

Green Index: Integration of Environmental Performance, Green Innovativeness, and Financial Performance

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PhD Dissertation Summary:

Green Index is a strategic management tool designed for delivering a new approach to defining and assessing the holistic green performance of companies, collectively by multiple stakeholders. It is built as a hierarchical decision model, in integration with multivariate statistical methods, built on the opinions of globally leading experts of sustainability, innovation, engineering and management from the industry and academia. Unlike any other sustainability index in the literature, the Green Index measures the “green performance” as per dollar revenue generated by a company. The management tool, with its desirability levels module, also identifies the investment opportunities for a company towards improving its green performance per dollar revenue generated, for each performance metric. The model also has the capability to suggest a ranking among investments, depending on the business objectives of the companies.

The hierarchical model of Green Index is a first in the management literature, as it is developed collectively by VCs/Investors, entrepreneurs, academics, executives and sustainability NGOs' leaders. The research is founded on these stakeholders' quantified preferences, through which they reached a consensus on the design of the holistic model, its metrics, as well as defining the green performance success levels, collectively. These stakeholders' individual preferences (aka voices) were captured and used to create an integrated model. These stakeholders' levels of agreement/disagreement are also quantified.

The model utilizes both quantitative and qualitative research methods, in integration with Hierarchical Decision Modeling. The finalized model is also applied to high-tech semiconductor industry as a series of simulations, to test its boundaries and define its implications for organizational change strategies within the companies towards Green transformation, and multi-stakeholder collaborations and areas of synergy.

The assessment and prioritization process for a company's “green transformation” are facilitated by Green Index with:

- (i) a set of 29 performance measures, and
- (ii) a metric for each performance measure with its successful performance level ranges, as defined and preferred by Angel Investors and Green VCs