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The role of academia in transition  
to sustainable food systems

***1: How can universities improve the  
resilience of the food system?***

## Insights from the social-ecological systems literature

- “A resilient social-ecological system, which can buffer a great deal of change or disturbance, is synonymous with **ecological, economic, and social sustainability**” (Berkes et al, 2003, p.15).
- “Resilience is the capacity of a social-ecological system **to absorb or withstand perturbations and other stressors** such that the system remains **within the same regime**, essentially maintaining its structure and functions. It describes the degree to which the system is capable of self-organization, learning and adaptation (Holling 1973, Gunderson & Holling 2002, Walker et al. 2004).

## Multi-level perspective (MLP) on sustainability transitions

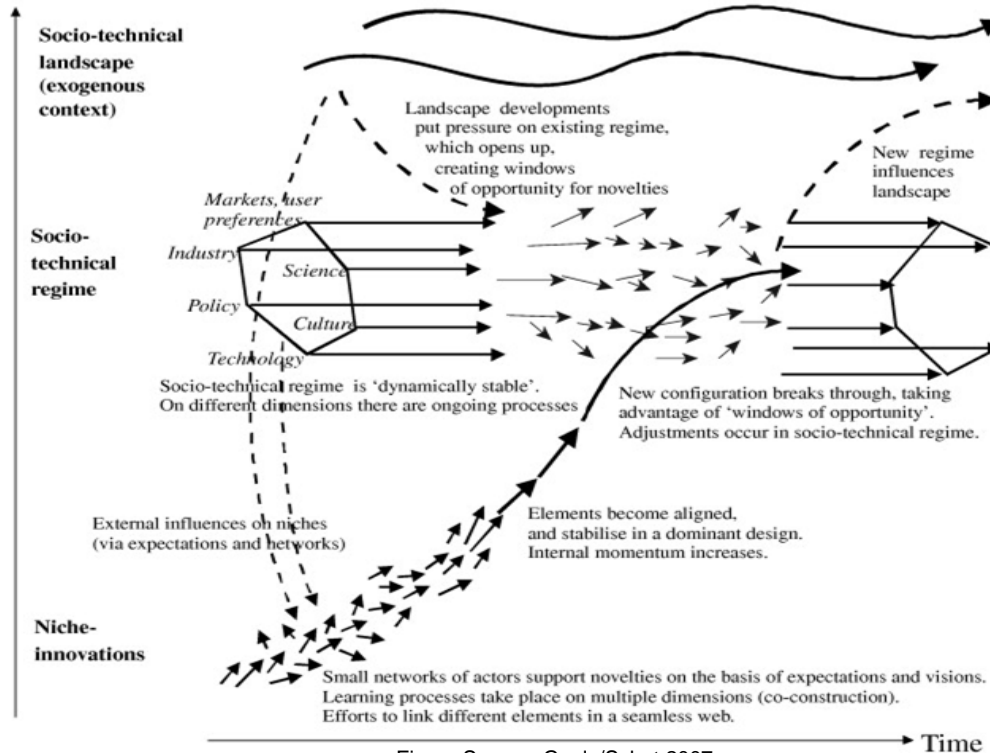
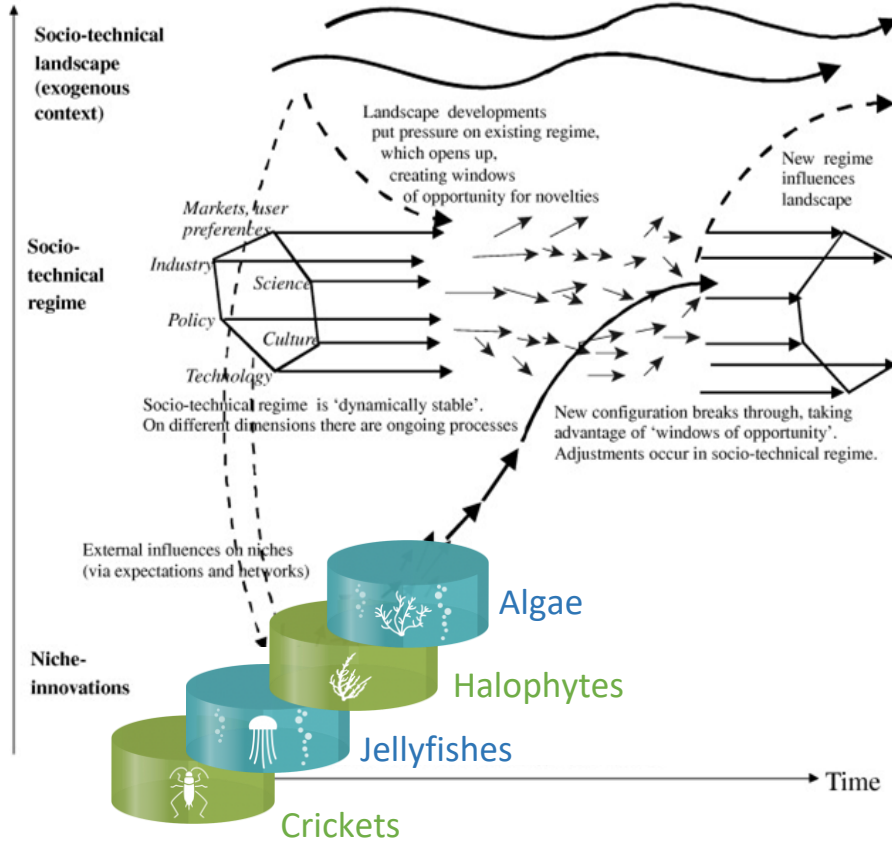


Figure Source: Geels/Schot 2007

## Insights from the socio-technical systems/MLP literature

- Incumbent socio-technical regimes are structurally resilient
- one can distinguish: **structural vs. functional resilience**
- “[Transition] Governance challenge is to **erode the structural resilience** of incumbent socio-technical regimes in order to promote social-ecological systems resilience”
- one should consider “**the kinds of resilience** that are helpful or unhelpful, and for whom, and with what social purposes in mind”
- technological change does not necessarily enhance social-ecological resilience
- **the aim** of transition management is **resilience with respect to the functions** (social and ecological performance) and socio-technical structures that are judged best to deliver them.



## MLP perspective on the role of universities in transitions

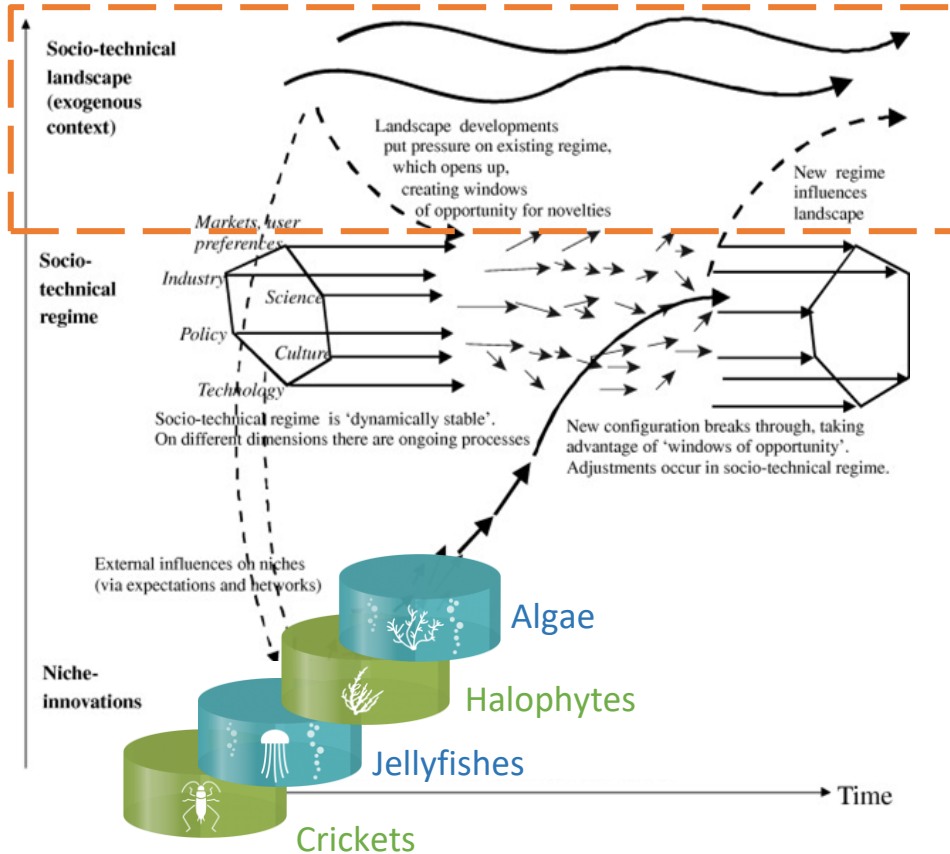
- Generation of knowledge and technologies sustaining **OR** transforming the current socio-technical regimes
- Education of workforce for current and future food systems
- Generation of knowledge for transition management

Example from the



food4future

Project

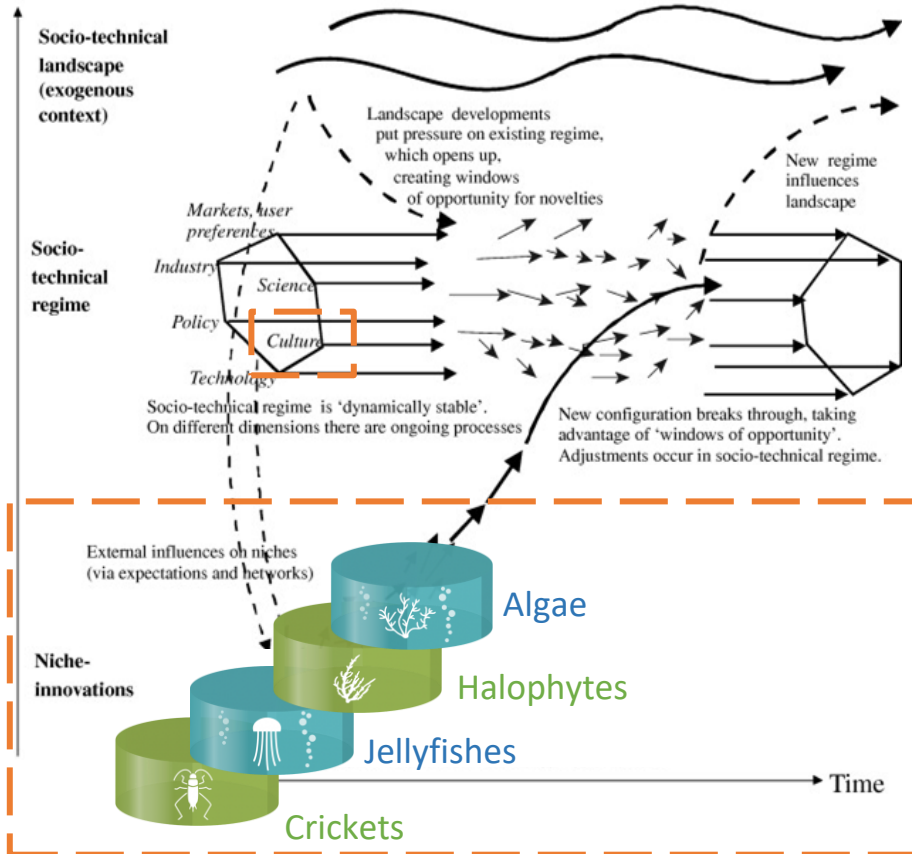


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- Generation of knowledge and technologies sustaining OR transforming the current socio-technical regimes
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## Example from the food4future Project

- **Developing extreme future scenarios for food systems: 'No Land' and 'No Trade' Scenarios**
- Assessing and enabling co-evolution of technology and society through public participation in research
- Visioning of sustainable and resilient future food systems



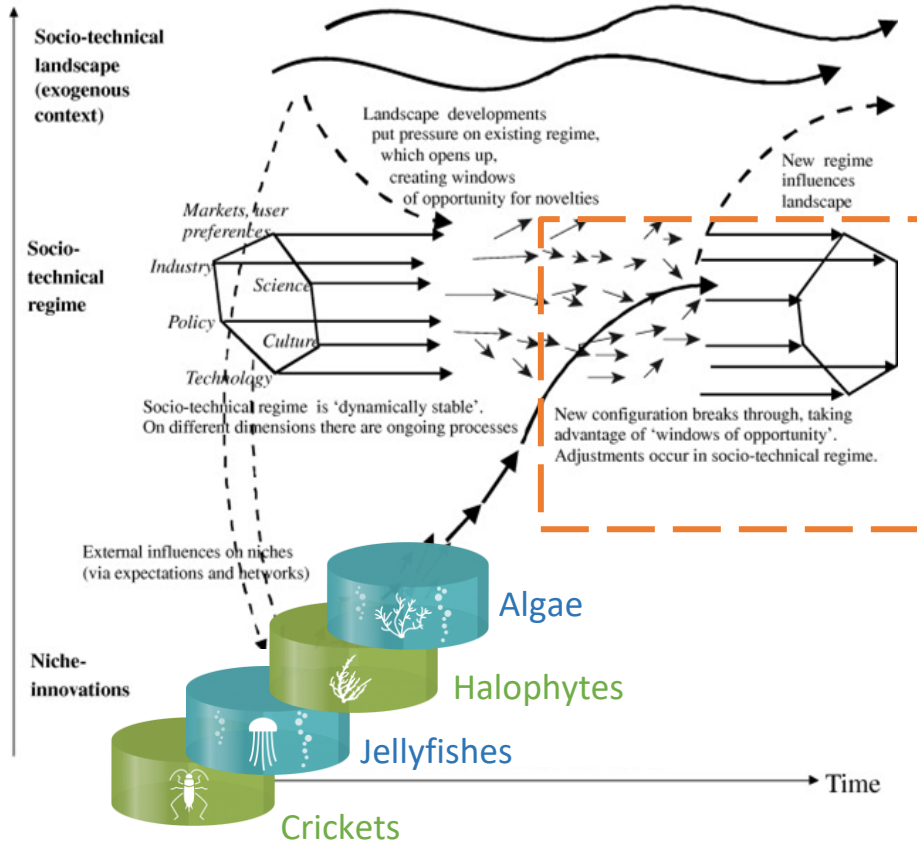
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## Example from the food4future Project

- Developing extreme future scenarios for food systems: 'No Land' and 'No Trade' Scenarios
- Assessing and enabling co-evolution of technology and society through public participation in research
- **Visioning of sustainable and resilient future food systems**

Visioning of sustainable and resilient future food systems within the  food4future **Project:**

Vision of a resilient and sustainable food system –  
**EU scenario papers**

Vision of a resilient and sustainable food system –  
**German experts**

## Visioning of sustainable and resilient future food systems:

### Vision of a resilient and sustainable food system – EU scenario papers

- Information and safety instructions on food products are transmitted digitally
- Food supply chains are local, with a direct links between suppliers and consumers
- School systems support a healthy (nutrient-rich) diet by appropriate food offerings in school cafeterias and dinning halls
- Drinking water used as a raw material in food production is substituted by salt and gray water

## Visioning of sustainable and resilient future food systems:

Vision of a resilient and sustainable food system – EU scenario papers	Vision of a resilient and sustainable food system – German experts
<ul style="list-style-type: none"><li>Information and safety instructions on food products are transmitted digitally</li><li>Food supply chains are local, with a direct links between suppliers and consumers</li><li>School systems support a healthy (nutrient-rich) diet by appropriate food offerings in school cafeterias and dinning halls</li><li>Drinking water used as a raw material in food production is substituted by salt and gray water</li></ul>	<p>Desirability of...:</p> <p><b>Education:</b> relatively high desirability <b>Risk</b> = High risk in terms of social cohesion by highlighting individual backgrounds. Risk of social divide and therefore risk in terms of desirability.</p> <p><b>Substitution of drinking water:</b> moderate desirability <b>Main reason</b> = high level of government intervention necessary, for example through subsidies. Therefore very costly at this time.</p>

***2: What academic dimensions contribute the most to sustainable food systems?***

## Contributions of universities to economy/society

Publishing	Education and training	Personal exchange in formal setting	Informal contacts/networks	Cooperation in R&D	Contracted advice	Technology Transfer	Entrepreneurship	Sharing of facilities
<ul style="list-style-type: none"> <li>scientific publications</li> <li>newspaper publications</li> <li>policy briefs</li> <li>video publications</li> <li>radio or TV</li> <li>science-based content on social media</li> <li>websites</li> <li>submission to public consultations</li> </ul>	<ul style="list-style-type: none"> <li>Graduates</li> <li>Post-graduates</li> <li>PhD training</li> <li>Engagement in student societies</li> <li>Mobility from public knowledge institutes to industry</li> <li>Trainees</li> <li>Double appointments</li> <li>Temporarily exchange of personnel</li> </ul>	<ul style="list-style-type: none"> <li>participation in conferences</li> <li>participation in fairs</li> <li>invited presentation</li> <li>public lectures</li> <li>exchange in/with professional organizations</li> <li>membership on advisory boards of other organizations</li> <li>Invited expert advice</li> <li>participation in governmental organizations</li> </ul>	<ul style="list-style-type: none"> <li>Research network</li> <li>Networks based on friendship</li> <li>Alumni societies</li> </ul>	<ul style="list-style-type: none"> <li>joint R&amp;D projects</li> <li>Co-supervision of a trainee or Ph.D. student</li> <li>Development of prototypes</li> </ul>	<ul style="list-style-type: none"> <li>Contract-research</li> <li>Contract-based consultancy</li> </ul>	<ul style="list-style-type: none"> <li>Co-patenting</li> <li>Transfer of university-owned patents</li> </ul>	<ul style="list-style-type: none"> <li>Spin-offs</li> <li>Start ups</li> <li>Incubators at universities</li> </ul>	<ul style="list-style-type: none"> <li>Access to laboratories</li> <li>Access to machines</li> <li>Hosting external organization in university grounds or buildings (e.g. science parks)</li> </ul>

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### Contributions of FUB to education for sustainable food systems

- “Universities—as the core institutions of the academic and educational systems—have a special responsibility with regard to making the world sustainable, and Freie Universität Berlin is committed to this task. It strives to **increase sustainability across the university—in research, teaching, knowledge transfer, administration, and on campus**”.
- ✓ **Teaching sustainability:** Freie Universität Berlin systematically implements research-based teaching. In 2017, **30% of research** focused on aspects of **sustainable development including agriculture**. In the Winter Semester 2017/18, **15% of the courses** offered references to **sustainability**.
- ✓ **Specific food/agriculture related programs in SS/2022 at Freie Universität Berlin:** the undergraduate course **Worldwide food movements** or the advanced seminar **GEND The Politics of Food in Urban Spaces: A Feminist Perspective**.
- ✓ **Fostering good eating habits:** A unique feature at Freie Universität Berlin is a **dinning hall with exclusively vegetarian and vegan food**. The dishes **are organic, seasonal, local**, and therefore climate-friendly. The **Veggie Dining Hall** was the first of its kind at a German university. The **Vegan Dining Hall** is in planning stage.



***3: How can universities support policies and collaboration among different stakeholders?***

**Transdisciplinary research  
(Process-focused perspective)**

‘transdisciplinarity as a research approach that includes multiple scientific disciplines (interdisciplinarity) focusing on shared problems and the active input of practitioners from outside academia’. (Brandt et al., 2013, p. 1)

Focus areas for transdisciplinary knowledge co-production include inclusion, collaboration, integration, reflexivity and usability. (Polk, 2015, p. 110)

**Examples:**

- Enabling policy makers and other stakeholders to co-define research agenda e.g. through membership in advisory boards of research projects
- Including the views of policy makers and other stakeholders in research e.g. participatory scenarios of future socio-technical landscapes, visioning future systems with a Delphi study

**Contributing to Evidence-Based Policy and Practice  
(Outcome-focused perspective)**

Evidence Based Policy and Practice - ‘the integration of experience, judgement and expertise with the best available external evidence from systematic research’. (Sorrell, 2005, p. 5)

Three types of evidence: scientific and technical knowledge, political know-how, practical and professional field experience. (Head, 2008)

**Examples of university contributions:**

- Policy briefings
- Presentations at non-academic conferences/events
- Dissemination of results through informal contacts
- Contract research for ministries
- Start-up hubs (Fachgruppe AgTec)

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# Thank You!

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