Perceived Image of Forest Sector Innovativeness

Bioeconomic Smoke Without a Fire?

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European Commission (2012): bioeconomy constitutes of "the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy.

…strong innovation potential due to the… use of science, enabling and industrial technologies, along with local and tacit knowledge"
From innovation potential to innovations and innovativeness?

- Schumpeter (1934): innovation a mechanism that deploys new knowledge, technology, products or services in the market…
  - New product, new method of production, new market, discovering of a new input supply or a change in industrial structure etc…
- Innovativeness can be understood either as one’s ability to develop and utilize innovations or as one’s propensity to innovate…
  - And deals with changes in products, services, processes or business systems (i.e. administrational or marketing innovations)
- Sometimes the above used interchangeably…
Previous literature...

- Kangas (2014): Nanocellulose is due to its high versatility perhaps the most interesting new niche material discussed under the umbrella of forest bioeconomy.
- Kleinschmit et al. (2014): Scientific debate about the Bioeconomy and its relation to sustainability is still at an early stage.
- Burns et al. (2016): Understanding public opinions and working towards social acceptance is one of the key challenges faced by advancing Bioeconomy concept.
Aims and method:

- Public perceptions in four European countries related to forest sector innovations and innovativeness?

  1. What is the basic view that the public has about forest sector innovativeness?

  2. What is the structure of perceived innovation activity?

- Data collected with an online questionnaire during May-September 2015 Austria, Finland, Germany and Slovenia, N=218

- 13 items gauging the bioeconomy related (existing and new) products & services used.
A Core Challenge in Forest Bioeconomy is to Materialize the move to top (high value added) of the pyramid...
Results
Forest companies produce significant innovations related to…
(Scale from 1=Strongly disagree, …5=Strongly agree, 6= I don’t know).

Since year 2000  In the next 20 years…
Results (3):

- Strongest agreement that forest sector has since year 2000 produced innovations related to wood building systems, construction materials and composites.

- Towards 2030, there is foreseen decline in terms of innovations related to biofuels and paper products is expected.

- Regarding nanocellulose over 1/3 of the respondents were incapable of evaluating either past or future innovation activity, indicating lack of public awareness.
Multivariate analysis:

- We used factor analysis to tease out the dimensionality of the 13 items. It was tested for sensitivity with various items in the analysis and various number of dimensions.
- The following solution should be treated as a preliminary exploratory structure that displays the respondent perceptions of forest sector efforts of innovating in the Bioeconomy.
Dimensional structure of perceived forest industry innovation activity?

- Using factor analysis (PAF), a two-dimensional structure across innovations identified:
- Statistical differences across factor loadings were also found on few background variables, e.g. females perceived more product innovations, involvement with sector also

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor Intangible innovation</th>
<th>Factor Product innovation</th>
<th>Communalities</th>
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<tbody>
<tr>
<td>Construction materials</td>
<td>0,692</td>
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<td>0,540</td>
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<tr>
<td>Paper</td>
<td>0,563</td>
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<td>0,454</td>
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<tr>
<td>Composites</td>
<td>0,817</td>
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<td>0,705</td>
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<td>Biofuels</td>
<td>0,374</td>
<td></td>
<td>0,257</td>
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<tr>
<td>Forestry services</td>
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<td>0,432</td>
<td>0,459</td>
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<tr>
<td>Brand development</td>
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<td>0,655</td>
<td>0,498</td>
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<td>New marketing channels</td>
<td></td>
<td>0,561</td>
<td>0,431</td>
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<tr>
<td>Reducing env. impacts: forestry</td>
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<td>0,712</td>
<td>0,604</td>
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<tr>
<td>Reducing env. impacts: industrial manufacturing</td>
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<td>0,420</td>
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<td>Explained share of variance 48,5%</td>
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<td>KMO 0,807</td>
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<td>Bartlett 0,000</td>
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</tbody>
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Conclusions:

- The image of forest sector innovativeness across four European forest rich countries is not necessarily related to actual products or services but more general level of public awareness.
- High perceived variation in forest sector innovativeness calls for strengthening of both industry R & D, functioning of innovation systems, as well as effective sectoral communication.
Thanks

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