

# How to measure the innovation ecosystems' shared value? A balanced approach

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## Extended abstract

### 1. Introduction and relevance of the research

Innovation Ecosystems (IEs) are increasingly adopted structures composed by interdependent and interconnected entities (Jacobides, et al., 2018) that have the potential of creating more value than single entities alone (Adner, 2006), both in terms of intensity and type of socio-economic benefits created for multiple stakeholders, i.e., the so-called shared value (SV) (Porter and Kramer, 2011; Arena, et al., 2022). Thus, private and public entities and policymakers involved in IEs are increasingly asking for tools able to properly measure and monitor IEs' SV.

In this connection, some ecosystems are publishing impact reports (as the Mars Impact Report<sup>1</sup>) or demanding specific performances to be monitored (as done by the Canadian Superclusters<sup>2</sup>). However, even these very advanced IEs limit the measurement of SV to a few and not always interconnected indicators, mainly reporting the amounts invested, the number of projects launched, the employment rate, and qualitative success stories.

The literature highlights the complexity of measuring and monitoring SV in IEs, too, due to the multidimensional and multistakeholder nature of IEs (and SV creation) and its dynamic boundaries (Gomes, et al., 2018). The difficulty to set comparable metrics and proper data sources, makes monitoring SV creation a challenging task.

Recognizing the relevance of this topic, the literature has dealt with it through conceptual works and single-case studies (Leenderste, et al., 2020). Some authors have started to adapt traditional and flexible

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<sup>1</sup> Meaningful Innovation: Mars Impact Report. Available at: <https://www.marsdd.com/impact/> [June 2022]

<sup>2</sup> Digital Transformation for All: Annual Report 2021-2022. Available at: <https://annualreport.digitalsupercluster.ca/> [June 2022]

tools, as the Balanced Scorecard (BSC), for the definition of a set of multi-level indicators (Lopes and Farinha, 2018; Kaplan and McMillan, 2020) to be adopted in multi-actor settings. Kaplan and McMillan (2020) set up a multi-stakeholder BSC for firms, focused on outcomes of the Triple Bottom Line (TBL) for open innovation settings and divided in four perspectives, named *Enablers*, *Processes*, *Stakeholders*, *Outcomes*. Lopes and Farinha (2018) focus only on the outputs generated by IE, creating a BSC with the Environmental, Social, Economic, Network perspectives. Despite their relevance, these BSCs are still unable to deal with both the multidimensional and multistakeholder nature of IEs simultaneously and are not directly applicable for measuring SV creation, in terms of the incremental socio-economic and environmental benefits created at IE level.

## **2. Research question and contributions**

This research inserts in this gap, focusing on how to effectively measure and monitor SV creation at IE level, specifically answering this research question: how can the TBL balanced scorecard be extended and adopted to measure and monitor SV in IEs?

Stemming from the frameworks proposed in the literature and their shortcomings, we propose an original approach for measuring and monitoring SV creation in IEs. Such a method is then applied to a real case.

As such, this research contributes, first, to the discussion on SV creation measurement at IE level, highlighting the difficulties experienced by IEs in applying tools – as the BSC - traditionally framed for single firms. Specifically, we extend a BSC at IE level (Kaplan and McMillan, 2020), combining different contributions (Lopes and Farinha, 2018; Arena, et al., 2022) IEs' managers can adopt the proposed approach to develop an ad hoc BCS for their IEs while researchers focusing even on other ecosystem types – e.g., platform, entrepreneurial or business ones – could adapt our approach to their specific object. Finally, policymakers could be interested in promoting the design of better SV measurement tools at IE level, given their potential in opening new economic development paths and facing complex challenges.

## **3. Research design and method**

To answer the research question, we develop an approach to design a “SV BSC for IEs” extending the TBL-BSC of Kaplan and McMillan (2020), by combining different frameworks. In line with Kaplan and McMillan (2020), we divided our BSC in four perspectives. We adopted two of their perspectives named *Enablers* and *Processes* but renamed the other two ones. The Outcome perspective becomes the *Impact* perspective, to further stress the differential effects of IEs in terms of SV creation. The Stakeholders perspective becomes the *Actors* perspective, to highlight the different role these entities take in the ecosystem respect to stakeholders of a company.

Furthermore, we identified specific key dimensions per each perspective, aiming at encompassing the IE multidimensionality. First, the four perspectives of Lopes and Farinha (2018) – *Environmental, Social, Economic, Network* – inspired the identification of the dimensions of our *impact* perspective: *environmental, social, economic and innovation*. The Quadruple Helix model (Carayannis and Campbell, 2009) informed the dimensions considered in the *actors* perspective, while the *process* perspective required the specific identification of main projects and dimensions specifically relates to them (and thus more case dependent). Last, among *enablers* we individuated *physical, networking, economic assets* (Katz and Wagner, 2014), *alignment and governance* (Arena et al., 2022) dimensions. Our BSC scheme results from the combination of these perspectives and dimensions and can be used as a reference framework to define specific IEs' objectives, indicators and data sources.

Based on the specific IE vision, this task starts with the construction of the strategic map, i.e., specifying the strategic objectives related to each perspective/dimension combination: the enablers perspective requires considering the IE's *assets*, the process perspective focuses on *projects*, the actors perspective on *networks and relations*, and the impacts one on *economic, social, environmental, innovation* effects. Indicators are then linked to each objective and related one to the others' thus composing the SV BSC for IEs.

This approach is then applied to a real case, studied in line with Yin (2014).

#### **4. Application and discussion**

The real case we studied, here named Alpha for confidentiality reasons, is selected as particularly illustrative of the issue under analysis and unique, as it refers to an IE located in an inner area, in its birth phase, promoted by a private big company in the energy sector and involving different private and public entities at the national and local level. The IE explicitly aims at creating SV through projects in different sectors, from agritech to renewables, from cultural heritage to innovation and research. Data were collected through desk analysis, semi-structured interviews, and meetings with managers active in the main IE projects. The IE strategy map proposed for Alpha is reported in Figure 1.

<b>IMPACTS</b>	<b>ECONOMIC</b> <i>Enhance the GDP of the territory</i>	<b>SOCIAL</b> <i>Increase employment level</i>	<b>ENVIRONMENTAL</b> <i>Reduce CO2 emissions</i>	<b>INNOVATION</b> <i>Develop an innovation hub</i>
<b>ACTORS</b>	<b>PUBLIC</b> <i>Enhance PPP</i>	<b>COMMUNITY</b> <i>Include the third sector</i>	<b>PRIVATE</b> <i>Enhance relationship with SMEs</i>	<b>ACADEMIA</b> <i>Collaborate with universities</i>
<b>PROCESSES</b>	<i>Improve productivity in the sectors in focus</i>	<i>Digitalize processes in every project</i>	<i>Riqualify the areas where the IE grounds</i>	<i>Improve synergies among projects</i>
<b>ENABLERS</b>	<b>PHYSICAL</b> <i>Make spaces open and shared</i>	<b>NETWORKING</b> <i>Attract talents</i>	<b>ECONOMIC</b> <i>Attract different kinds of investors</i>	<b>ALIGNMENT / GOVERNANCE</b> <i>Strengthen the proactive engagement</i>

Figure 1. IE Strategy Map of Case Alpha. In the boxes on the left there are the four perspectives; per each perspective, dimensions are reported in bold and examples of strategic objectives in italics

Based on this map, indicators - and data sources - are defined and integrated in a BSC for IEs aiming at creating SV (details will be extensively reported in the paper). Each dimension of the BSC enables monitoring a specific objective / activity of an IE's stakeholder: with its interconnected indicators, the BSC synthetizes SV results obtained at IE level, thanks to the contribution of interdependent actors and activities. In this way, multiple levels, objectives and stakeholders are simultaneously considered. Interestingly, from the application of this framework it emerges that, going from *enablers* to *impacts perspectives*, indicators are calculated relying on more external data sources, characterised by lower timeliness, a bigger scale and a larger time window (see Figure 2).

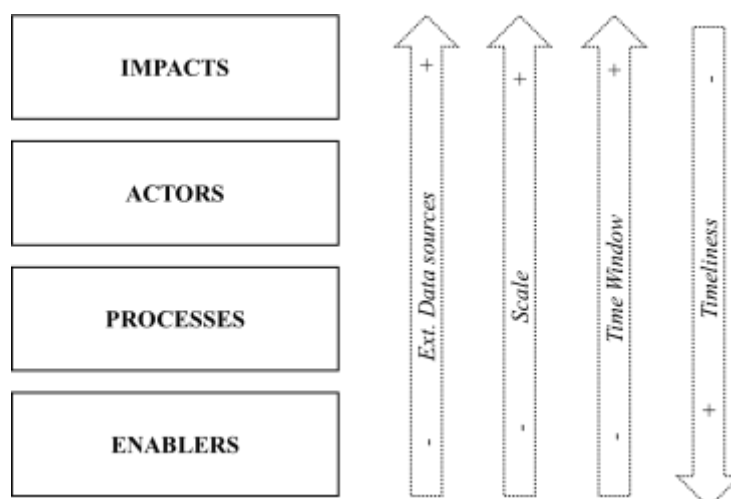


Figure 2. Characteristics of indicators and measurements in the different perspectives when applying the BSC at IE level

The combination of perspectives and dimensions enabled by the proposed framework allows to monitor over time the achievement of the posed objectives – and thus the SV creation -, maintaining a multidimensional and multistakeholder view of IEs.

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