

An Indian-Australian research partnership

Project Title:	Psychophysiological Studies to Understand and Correct Cognitive Biases in Operations Management	
Project Number	IMURA0833	
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IITB Department:		

Research Clusters:

Research Themes:

Highlight which of the Academy's CLUSTERS this project will address? <i>(Please nominate JUST <u>one</u>. For more information, see www.iitbmonash.org)</i>		Highlight which of the Academy's Theme(s) this project will address? <i>(Feel free to nominate more than one. For more information, see www.iitbmonash.org)</i>	
1	Material Science/Engineering (including Nano, Metallurgy)	1	Advanced computational engineering, simulation and manufacture
2	Energy, Green Chem, Chemistry, Catalysis, Reaction Eng	2	Infrastructure Engineering
3	Math, CFD, Modelling, Manufacturing	3	Clean Energy
4	CSE, IT, Optimisation, Data, Sensors, Systems, Signal Processing, Control	4	Water
5	Earth Sciences and Civil Engineering (Geo, Water, Climate)	5	Nanotechnology
6	Bio, Stem Cells, Bio Chem, Pharma, Food	6	Biotechnology and Stem Cell Research
7	Semi-Conductors, Optics, Photonics, Networks, Telecomm, Power Eng	7	Humanities and social sciences
8	HSS, Design, Management	8	Design

The research problem

Define the problem

Progress in quantitative tools and techniques that support modern enterprise resource planning (ERP) and supply chain management (SCM) software has outstripped our understanding of how people use them in the field to make operations management (OM) and SCM decisions. Intentional and unintentional cognitive biases have a huge impact on how the tools are used and frequently render people's decisions sub-optimal or at least inconsistent with normative actions (Niranjan, Ghosalya, & Gavirneni, 2017; Niranjan, Ghosalya, Gavirneni, & Jayaram, 2018). As a result, these tools have a limited value in improving decision making of managers in the real world. A secondary problem is that the operations management field employs fairly basic methodologies that limit the depth of our understanding of human behavior in operations management. Much more is possible by the use of cutting edge psychophysiological tools such as eye tracking in unpacking the black box of human decision making, as our *ibid* studies have demonstrated. Therefore, it is important to develop and apply methodologies for understanding of human behavior in OM/SCM contexts. The theoretical framing of the problem includes ecological rationality as well as OM-specific biases following the *ibid* research.

References:

Niranjan, T. T., Ghosalya, N. K., & Gavirneni, S. (2017). The relative prevalence of supply line underweighting and deliberate discounting in dynamic decision making. *48th Annual Meeting of the Decision Sciences Institute*, (Best Theory-Driven Empirical Research Paper Award). Washington DC, USA.

Niranjan, T. T., Ghosalya, N. K., Gavirneni, S., & Jayaram, J. (2018). Newsvendor decision-making: An eye tracking study. *Best Paper Proceedings, 78th Annual Meeting of the Academy of Management*, (Finalist, Chan Hahn Best Paper Award). Chicago, Illinois, USA, .

Project aims

Define the aims of the project

The project aims to develop a comprehensive understanding of how end-users use SCM tools in practice, including what heuristics they employ while using them (for example, as our previous research has shown, people frequently overrule the ERP system and overorder). We do this in collaboration with ERP/SCM software firms and their clients that use such tools. With this, the project aims to uncover important, theoretically grounded biases and transfer the ensuing knowledge to the industry for possible implementation in future editions of their tools.

Expected outcomes

Highlight the expected outcomes of the project

Bridging the academia-industry gap, specifically in the use of ERP and SCM tools. The project will develop deep linkages with the industry in this space and the insights developed from this research will be ploughed back into the industry for pilot implementations and further robustness tests.

Beyond the narrow questions that the PhD project will investigate deeply, the overall methodology can serve as a template for future studies harnessing the power of psychophysiological tools in application in the wider area of Operations and SCM. This would create a market for sound research-based consultancy avenues supporting long-term collaborations as also complement the activities of the behavioural lab at the two collaborating business schools.

How will the project address the Goals of the above Themes?

Describe how the project will address the goals of one or more of the 6 Themes listed above.

Capabilities and Degrees Required

List the ideal set of capabilities that a student should have for this project. Feel free to be as specific or as general as you like. These capabilities will be input into the online application form and students who opt for this project will be required to show that they can demonstrate these capabilities.

Required:

Excellent undergrad degree in engineering OR Masters degree with specialization in Industrial Engineering/Operations Management/Marketing/Supply Chain Management

Desirable:

Work experience in managerial or consulting roles
Prior exposure to research

Potential Collaborators

Please visit the IITB website www.iitb.ac.in OR Monash Website www.monash.edu to highlight some potential collaborators that would be best suited for the area of research you are intending to float.

Select up to **(4)** keywords from the Academy's approved keyword list (**available at <http://www.iitbmonash.org/becoming-a-research-supervisor/>**) relating to this project to make it easier for the students to apply.

Modelling and Simulation
Humanities
Psychology