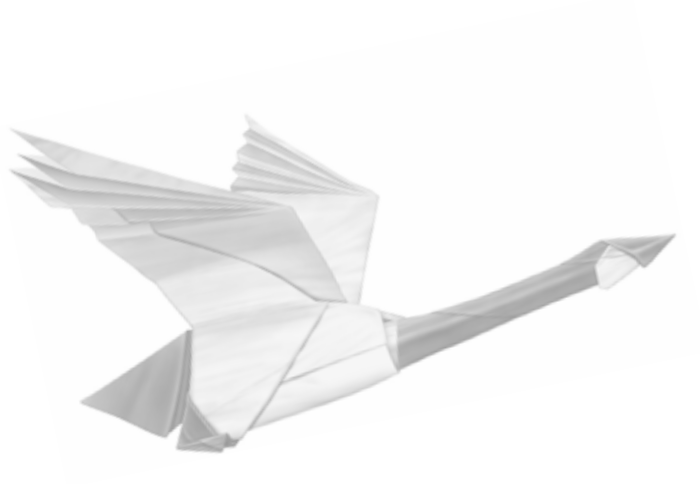

# Idea Pricing & Computational Optimization:

Mechanical & Industrial Engineering
UNIVERSITY OF TORONTO

## *"Towards a theory of Idea Valuation"*

Imagine if you could look at your organization and at any time quantitatively identify the top ideas, or the worst. What if you could treat a portfolio of ideas like a financial tool, and optimize them to manage risk and drive strategy? Picture yourself being able to map out a technology or business segment of interest to understand how it was evolving, and with some confidence find the right space to innovate. Visualize yourself making informed decisions based on mathematical rigor, not only human judgment.

There is a well-known management statement from iconic educator and business philosopher Peter Drucker that says "If you can't measure it, you can't manage it" and I aim to measure the value of ideas so that, you can manage them.

My research is based on information engineering, data science, engineering ontologies and computational optimization at the University of Toronto's Industrial Engineering department. My work aims to create a unified theory that can accurately measure the profitability of an idea.

Profitability is not solely based on the estimated financial return of the idea; in this domain it also reflects the ideas value to the organization and the greater ecosystem surrounding it. No one has yet quantified an idea objectively and there exists no universal system for its pricing. Due to its elusive nature, it is difficult to conceptualize what an idea is. To then objectively quantify it based on a set of quantifiers, indicators, data and mathematical models has until now seemed like an impossibility.

Current programs use rank up, rank down, user interaction and past contributions to decide how good an idea is. They simply employ a voting system and hope people interacting with it get it right. The problem with that is, most of the crowd sourced to vote lack expert knowledge, historical context and an understanding of all the complex relationships needed to discover an ideas value. All of the above lack indicators that take into consideration influences outside of the "ad hoc" nature of human capability. Further, human only systems are easily gamed, and take a large risk in assuming that the crowd is infallible.

In the next 3-5 years we forecast that the industry will move towards harnessing quantitative measures to handle ideas. With "Big Data" currently trending and the innovation bubble near collapse, the time is now to invest on novel techniques to transform ideas from intangible assets to tangible items.
The work currently being done in the fields of Knowledge Complexity, Comparative Theory Evaluation and Blackboard Architecture provides a basis in which indicators from various sources (qualitative and quantitative) can be captured and integrated into a single value that allows us to determine the value of an idea, set against various scenarios (Decker, Garvey, Humphrey, & Lesser, 1994).

The goal of this research is three fold.

1. To develop and implement an ontology that describes the constructs and characteristics of any idea.

2. To create a theory and corresponding mathematical model that values (prices) ideas (gives each individual idea a quantifiably comparable value amongst other ideas in any domain).

3. To build a software package that can sort, optimize and suggest with some confidence what ideas should be used where.

As the world continues to commodify human systems, profitability will become more elusive. By "rigorising" the idea generation and selection process, idea asset portfolios will allow decision makers to harness their insights for daily strategic guidance.


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