Conceptual model to assess universities' contribution to regional sustainable development

ERSA Congress 2018, 30th August 2018, Cork

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Outline

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4. Conceptual model of interdependencies
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1) Problem statement & research question

- European Union provides 30bn euros (of a total of approx. 77bn euros) for tackling *Societal Challenges* through projects in the years 2014 -2020 (H2020)
- Projects mostly under university lead or with university participation
- Academia is faced with new roles in society: (Moral) “obligation” of universities to be a change agent for regional sustainability

(Peer & Stoeglehner, 2013; Radinger-Peer & Pflitsch, 2017)

- **It is very difficult to identify if universities’ research projects excel or fall short in their endeavour to serve regional sustainable development.**

⇨ **What do we need to do in order to assess universities’ contributions to regional sustainable development?**

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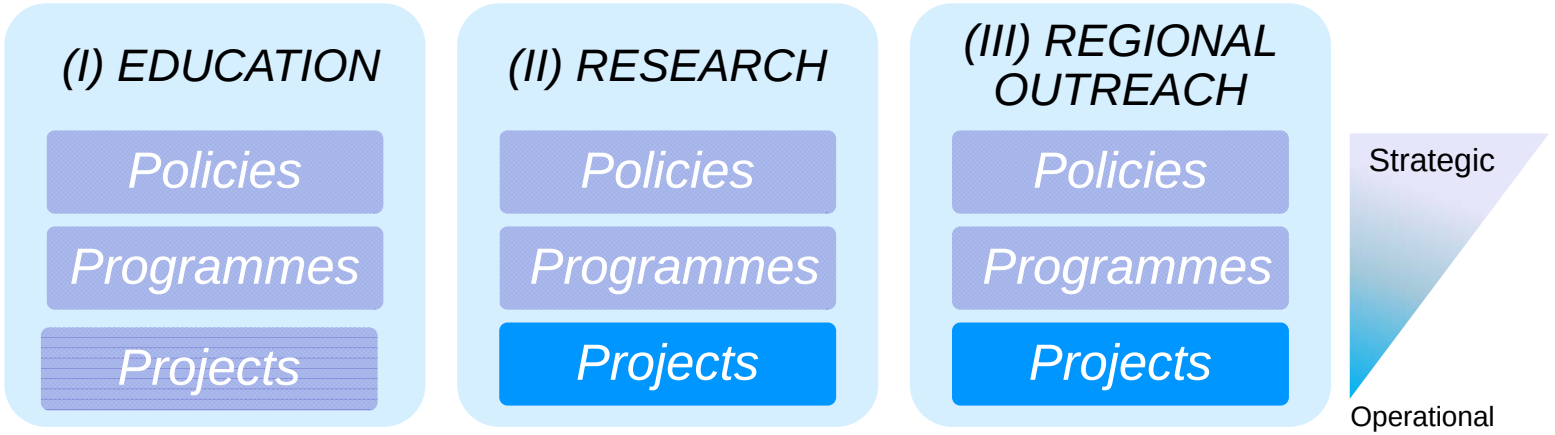
1) Problem scoping: Why projects?

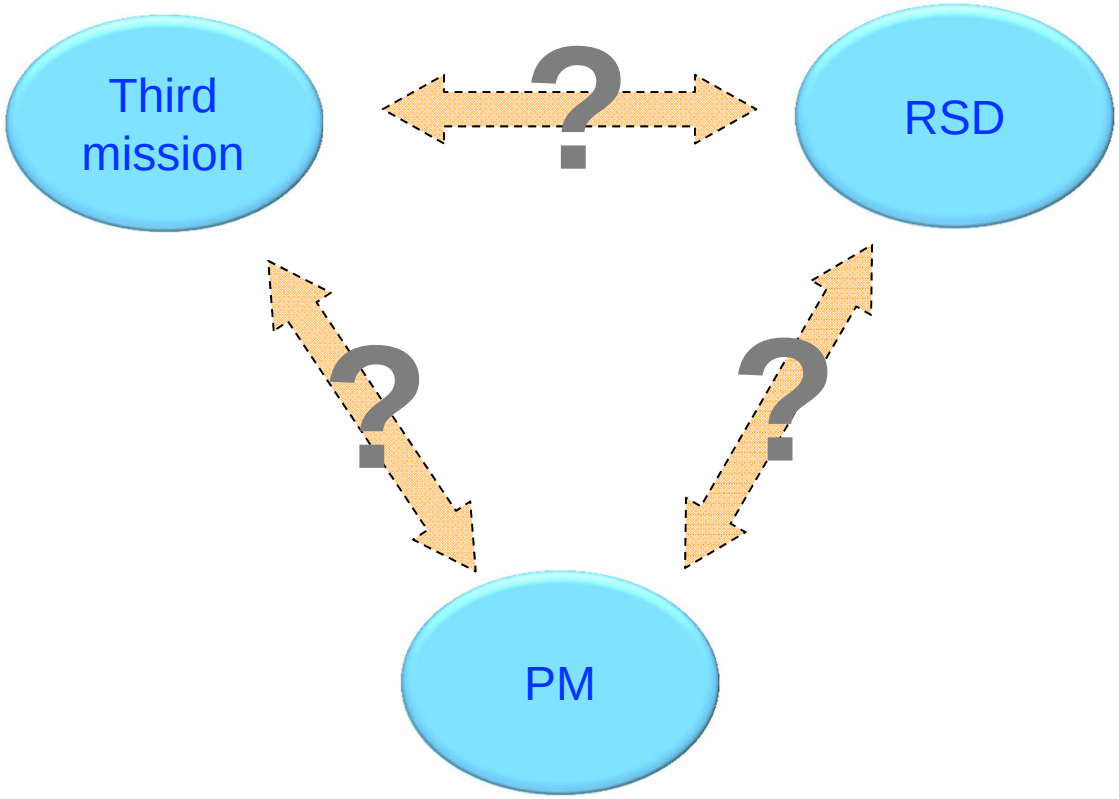
- Channels with (direct) regional impact available to universities:



- Universities engage in projects with external partners within triple helix of university-industry-government (Third mission) to meet the role as agent for societal innovation and change

Source: Radinger-Peer & Pflitsch (2017 Leydesdorff & Etzkowitz, 1996

...until now, we do not have a clear answer to this question, because...



2) Objectives of this paper

Third mission

- only covers a certain range of the holistic concept of sustainability and sustainable development

PM

- does not include sustainability in its assessment parameters
- research projects are particularly complex

RSD

- RSD is highly normative and posting unstructured problems
- SD is mainly operationalized on a national and/or policy level

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2) Objectives of this paper

- Identify structures and analyse major relevant research fields as corner stones
- better understand the dynamics and interdependencies of university-led projects for regional sustainable development
- Contribute to the research of transformation to sustainability at a macro-societal level:

transformation to sustainability
by universities for the wider society and region

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3) The Third mission (briefly) explored

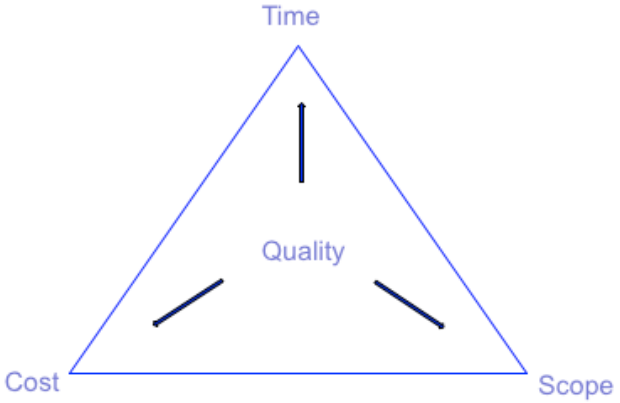
Dimensions	Molas Gallart et al. (2002)	Laredo 2007	Garrión et al. (2012)
Economic	Technology commercialisation	Human resources	Technology transfer and innovation:
	Entrepreneurial activities	Intellectual property	Licensing of university patents to companies
	Commercialisation of university facilities	Spin-offs	Formation of start-ups & spin-offs companies
	Contract research with non-academic clients	Industry contracts	Non patent & software innovations in public domain
	Non-academic collaboration in academic research		Public space – sharing space/facilities/ / services/ networking
			Problem solving cooperation in R&D
Social	Advisory work	The public understanding of science	Institutional Involvement in Continuing Education
	Flow of academic staff /scientists / technicians		Implementation of Continuing Education Activities
	Student placements	Involvement in social and cultural life	Analysis of the Demand and Curriculum Design
	Learning activities		Educational outreach / collaboration and widening participation
	Social networking	Participation in policy-making	Services and facilities to community
			Institutional Involvement in Social Engagement
	Non-academic dissemination	Public contracts	Non-discipline volunteering
			Expert advisory engagement

Regional Sustainable development (briefly) explored

Basic concept	Type of science	problem type	Regional component
• *Different kind* of growth • Worldwide wealth and health • Conservation over preservation • pro-growth concept	• Problem-driven field of research • Pathways towards sustainability • Solution-oriented	• Wicked problems • Explainable in different ways • Unique • Connected to other problems • No definite solution	• Ideal spatial level to analyse SD • Direct access to stakeholders • Interested stakeholders • Critical mass for collective action & creative solutions
(Kemp & Martens, 2007)	(Kates, 2017)	(Dijk et al., 2012)	(van Zeijl-Rozema, 2011)

Project management (briefly) explored –
Major characteristics

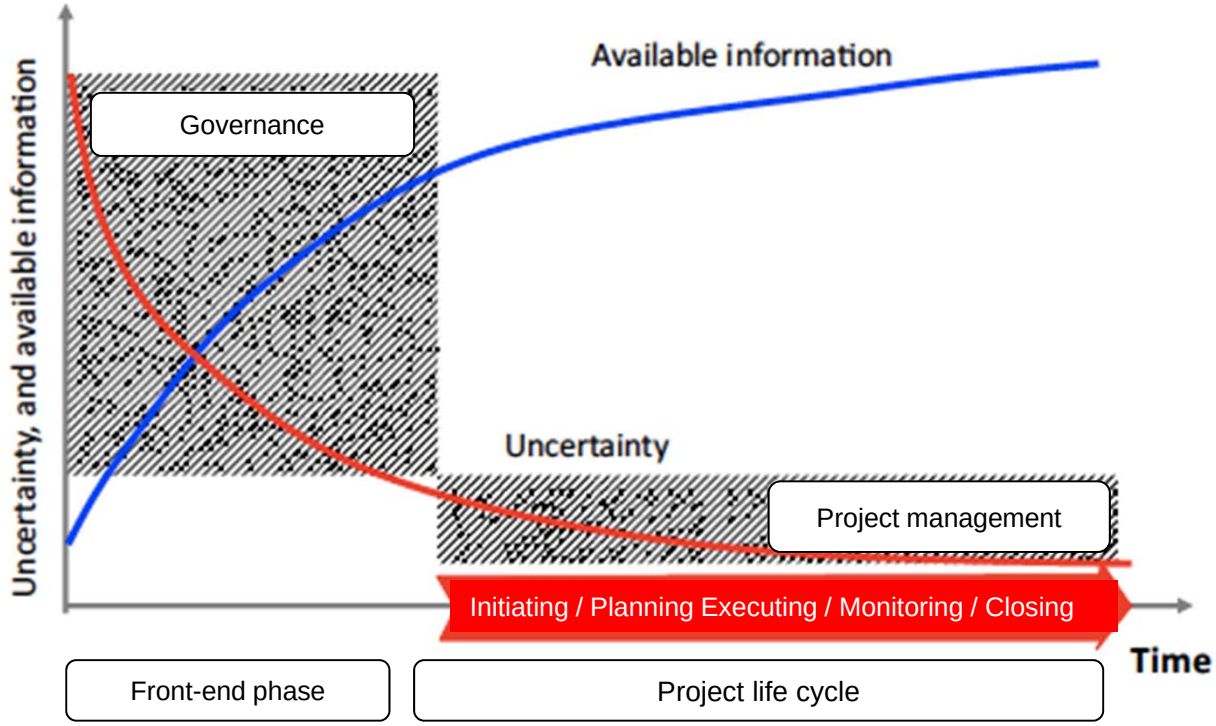
- Clearly defined **COST – TIME – SCOPE**
- Series of processes and activities
- Across multiple functions (internally or externall
- Involves different stakeholders on different leve
- Unique and novel in their problem structure
- Solution-oriented
- Monitors processes within the project life cycle:



Source: (Atkinson, 1999; Kerner 2017)

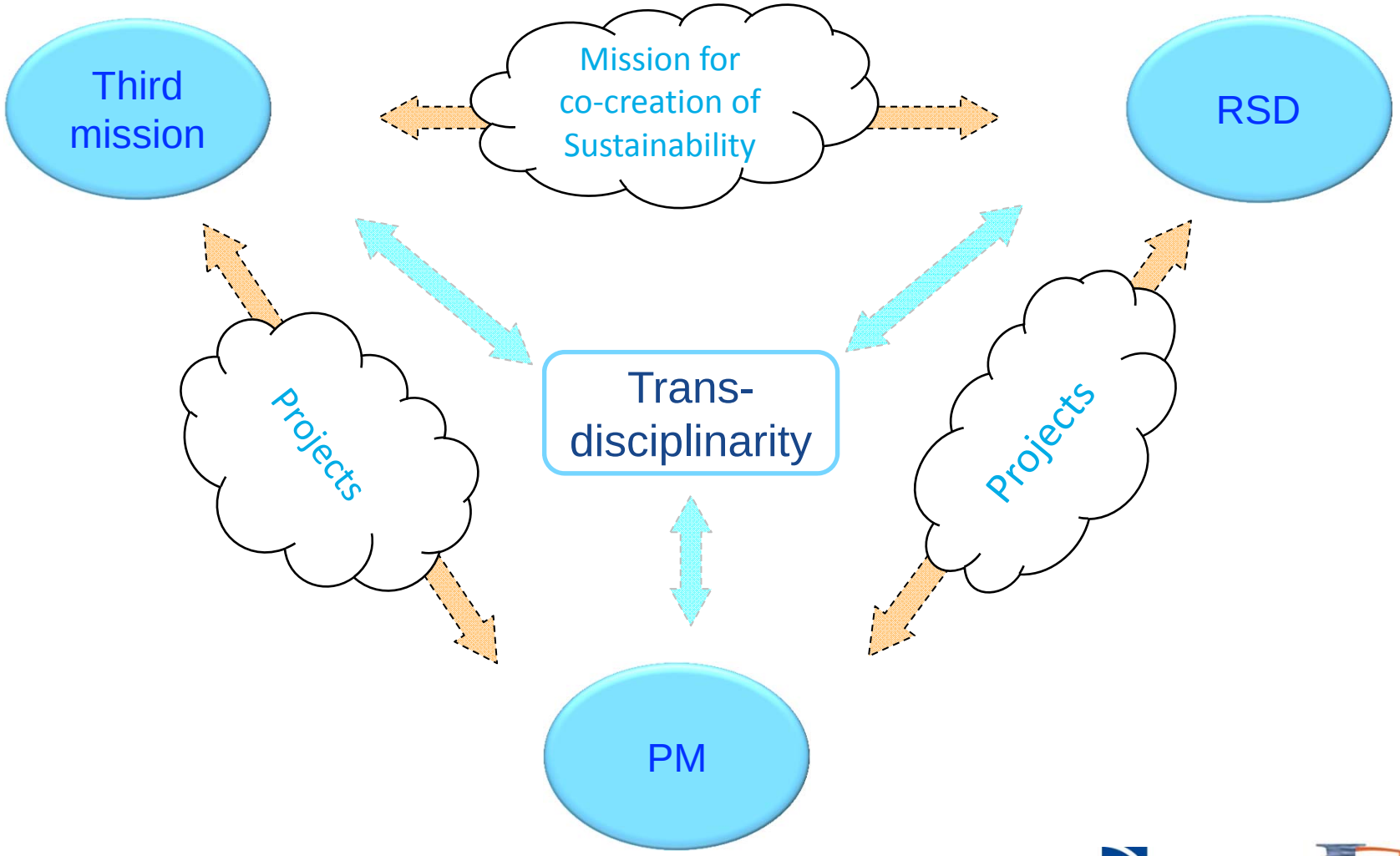
Project management and uncertainty – project governance

- Defining the objectives of an project
- Providing the means to achieve those objectives
- Controlling progress



Source. Samset & Volden, 2015; Müller,

Conceptual model of interdependencies



Third mission – main observations from literature

- The concept of the third mission limits the knowledge and technological transfer to stakeholders within the triple helix and favours closed-model innovation to solve technical or scientific problems

((Etzkowitz & Leydesdorff, 1998 / 2000)

- Regional sustainable development needs the engagement of *all* stakeholder dimensions available including the **civil society**

(Pinheiro et al, 2015; Trencher et al, 2014; Carayannis & Campbell, 2010)

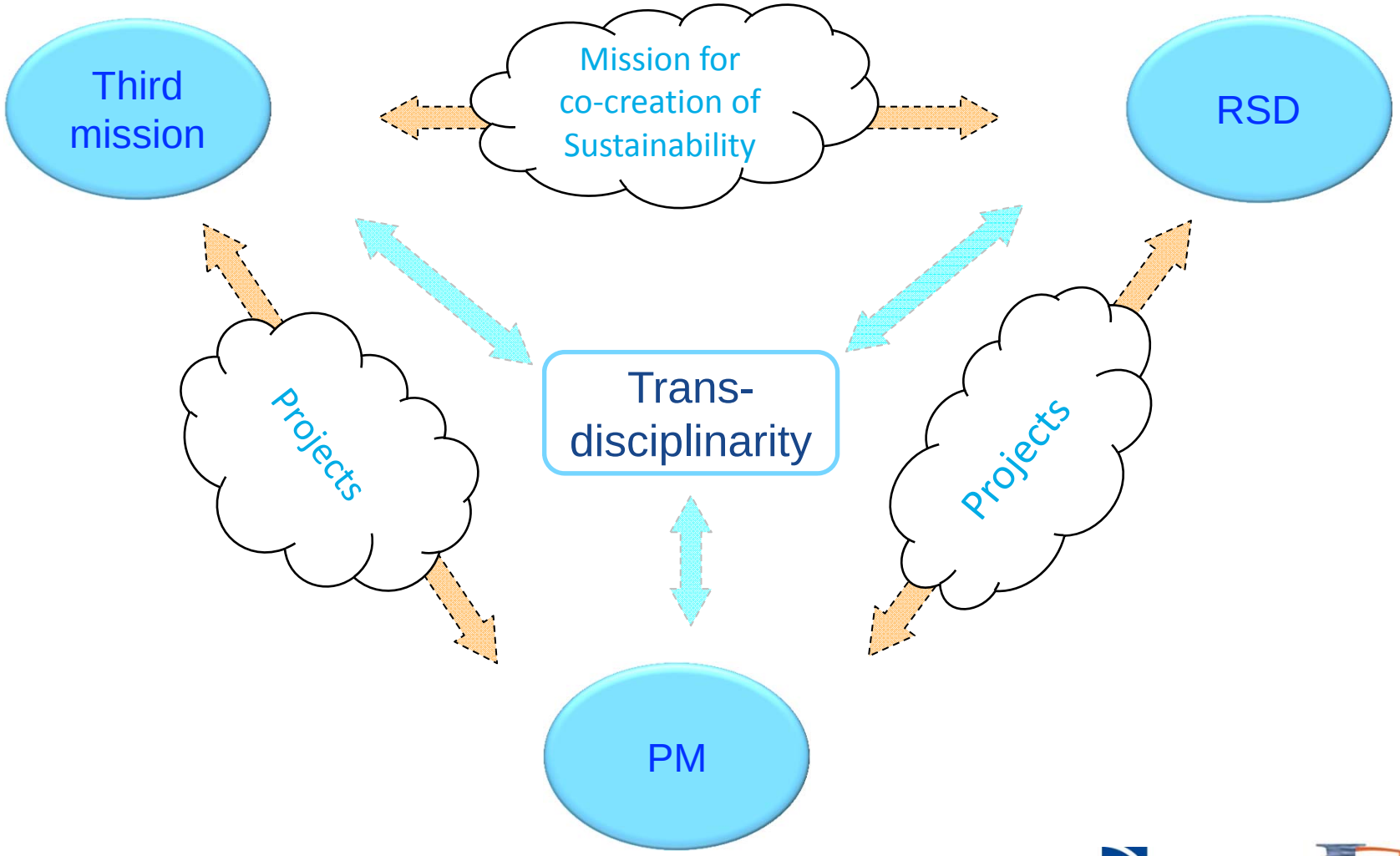
- the 3rd mission does not refer to the environmental dimension as being of expressive importance nor has it a long-term implication as seen in the concept of regional sustainable development

(Trencher et al., 2014)

- The concept of an emerging mission for co-creation of sustainability opts for a *transformative university* instead of an entrepreneurial university as promoted through the Third mission.

(Trencher et al., 2014)

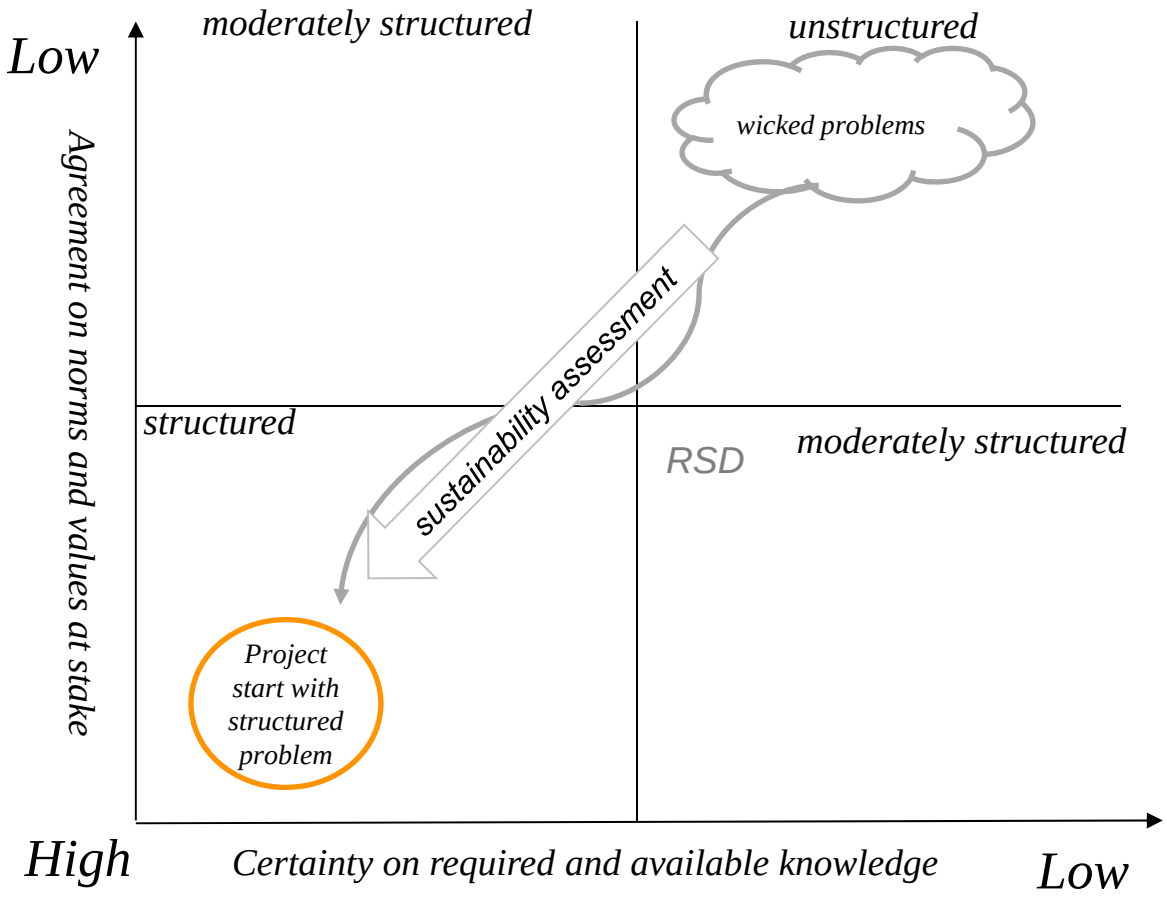
Conceptual model of interdependencies



Regional sustainable development and project management

	Project management	Regional sustainable development
Function	Project steering / Execution of set pathway	Create solutions to sustainability challenges (Lang, et al., 2012)
Objective	Meet previously set project requirements (PMI, 2018)	Create societal transformations to materialise sustainable Development
Approach	• Interdisciplinary – Transdisciplinary • descriptive-analytical • Solution-oriented (e.g. Maltzman & Shirley, 2011)	• Transdisciplinary • Normative • Problem- and solution-oriented (e.g. Dijk et al, 2017, Wiek et al, 2012)
Concept of change	• Incremental – transformational (Kane 2010)	• Transformational (Dijk et al, 2017)
Problem character	Structured problems (Alkington 1999, Kane 2017)	Unstructured problems
Phases	• Initiating • Planning • Executing • Monitoring & controlling • Closing	• Problem analysis • Finding options • Analysis of options • Follow-up (de Ridder et al., 2007)
Time perspective	• Short- to medium-term • limited	• Long-term • unlimited
Paradigm	Project management triangle	Sustainability
Disciplines	Social sciences and humanities	Broad range of fields including humanities and social sciences, in addition to natural sciences and engineering

Regional sustainable development and project management



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Source: based on Hisschemöller & Hoppe, 1996 and Dijk et al., 2017.

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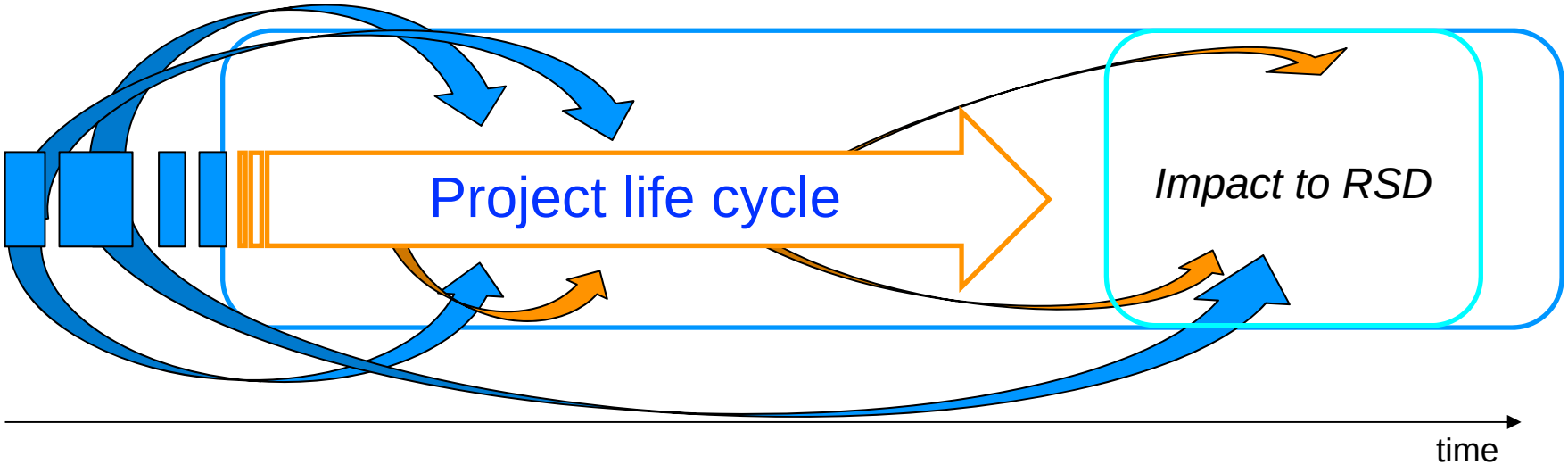
Back to the research question

What do we need to do in order to assess universities' contributions to regional sustainable development?

- **Identify possible interdependencies:**



Interim findings

Projects are a valuable means to start change for sustainable development on an operational level.

The front-end stage needs to receive more attention and appraisal, even more importantly in case of R&D projects.

Contact

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