8TH INTERNATIONAL WILDLAND FIRE CONFERENCE | GOVERNANCE PRINCIPLES: Towards an International Framework

Risk communication effectiveness to mitigate human-caused rural fires:

the mental model approach applied in two European Union projects

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Lisb@20 20 COMPETE 2020 PORTUGAL 2020

Introduction

- Fire is a traditional land management practice, despite the high risk of rural fires due to climate change and fire misuse.
- Researchers have sought to understand the key features of communication practices to improve rural fire risk management.
- In the past, the term “risk communication” was considered a one-way process of disclosing messages in which experts assumed the role of transmitters and, laypeople recipients of messages.
  - One-way **messages** within the scope of risk communication began to be understood as **too limiting.**

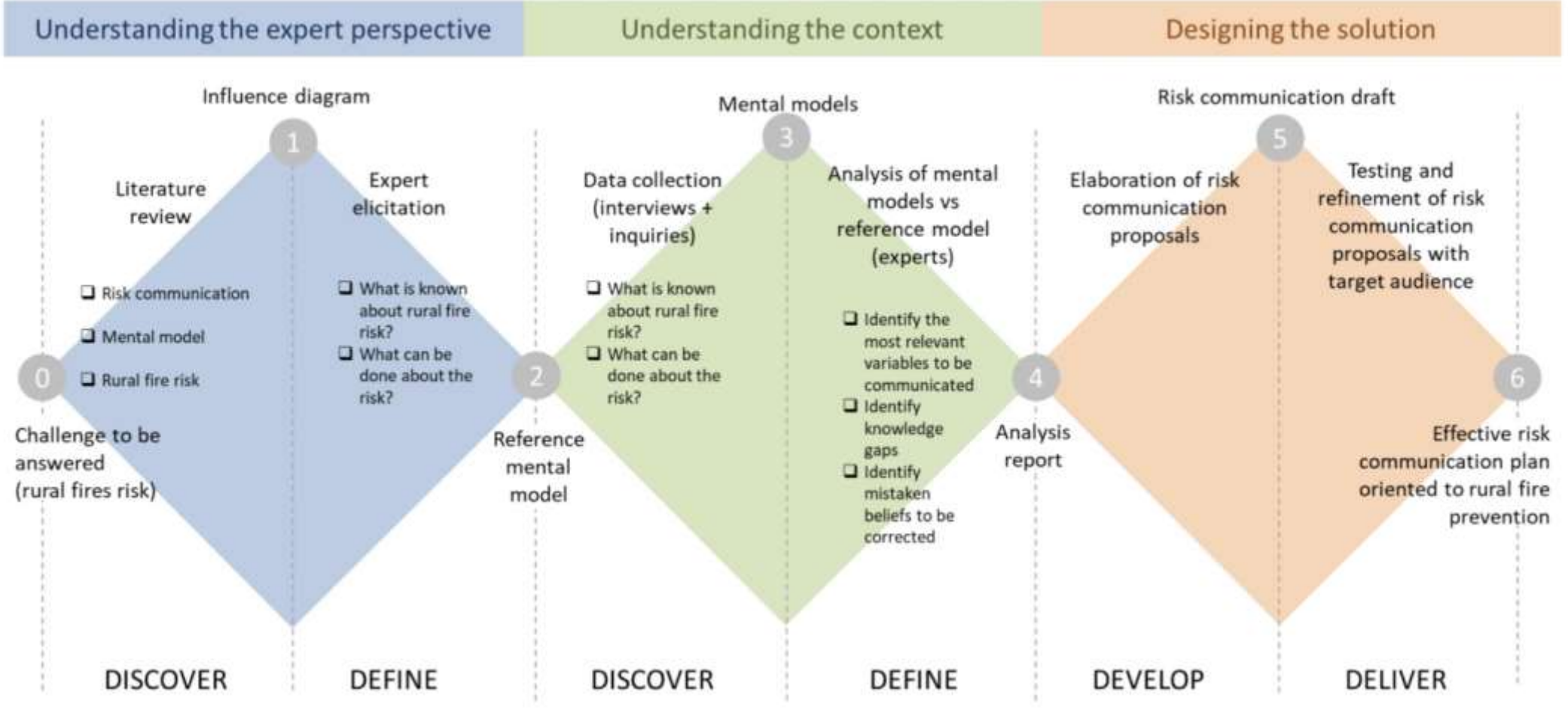
Introduction

- According to the Committee on Risk Perception and Communication (1989), risk communication is defined as "***an interactive process of exchanging information and opinions between individuals, groups, and institutions***".
- For Morgan et al. (2002), communication's purpose is to provide lay individuals with the information necessary for them to be *capable of making independent and informed decisions about risks* in the field of health, safety, and the environment.
  - there is a ***need for dialogue*** between the responsible for communication and the set of stakeholders (Palenchar, 2005).
  - stakeholder participation improves the quality of decision-making and avoids harmful confrontations between the entities and the community (Renn, 2010).

Objective

This study aims to **demonstrate the applicability of the mental model approach** to *improve risk communication effectiveness* to *reduce accidental fire ignitions* caused by traditional burning and leisure activities in the wildland-urban interface.

Method: Carnegie Mellon mental models approach



*improve risk communication effectiveness to reduce accidental fire ignitions caused by…

Application

- This systemic approach is being applied in two projects:

rePLANT

July 2020 | June 2023
European Regional Development Fund
National consortium of *20 partners*
5.601.873,10 EUR

forestwise utad UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO REN

increase sustainable forest management, the competitiveness of the Portuguese forestry sector, and reduce the impact of rural fires

traditional burning

FIRE-RES

December 2021 | December 2025
European Horizon 2020 research and innovation programme
European consortium of *34 partners from 13 countries*
19.896.326,62 EUR

forestwise INSTITUTO SUPERIOR DE AGRONOMIA Universidade de Lisboa CTFC SCIENCE FOR FOREST MANAGEMENT, BIODIVERSITY & BIOECONOMY Change the future, today

develop a holistic and integrated fire management strategy to efficiently and effectively address Extreme Wildfire Events in Europe in 11 Living Labs

leisure activities in the wildland-urban interface

Applicatior rePLANT

Understand the expert perspective

Start

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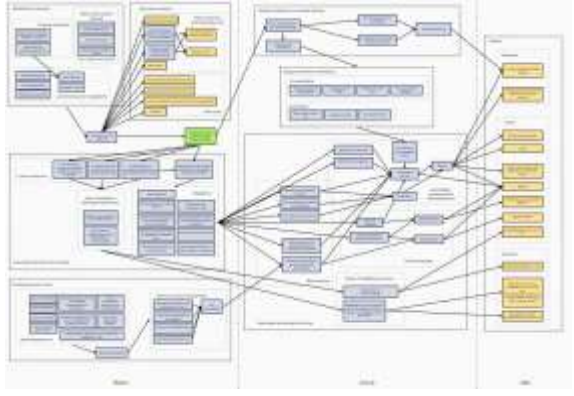
Expert elicitation

28 participants

TOTAL ≅ 39 hours



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Application rePLANT

Understand the expert perspective

Start

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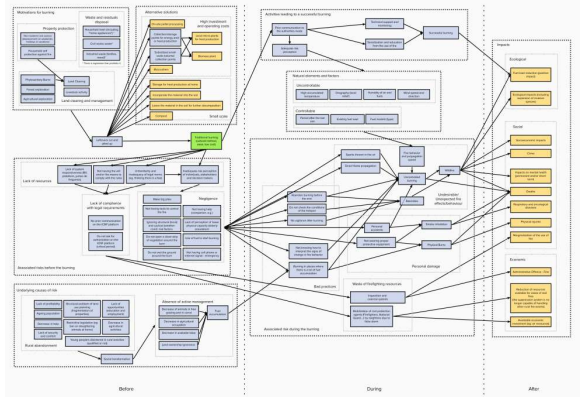

Expert elicitation

28 participants

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ICNF · AGIF · GNR · UEPS

Understand the context

Focus group 20 participants

Forest and agricultural owners;

Residents and agricultural producers

Application rePLANT

Understand the context

On-site visits and observations

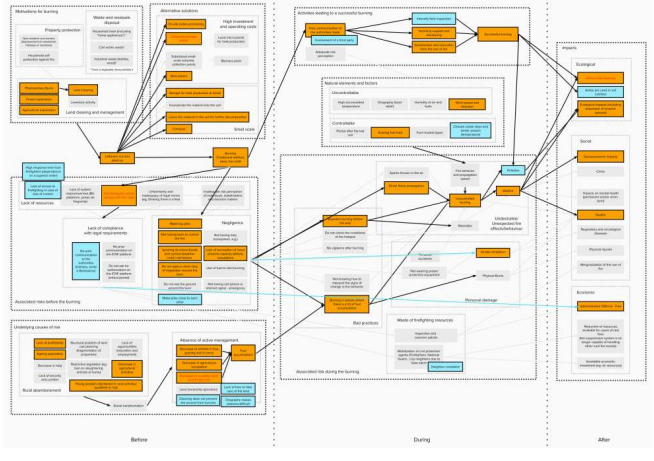
Recarei e Sobreira

Application rePLANT

Understand the context

On-site visits and observations

Recarei e Sobreira



Individual interviews (laypeople)

15 participants

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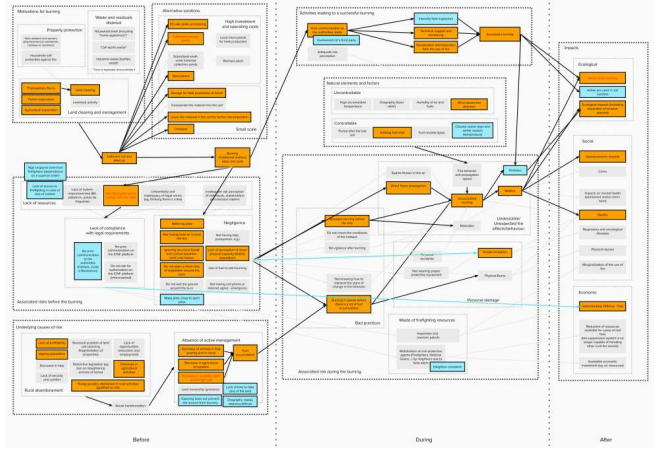
Understand the context

On-site visits and observations

Recarei e Sobreira



Individual interviews (laypeople)

15 participants

Survey (data validation)

≅ 130 responses

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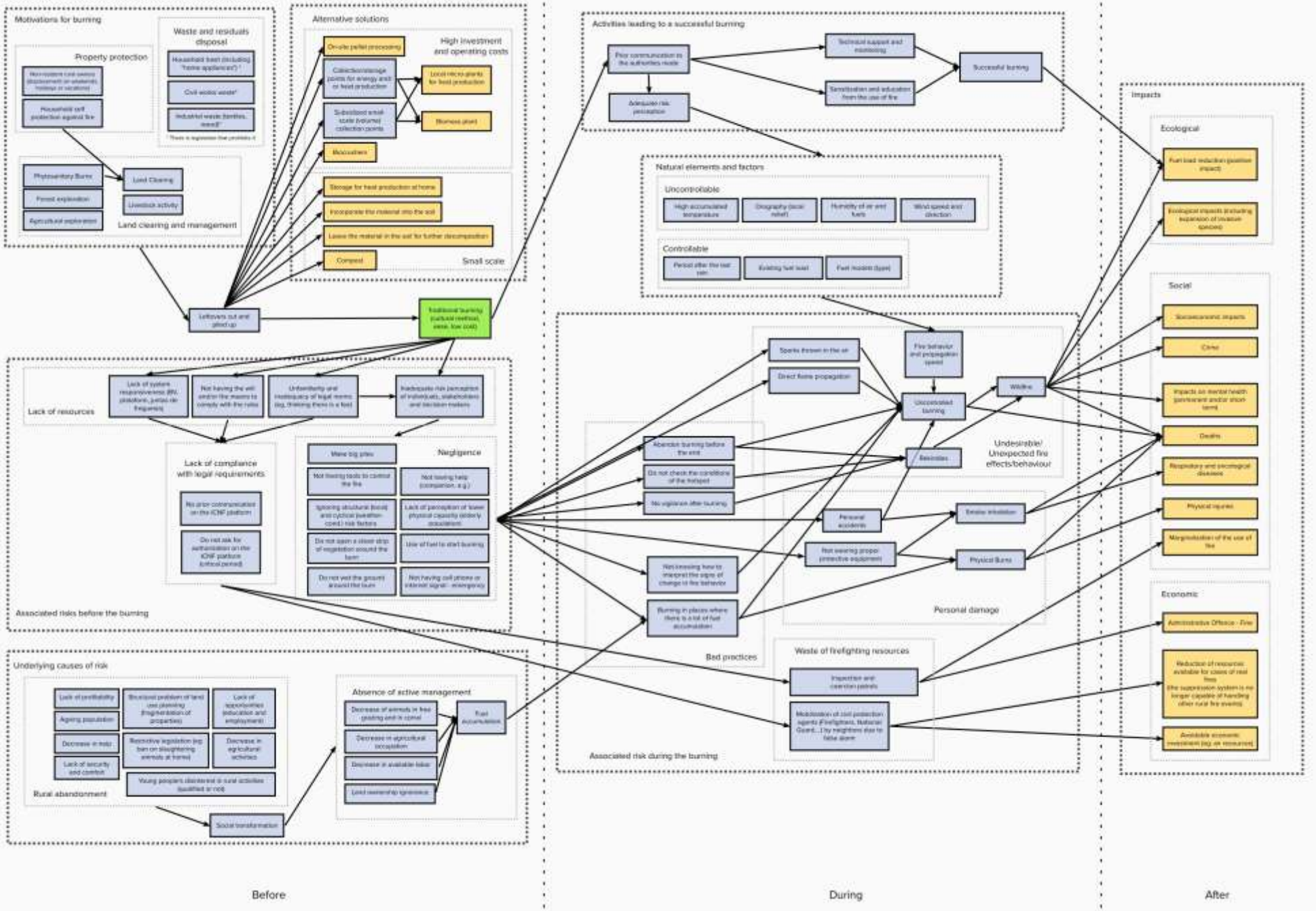

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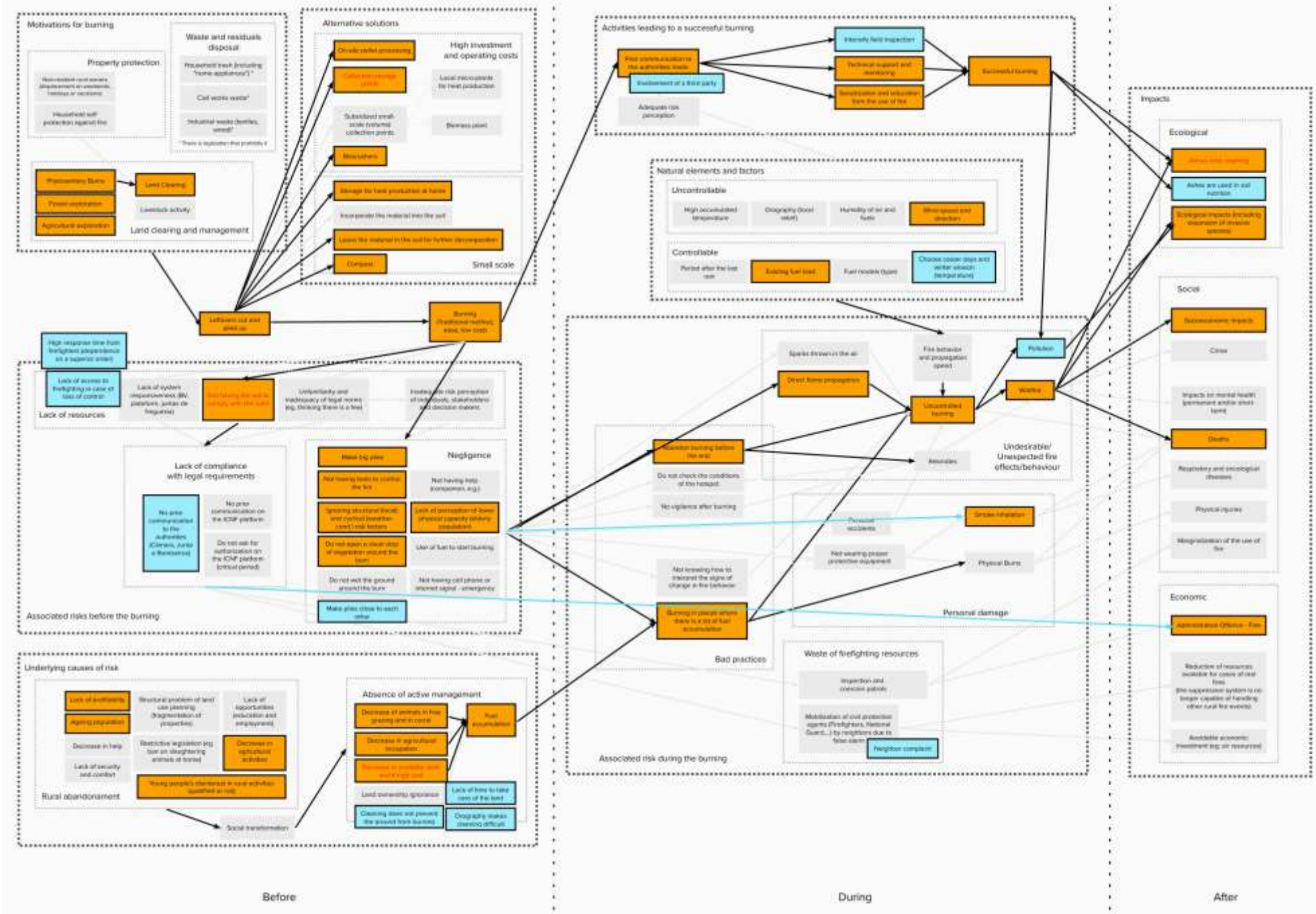

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Design the solution

From the comparison between two different perspectives (expert vs. rural population) and with the support of thematic analyses, this study identified gaps of knowledge, mistaken beliefs, and the most relevant factors to be communicated.

Preparation of risk communication proposals

End

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Application FIRE-RES

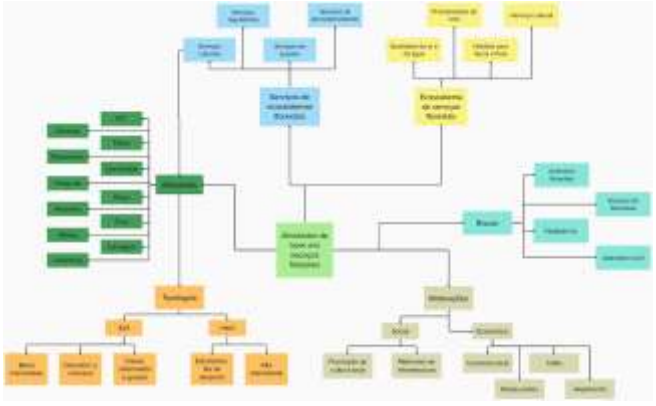
Maria Inês Costa Lago
Research student at Master in Services Engineering and Management (FEUP)

Understand the expert perspective

Start
FIRE-RES

Initial mental model
(based on the literature review)

✓ Leisure activities in forest areas



Expert elicitation (Current situation)

Concluded "expert" interviews (n=6)

2B FOREST
Cinfães
municipio de lousada
VALSOUSA
ASSOCIAÇÃO DE MUNICÍPIOS DO VALE DO SOUSA

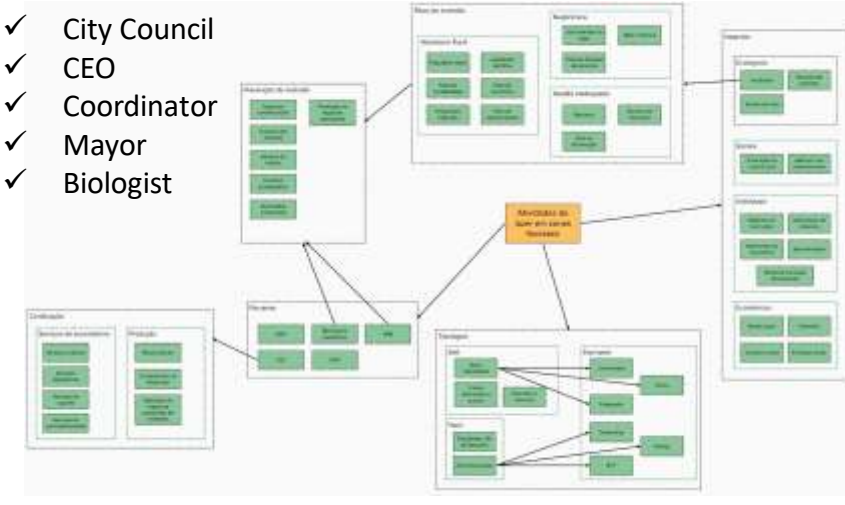
Ongoing "expert" interviews (n=6)

SERRAS DO PORTO
AMARANTE
montis
TURISMO DE PORTUGAL

NVIVO

Data analysis (ongoing)
Transcription and codification

- ✓ City Council
- ✓ CEO
- ✓ Coordinator
- ✓ Mayor
- ✓ Biologist



Next steps

- Understand the context (laypeople)
- Design the solution

Conclusions

- Overall, this study helps decision-makers and stakeholders to
  - explore the underlying reasons for resistance to behavioral change
  - refine the risks communication goals
  - and define guidelines to support the design of new risk communication strategies

- Hopefully, a contribution to mitigating human-caused rural fires by disseminating new behaviors and practices.

Acknowledgments

The authors would like to thank **rePLANT's project PPS2 workgroup** for the insightful discussions, and its leadership, for steering us in the right direction. The authors also gratefully acknowledge **all actors interviewed** who have shared their knowledge and contributed to the systematization of this mental model.

This work was supported by **European Regional Development Fund** (POCI-01-0247-FEDER-04608) through a project called rePLANt - Implementation of collaborative strategies for integrated forest and fire management.

This work was supported by work was supported by **European Horizon 2020 research and innovation programme** under grant agreement nº 101037419, through a project called FIRE-RES - Innovative technologies and socio-economic solutions for fire-resistant territories in Europe.

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Thank you!

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