Research Impact Assessment: R&D Program for wildfires prevention and fighting

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SCOPE & AIMS

🎯 The R&D Program's mission is to fund applied research to problems related to wildfires prevention and fighting, as well as, to reinforce communities' safety

🎯 FCT – CoLAB ForestWISE structure, with collaboration from other entities (e.g., AGIF, ANI), to support the projects in maximizing research impact

Aim: To present the methodological framework for research impact assessment, focused on the pathway to impact, and its implementation to projects funded in 2017, under the scope of the R&D Program

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RESEARCH IMPACT ASSESSMENT CHALLENGES

🎯 **Time**: the period needed to assess the benefits generated by research is hard to predict

🎯 **Link between research and benefits:** relation between input, output, and impact is complex and not always objective

🎯 **Measuring impact:** lack of harmonized methodology

🎯 **Cost-benefit analysis:** public investment accountability needs medium and long-term assessment

🎯 **Researchers limited influence:** possible gaps between public agenda, private sector timings and research

RESEARCH IMPACT ASSESSMENT ADDITIONAL CHALLENGES: R&D PROGRAM

- Three calls – 2017, 2018 & 2019 - projects in distinct development stages

- Projects were still ongoing, which led to a focus on pathways to impact

- Projects in different scientific areas, addressing distinct objectives and dynamics

- Research strongly affected by the COVID-19 pandemic situation

METHODOLOGICAL FRAMEWORK

For what?
- Promotion of results and benefits
- Accountability
- Analysis and integration in future R&D strategies
- Allocation

Object of analysis?
- Projects and R&D Program
- Focus on the results and impact
- Scientific areas
- Impact typology

With whom?
- Funding entities
- Researchers
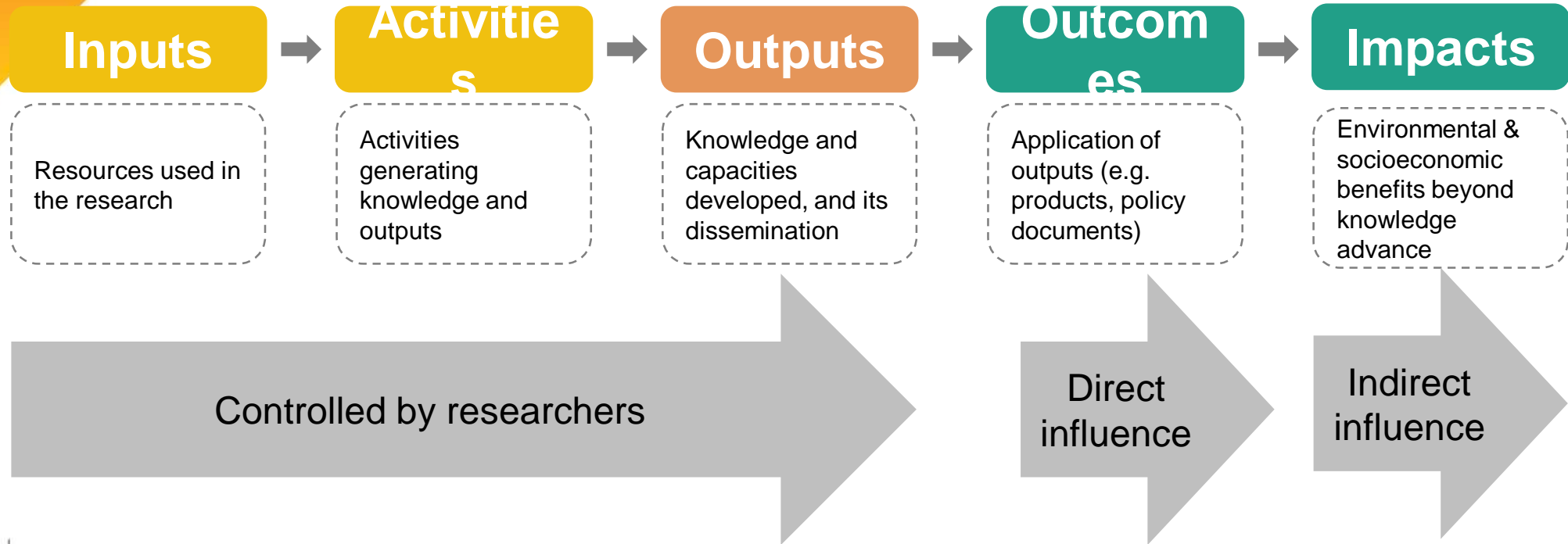- Stakeholders and partners
- End-users

Methods and techniques?
- Collection of information
- Productive interaction
- Indicators (ex-post assessment)

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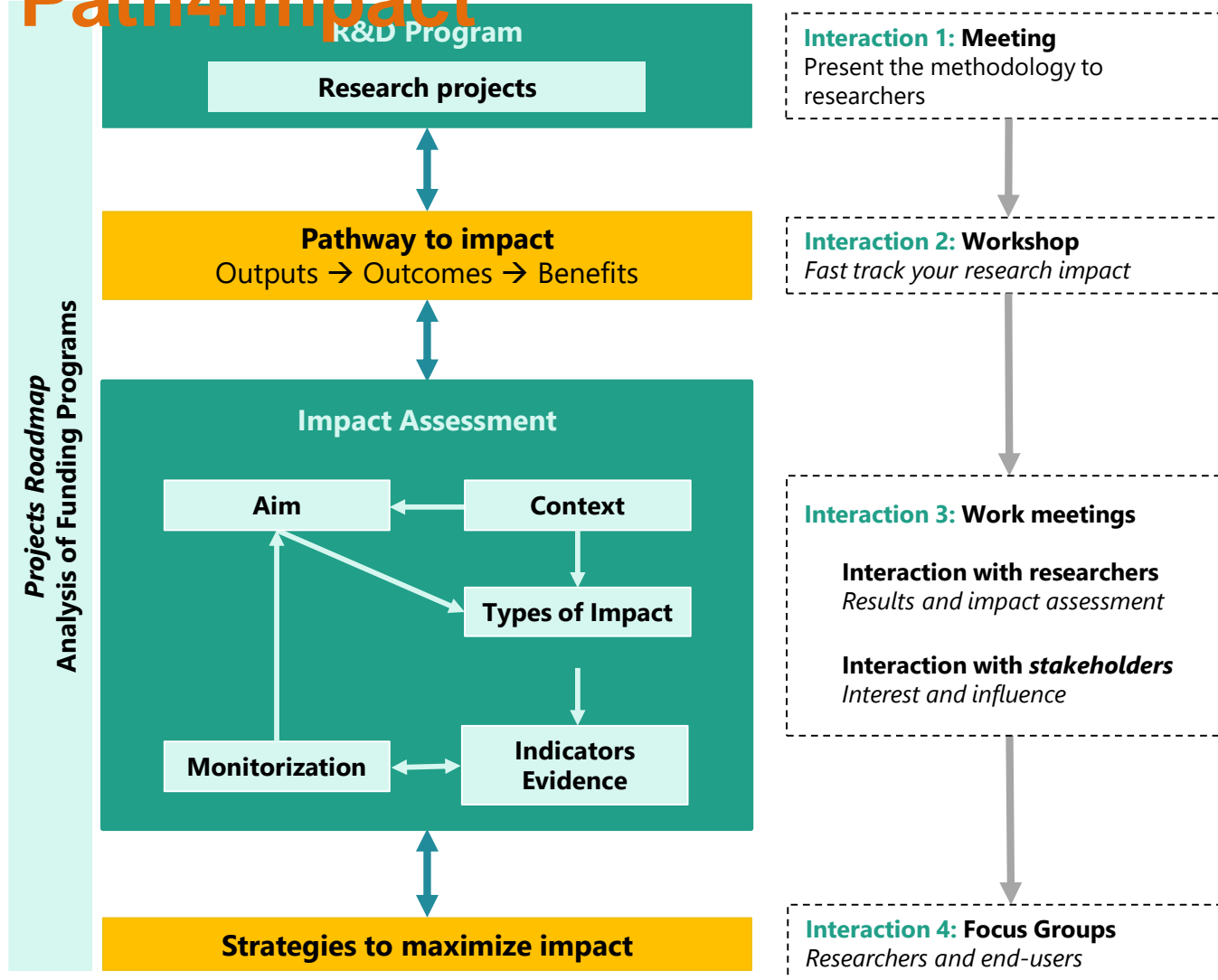
METHODOLOGICAL FRAMEWORK

Inputs → **Activities** → **Outputs** → **Outcomes** → **Impacts**

Inputs	Activities	Outputs	Outcomes	Impacts
Resources used in the research	Activities generating knowledge and outputs	Knowledge and capacities developed, and its dissemination	Application of outputs (e.g. products, policy documents)	Environmental & socioeconomic benefits beyond knowledge advance

Controlled by researchers

Direct influence

Indirect influence

Adapted from:
Fryirs et al., 2019. Engaging with research impact assessment for an environmental science case study, Nature Communication 10: 4542.
MBIE, 2019. The Impact of Research. Position Paper. New Zealand Government.
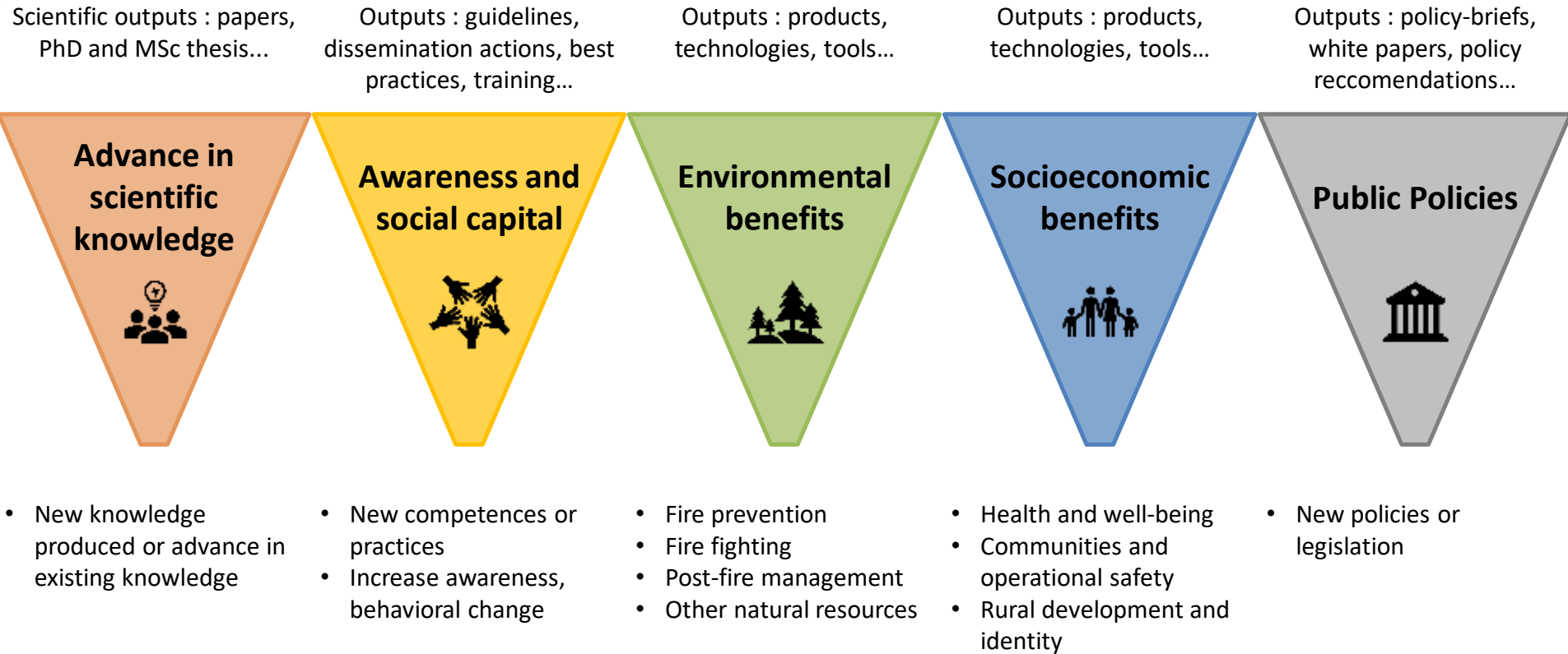
METHODOLOGICAL FRAMEWORK:
Path4Impact

R&D Program

Research projects

Pathway to impact
Outputs → Outcomes → Benefits

Impact Assessment

Aim

Context

Types of Impact

Monitorization

Indicators
Evidence

Strategies to maximize impact

Projects Roadmap
Analysis of Funding Programs

Interaction 1: Meeting
Present the methodology to researchers

Interaction 2: Workshop
Fast track your research impact

Interaction 3: Work meetings

Interaction with researchers
Results and impact assessment

Interaction with *stakeholders*
Interest and influence

Interaction 4: Focus Groups
Researchers and end-users

Adapted from:
Reed et al., 2021. Evaluating impact from research: A methodological framework. Research Policy 50(4): 104147.

IMPACT TIPOLOGY

Scientific outputs : papers, PhD and MSc thesis...

Outputs : guidelines, dissemination actions, best practices, training...

Outputs : products, technologies, tools...

Outputs : products, technologies, tools...

Outputs : policy-briefs, white papers, policy reccomendations...

Advance in scientific knowledge

Awareness and social capital

Environmental benefits

Socioeconomic benefits

Public Policies

- New knowledge produced or advance in existing knowledge

- New competences or practices
- Increase awareness, behavioral change

- Fire prevention
- Fire fighting
- Post-fire management
- Other natural resources

- Health and well-being
- Communities and operational safety
- Rural development and identity

- New policies or legislation

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RESULTS – PROJECTS PCIF 2017

Cluster 1: Landscape planning and management scenarios and models
4 projects

Cluster 2: Biomass valorization and management in a rural context
2 projects

Cluster 6: Occupational health and safety of population
2 projects

Cluster 3: Meteorology, fire behavior, and risk management
3 projects

Cluster 5: Adaptation and post-fire recovery
3 projects

Cluster 4: Sensing and information systems
4 projects

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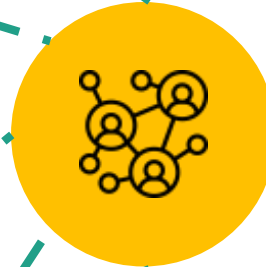
INTERACTIVE PRODUCTION - STAKEHOLDERS

NEEDS & STRATEGIES TO MAXIMIZE RESEARCH IMPACT

Further R&D

- Research lines stability

- Results scale-up and increase TRL

- Better adjustment to real contexts and operational needs

- Platforms and applications

- Continuous, stable and diversified funding sources

- Research co-design and engage stakeholders in the research process

- Intensify collaborative projects, between research units, public entities, private sector and technological partners

NEEDS & STRATEGIES TO MAXIMIZE RESEARCH IMPACT

Validation in operational context

- Identify and engage the 'right' stakeholders

- Increase confidence in the results

- Allocate resources of the operational entities

- Engage end-users in the research process (proposal co-design)

- Promote the use of historical data, provided by the operational entities

- Specific funding sources to test and validate results in the operational context

NEEDS & STRATEGIES TO MAXIMIZE RESEARCH IMPACT

Dissemination and capacitation

- Increase public awareness on emergent thematics

- Ensure adequate resources for results dissemination, beyond project funding

- Training

- Generate a common platform to disseminate R&D Program results

- Reinforce demonstration activities (e.g., field days) to key-stakeholders and opinion leaders

- Engage with stakeholders and end-users to develop further dissemination and training

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NEEDS & STRATEGIES TO MAXIMIZE RESEARCH IMPACT

Acceptance and adoption

- Increase perception on the benefits of incorporating research results

- Integrate the information and results in the decision-support systems already in

- Plan and guarantee resources to ensure knowledge and technology transfer

- Harmonize language, processes and methodologies between academia, public and private sectors

- Increase data sharing and open access

FUTURE PATHS | APPLIED R&D PROGRAMS

🎯 **Science with impact:** enhance the role of science towards societal benefits, by designing an impact plan together with potential end-users

🎯 **Multi-stakeholder engagement:** customize and empathize with the research network and increase practices of research co-design and co-development

🎯 **Research Impact Assessment:** monitoring of the benefits generated by the research and better communication of the research impact

🎯 **Closing the gap:** find interface structures able to enhance knowledge and technology transfer and bridge the gap between academia and society

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Thank you!

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