Conceptual model to assess universities’ contribution to regional sustainable development

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Outline

1. Problem statement, scoping and research question
2. Objectives of the paper
3. Research focus and relevance of bodies of knowledge
4. Conceptual model of interdependencies
5. Interim findings
6. Outlook
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?
1) Problem scoping: Why projects?

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

  (I) EDUCATION
  - Policies
  - Programmes
  - Projects

  (II) RESEARCH
  - Policies
  - Programmes
  - Projects

  (III) REGIONAL OUTREACH
  - Policies
  - Programmes
  - Projects

- 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.

...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
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
### 3) The Third mission (briefly) explored

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<td>Technology commercialisation</td>
<td>Human resources</td>
<td>Technology transfer and innovation:</td>
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<td>Entrepreneurial activities</td>
<td>Intellectual property</td>
<td>Licensing of university patents to companies</td>
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<td>Commercialisation of university facilities</td>
<td>Spin-offs</td>
<td>Formation of start-ups &amp; spin-offs companies</td>
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<td>Contract research with non-academic clients</td>
<td>Industry contracts</td>
<td>Non patent &amp; software innovations in public domain</td>
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<td>Non-academic collaboration in academic research</td>
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<td>Public space – sharing space/facilities/ / services/ networking</td>
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<td>Social</td>
<td>Advisory work</td>
<td>The public understanding of science</td>
<td>Institutional Involvement in Continuing Education</td>
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<td>Flow of academic staff /scientists / technicians</td>
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<td>Student placements</td>
<td>Involvement in social and cultural life</td>
<td>Analysis of the Demand and Curriculum Design</td>
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<td>Learning activities</td>
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<td>Educational outreach / collaboration and widening participation</td>
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<td>Social networking</td>
<td>Participation in policy-making</td>
<td>Services and facilities to community</td>
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<td>Non-academic dissemination</td>
<td>Public contracts</td>
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<td>Expert advisory engagement</td>
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### Basic concept

- Different kind of growth
- Worldwide wealth and health
- Conservation over preservation
- pro-growth concept

### Type of science

- Problem-driven field of research
- Pathways towards sustainability
- Solution-oriented

### problem type

- Wicked problems
- Explainable in different ways
- Unique
- Connected to other problems
- No definite solution

### Regional component

- 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 externally)
- Involves different stakeholders on different levels
- Unique and novel in their problem structure
- Solution-oriented
- Monitors processes within the project life cycle:

Initiating → Planning → Executing → Monitoring & Controlling → Closing
Project management and uncertainty – project governance

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

Third mission

Mission for co-creation of Sustainability

Trans-disciplinarity

PM

RSD

Projects

Projects
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.
Conceptual model of interdependencies

Mission for co-creation of Sustainability

Third mission

RSD

Trans-disciplinarity

PM

Projects

Projects
Regional sustainable development and project management

<table>
<thead>
<tr>
<th>Project management</th>
<th>Regional sustainable development</th>
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<tbody>
<tr>
<td><strong>Function</strong></td>
<td>Project steering / Execution of set pathway</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Meet previously set project requirements (PMI, 2018)</td>
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<tr>
<td><strong>Approach</strong></td>
<td>• Interdisciplinary – Transdisciplinary • descriptive-analytical • Solution-oriented</td>
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<tr>
<td><strong>Concept of change</strong></td>
<td>• Incremental – transformational (Kane 2010)</td>
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<tr>
<td><strong>Problem character</strong></td>
<td>Structured problems (Alkington 1999, Kane 2017)</td>
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<tr>
<td><strong>Phases</strong></td>
<td>• Initiating • Planning • Executing • Monitoring &amp; controlling • Closing</td>
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<td><strong>Time perspective</strong></td>
<td>• Short- to medium-term limited</td>
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<td><strong>Paradigm</strong></td>
<td>Project management triangle</td>
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<td><strong>Disciplines</strong></td>
<td>Social sciences and humanities</td>
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Regional sustainable development and project management

- Agreement on norms and values at stake
- Certainty on required and available knowledge

Structured problems
- RSD
- Start with moderately structured problem

Moderately structured problems
- Unstructured problems
- Wicked problems

Back to the research question

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

- Identify possible interdependencies:
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.
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