemporary R&D endeavors.
- Future work: validation of the proposed framework by increasing (a) the number and diversity of case studies, namely R&I projects from different subject areas (e.g. Humanities, Life Sciences, Social Sciences); (b) implementation contexts (e.g. basic research vs applied research); and (c) locations (e.g. other European countries, as well as beyond Europe), exposed to different cultures, practices and perceptions.

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