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Societal Impact in the evaluation of the Top-level Research Initiative

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Technopolis Sweden
Göran Melin

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Top-level Research Initiative (TRI); What is it?

- The largest joint Nordic research and innovation initiative to date
- The budget was ~€50–55 millon over five years
- Addressed issues of climate, energy and the environment
- Purpose: to strengthen the Nordic competitive advantage in science and innovation in these areas
- The initiative involved the very best institutions in the Nordic region; some 200 researchers from universities and research institutions and 63 companies participated
- Multi-disciplinary cooperation was emphasised, including sciences and social sciences as well as business and industry
- Organised as a true common pot, with no country or partner being guaranteed a proportionate share of the research grants

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Evaluation questions, methods

- Among the evaluation questions, we were to investigate
  - ➢ *Societal impact of the TRI*
  - ➢ *Societal readiness for innovation and research*

- Mixed methods:
  - o *Document studies*
  - o *Interviews (33)*
  - o *Bibliometrics*
  - o *Self assessments from project leaders (17)*
  - o *Surveys to project participants (75 of 177 researchers; 18 of 53 firms)*
  - o ***Case studies of seven projects***
  - o *Advisory group*

While Societal impact was identified through the mentioned methods, for instance

- *"results clearly useful for public policy actors"*
- *"had some influence on [a country's] policy"*
- *"importance of the large number of funded PhDs"*
- *"enhanced Nordic perspective and networks should be noted"*

... it was less clear how to investigate Societal readiness

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What is Societal readiness?

- Innovation Fund Denmark: Societal Readiness Levels (SRL)
- SRL is a way of assessing the level of societal adaptation of, for instance, a particular social project, a technology, a product, a process, an intervention, or an innovation to be integrated into society
- If the societal readiness for the social or technical solution is expected to be low, suggestions for a realistic transition towards societal adaptation are required
- SRL is still not a broadly recognised concept, and it was difficult for interviewees to assess projects according to this scale. We applied SRL assessment only on the case studies
- Technology Readiness Levels (TRL) are used to assess the maturity level of a particular technology. SRL mirrors TRL

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Technology Readiness Levels (TRL)

TRL level	Definition
TRL 1	Basic principles observed
TRL 2	Technology concept formulated
TRL 3	Experimental proof of concept
TRL 4	Technology validated in lab
TRL 5	Technology validated in relevant environment
TRL 6	Technology demonstrated in relevant environment
TRL 7	System prototype demonstration in operational environment
TRL 8	System complete and qualified
TRL 9	Actual system proven in operational environment

Societal Readiness Levels (SRL)

| SRL level	Definition
SRL 1	Identifying problem and identifying societal readiness
SRL 2	Formulation of problem, proposed solution(s) and potential impact, expected societal readiness; identifying relevant stakeholders for the project
SRL 3	Initial testing of proposed solution(s) together with relevant stakeholders
SRL 4	Problem validated through pilot testing in relevant environment to substantiate proposed impact and societal readiness
SRL 5	Proposed solution(s) validated, now by relevant stakeholders in the area
SRL 6	Solution(s) demonstrated in relevant environment and in cooperation with relevant stakeholders to gain initial feedback on potential impact
SRL 7	Refinement of project and/or solution and, if needed, retesting in relevant environment with relevant stakeholders
SRL 8	Proposed solution(s) as well as a plan for societal adaptation complete and qualified
SRL 9	Actual project solution(s) proven in relevant environment

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First, assessment on the TRL-scale

- We had seven in-depth case studies of undertaken projects
- By investigating the results presented in project reports, survey data, and through interviews with project leaders, we assessed and placed the projects on the TRL-scale
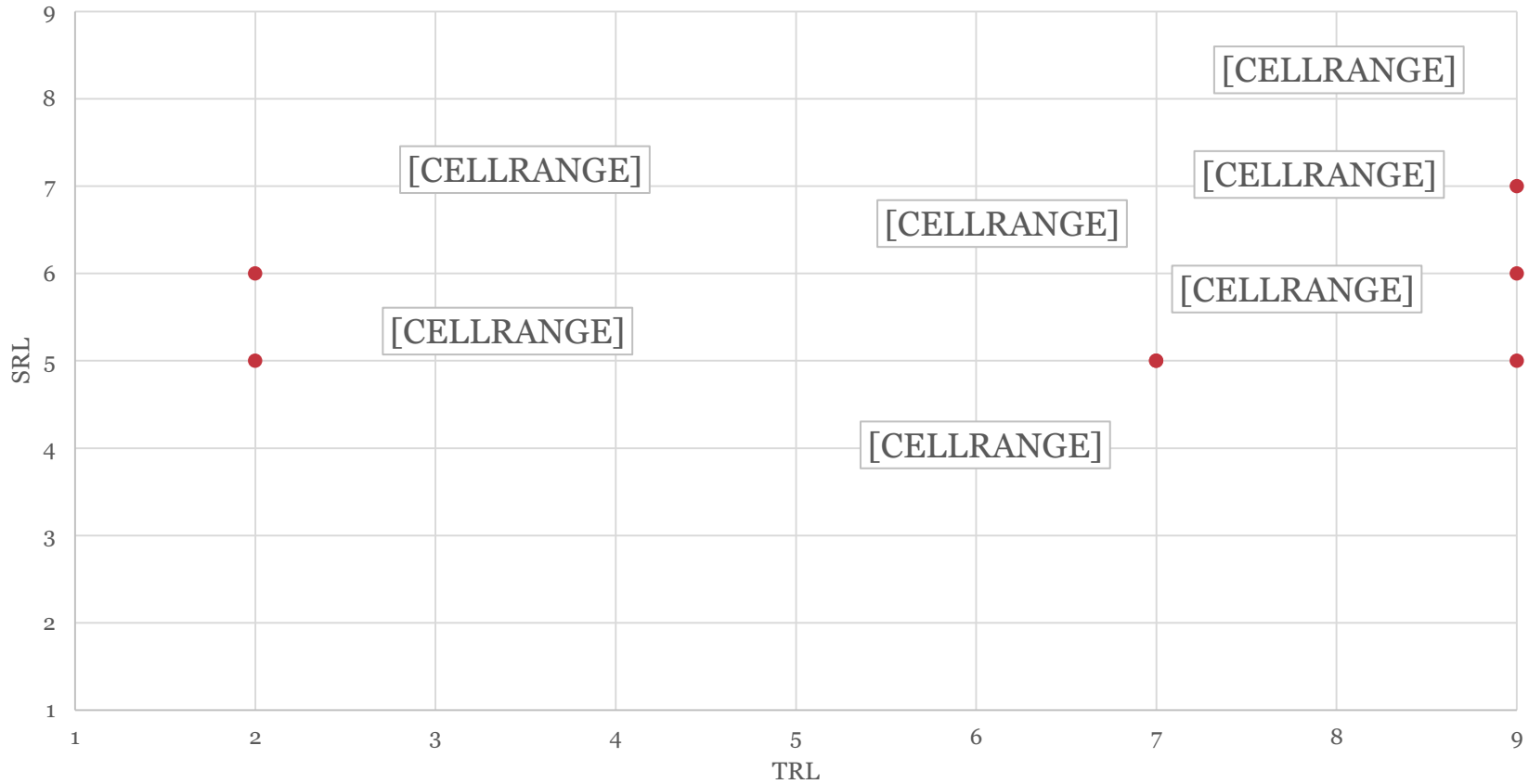
2 projects on TRL 2 level   2 on TRL 7   3 on TRL 9
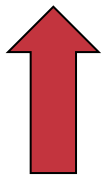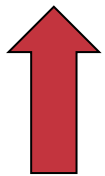
- Then we tried to assess the seven projects also on the SRL-scale

Distribution of projects on the SRL/TRL scales

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Overall impact of the programme 2-5 after years (1/2)

- Application of new scientific methods that break new ground
  - *Incremental improvements of methods in several research areas*

- Increased visibility, attractiveness and competitiveness of Nordic researchers or research groups for international consortia
  - *Researchers have become more visible and competitive, and attracted subsequent funding; difficult to determine the additionality of TRI*

Overall impact of the programme 2-5 after years (2/2)

- Lasting networks, collaboration and knowledge sharing with partners in other Nordic countries
  - *Achieved, but likely not sustainable without subsequent funding*

- New contacts and partnerships created for the participating companies
  - *Achieved to some degree, but the overall involvement of the business sector is limited*

- New products or technologies developed
  - *Yes, several examples of results that have reached application in industry*

Conclusions & discussion points

- Sometimes evaluation of Societal impact tends to become a bit intuitive and rely on somewhat soft empirical data

- Using the Societal Readiness Levels to support societal impact assessment may be a way to make the assessment more robust

- However, the SRL-scale is about making a bit soft assessments too

- Combining the SRL-scale with assessments on the TRL-scale may be a way to make the evaluation of Societal impact more robust

- … or are we just adding on (a bit) intuitive assessments onto each other, thus arriving at poorly underpinned impact assessments?

- Method open for debate and further testing. To us it was a new and interesting but difficult exercise. Important to carefully consider what information/data that need to be collected

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Thank you!
Questions?
Comments?

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