

Regional Impact Assessment Tool for Innovation Hubs

Pilot Project: Green Hydrogen
Booster, the Northern Netherlands

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Foreword

This report presents the study on assessing and developing a regional impact assessment method for EnTranCe, an Open Innovation Centre focused on Energy Transition, in collaboration with the RIGHT Project, Hanze University of Applied Sciences and the Province of Groningen. The Green Hydrogen Booster was the pilot.

This report highlights the main aspects of the research and its results. It explains the development of the regional impact assessment tool and its value. The resulting prototype has been validated by the users and experts whilst identifying areas for improvement.

The research was conducted by Alexandra Codreanu from February through July 2020 as part of her graduation project for the Bachelor in Business Administration at the International Business School, Hanze UAS.

This research contributes to the Green Hydrogen Booster pilot which is ongoing till January 2021. Anu Manickam (Hanze) and Rob Wolters (Province of Groningen) are supporting activities related to the pilot.



1. Introduction: Green Hydrogen Booster Pilot

To better understand the role and the context of the pilot, a brief background is provided.

1.1. *RIGHT Project*

The RIGHT Project aims to strengthen regional economies' competitiveness and innovation capacity of its partners within the North Sea Region, by ensuring access to a strong and adaptable workforce with the necessary skills to support future growth, while supporting the development of Small and Medium-sized Enterprises (SMEs). Project pilots are included to experiment, develop and test methodologies, good practices and prototypes. There are 17 pilots, including the Green Hydrogen Booster.

More information on the pilot can be found [here](#).

1.2. *EnTranCe*

[EnTranCe](#) is an innovation hub located in Groningen, Northern Netherlands, that focuses on accelerating renewable energy transition and strengthening the regional knowledge economy. The innovation hub is the Centre of Expertise Energy of Hanze University of Applied Sciences Groningen and is part of the New Energy Coalition.

1.3. *Green Hydrogen Booster*

The Green Hydrogen Booster is a hub that supports initiatives that explore converting natural gas into green hydrogen. It facilitates collaboration for SMEs and other parties in an open innovation environment to accelerate green hydrogen production, distribution, storage and various usages in households, industry and mobility, grid balancing and related infrastructures. The pilot supports greening of existing value chains and the creation of new ones, identifying skills and policy support and knowledge development, amongst several activities.

1.4. Need for enhanced impact assessment tool

Conventional models of impact assessments focus mainly on poverty reduction, economic prosperity and environmental conservation, besides reflecting organizational features and financial viability.

Sustainability has become a key focus of businesses. This includes the shift from profit orientation towards socio-economic and environmentally friendly strategies. New advancements in impact assessment models include additional aspects of social relevance. The necessity to address societal and ecological issues is captured within the EU 2030 Agenda and the UN's Sustainable Development Goals.

EnTranCe, in keeping with this trend, revisited its own Key Performance Indicators (KPIs) and acknowledged the need for a new impact assessment strategy. To meet the needs of EnTranCe, an analysis of the conventional impact assessment tools showed that impact dimensions were limited.

The illustration below captures conventional and enhanced impact assessment dimensions.

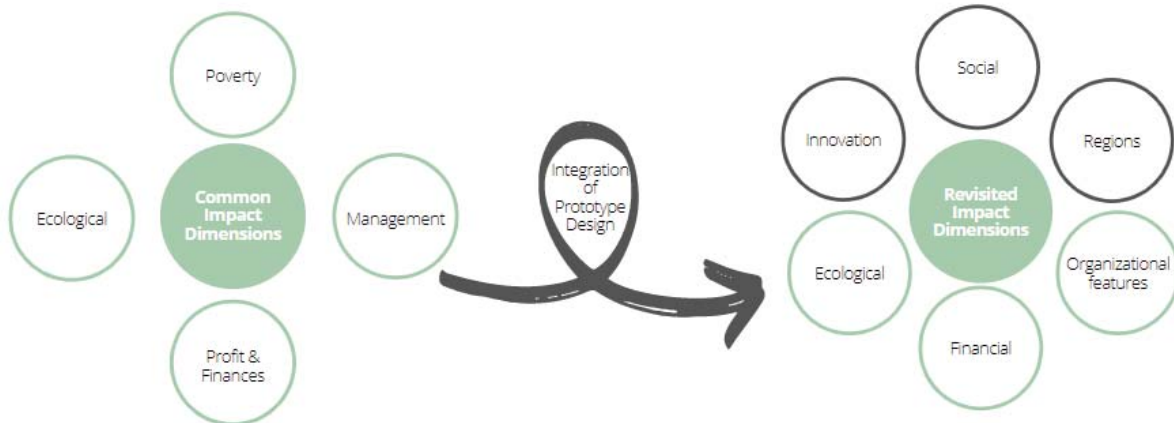


Fig. 1: Conventional impact model

Fig. 2: Enhanced impact model

The illustration above shows the proposed improvements in literature resulted from the research. Generally, impact assessment tools would focus on poverty reduction, ecological sustainability, profit and financial results and management practices. By collecting and clustering indicators from conventional assessment tools, together with adding the needs of innovation hubs, the poverty dimension shifts to a general social impact dimension, and the innovation and regions dimension are included.

Using enhanced impact dimensions allows innovation hubs like EnTranCe to better measure their regional impacts, namely, by reviewing, developing and translating their existing KPIs into regional impacts.

2. Scope and design of research

The research explored the question: “What impact assessment tool can the innovation hub EnTranCe adopt to measure its impact on the region of Northern Netherlands?”

The need for an enhanced assessment tool became apparent while analysing existing literature. Impact indicators were collected from more than 30 existing tools and clustered in a database of indicators, distilling main dimensions and indicators of impact. The requirements of the user (EnTranCe) were also identified.

Several iterative steps ensured relevance, reliability and usability of the result. This included compiling indicators from existing tools, comparing them against the needs of EnTranCe and verifying the selection with experts. The feedback from validation sessions was collected and integrated in the final prototype.

3. Scope and design of research

The output of the study is a regional impact assessment tool prototype. The tool stimulates innovation hubs and organizations to follow key sustainable trends by exploring and translating their KPIs in terms of regional impacts.

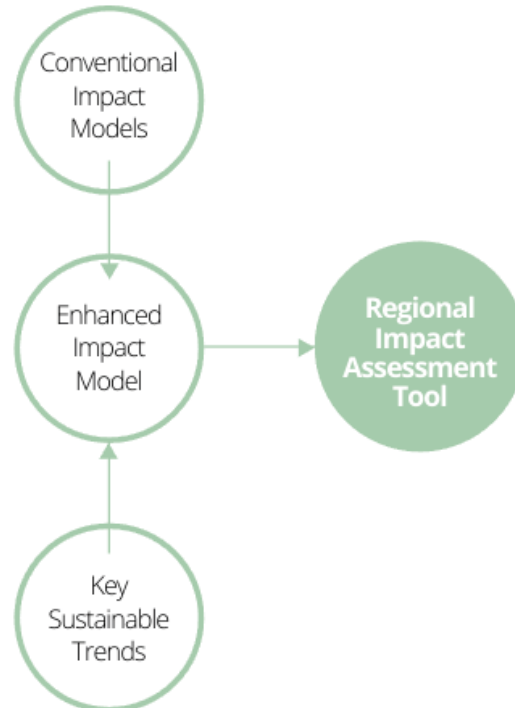


Fig. 3: Research development process

The assessment tool is a database of key impact denominators such as intra-organizational efforts, socio-cultural institutions, natural resources, regional attractiveness, industry and human capital aspects, innovation investments and networks, amongst many others. The structure of the tool shows two levels of impact (primary and secondary) that constitute impact assessment. A particular indicator can impact on more than one dimension. This feature we call dimensional impact assessment of KPIs. This, in turn, offers potential improvements for better integrative and robust business strategies.

The impact levels each have four main factors as shown below. One key factor present in both impact levels is that of the 'circular economy', which was identified by experts and users.

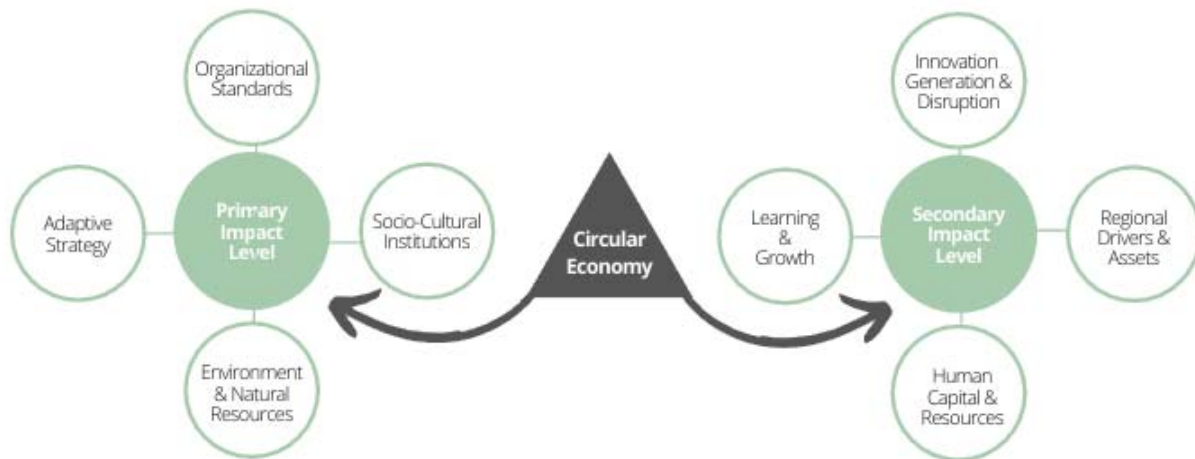


Fig. 4: Regional Impact Assessment Tool - impact levels and factors

4. Application of Regional Impact Assessment Tool

Green Hydrogen Hub was a user test case for the research. In the illustration below, an example of potential KPIs of this innovation hub is suggested based on their goal to be more socially relevant. The KPIs were then translated into regional impacts.

The diagram highlights the community wellbeing factor with three relevant impact indicators - future of community, quality of air and water and level of hazard or risk. Next, KPIs for these indicators were generated and these in turn, were mapped to check for cross domain regional, socio-ecological and organizational impacts.

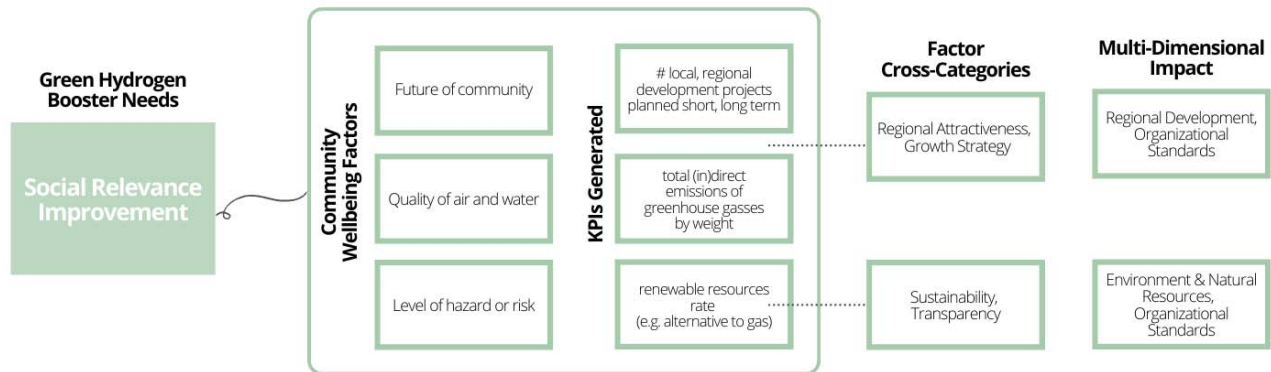


Fig. 5: Example KPI development

The impact assessment tool can be used as a starting point for organizations wanting to verify the impacts of their current performance indicators. The tool also helps redesign their organizations to become more socially and regionally driven by developing new or additional KPIs that are aligned to generate multiple and relevant impacts.

The prototype has been validated in its current development by policy and innovation hub experts from three European regions to ensure a broader usage in its final developments. The next stage of the prototype development in the pilot will be expanding the features and usability of the tool through new iterations of testing and new prototyping. The regional impact tool has the potential to offer organizations and innovation hubs an online service that supports their goals to become purposeful, regionally connected and financially viable and innovative. In doing so, the tool will be able to develop a digital database that offers regional and national benchmarks when it becomes fully operational in the future.

5. Conclusion

The Green Hydrogen Booster pilot prompted the development of a regional impact assessment tool for innovation hubs and organizations involved in their projects. The first prototype has been realized and this tool will be further developed in the next stage of the pilot. The research affirmed the limitations of existing assessment tools in terms of the scope and domains of performance measurement. The pilot has contributed to helping innovation hubs like EnTranCe to revisit and redesign their Key Performance Indicators to reflect a more integrated regional development focus and ways to capture this.

The implementation of a fully operational regional impact assessment tool for innovation hubs and their partner SMEs will highlight the aggregate impact of their activities for the region. This contributes to the attractiveness of the region for new innovative businesses and hubs. The tool offers policymakers and other business and regional development agencies insights into the potential impact of organizations for their regions when faced with decisions regarding public procurement, funding, collaborations, etc.

This pilot will report on developments of the tool at the end of the pilot in 2021.

