

A Transdisciplinary Approach for Predicting and Tuning to Optimise Initial Business Performance Steady State in a Changing and Connected Environment

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Abstract. The first periods of a business venture are critical for long-term survival. Besides, no historical information is generally available to the decision-makers on key performance indicators (KPI, like revenue, profit, total cost, and expenses, among others), and significant capital is at risk. Still, decision-makers have some degrees of freedom in real-time decision-making (modification of marketing efforts, sales force, logistics, among others) depending on the behaviour of the venture KPIs. Still, no benchmark is generally available since, by definition, this is the first time the venture has run. If a benchmark mathematical function were available for KPIs behaviour, decision makers would make an informed real-time decision to achieve the best possible initial steady-state value, significantly improving the likelihood of long-term venture success. Using a transdisciplinary approach that involves control engineering techniques used for systems calibration, the contribution of this research is twofold: a) a transdisciplinary framework (a method that includes a ready-to-use decision support tool) to apply control engineering in this business environment to identify and improve the value of the settled point for the initial stage of the venture KPIs, b) two real practical business numerical set of instances (based on Initial Public Offerings experiences) to show the usefulness of the proposed method. By applying this approach, stakeholders (decision makers, financial service customers, and investors, among others) create greater value by predicting the initial steady state of a new business venture or environmental change by acting in real-time.

Keywords. Business environment change, initial public offerings, initial real-time decision-making, knowledge engineering, systems thinking

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