

## Research Statement

### Research Interests:

My research interests are in better understanding the impact that operations strategies have on firm performance. I am particularly interested in strategies that are of increasing pertinence – whether due to competitive or regulatory forces – to the practicing manager. My research to-date has focused on environmental strategies, an area of heightened interest to both the public and private sectors. Specifically, I have concentrated on the potential coexistence of competitiveness and positive environmental performance in either voluntary or regulatory settings. In the near future, I plan to continue with this theme and to expand my research to include other aspects of sustainability, including socially responsible business practices.

As is evident in my CV, I am transitioning from a career as an Operations Management practitioner to that of an OM academician. While I thoroughly enjoyed and learned a tremendous amount from my career in industry, I was reaching an intellectual plateau. Through a fortunate set of circumstances, I was able to pursue my long-held dream of an academic career. The transition has been both challenging and very refreshing. One of the reasons that I selected Georgia Tech's PhD program is that it affords simultaneous exposure to both normative and empirical research methods. I have successfully completed the coursework in these areas and have used both approaches in my dissertation.

### Dissertation Research:

My dissertation research is at the intersection of OM and Sustainability. Emphasis on sustainability continues to expand for several compelling reasons: escalating energy and material costs, increasing public pressure for improved environmental, health, and safety performance, shifting consumer preference for “green” products, and sharpening NGO focus on sustainability performance.<sup>1</sup> Although OM research often focuses on economic

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<sup>1</sup> Kleindorfer, P. R., K. Singhal, L. N. Van Wassenhove. 2005. Sustainable Operations Management. *Production and Operations Management*. 14 (4) 482-492.

results, financial performance is only one element in the long-term success of the firm from a sustainability perspective. The firm's employees, society-at-large, and the environment must also be considered. Given that OM encompasses the design, operation, and improvement of the systems that create and deliver the firm's primary products and services, it is a discipline uniquely positioned to influence and improve various aspects of sustainability.

The first part of my dissertation analyzes product take-back, a form of Extended Producer Responsibility (EPR). EPR aims to shift responsibility for end-of-life products from society to the beneficiaries of products and, thus, to incent producers to provide more environmentally-friendly designs. EPR programs typically hold the *producer* – a single actor defined by the regulator – responsible for the environmental impacts of end-of-life products. This is despite emphasis on the need to involve all actors in the supply chain in order to best achieve the aims of EPR. In this study, we explore the important supply chain implications of sharing EPR program costs. We develop and present a stylized model to examine the trade-offs between assigning full responsibility for product take-back to a single echelon in a multi-echelon supply chain versus sharing responsibility between echelons. We determine the impacts of product collection and recycling mandates on the incentive to recycle, profits in the supply chain, consumption of virgin material, and social welfare. For the decentralized supply chain under competitive supply, we demonstrate how the sharing of EPR program costs between the echelons can move the supply chain closer to the coordinated profit benchmark but can also increase the consumption of virgin material. To examine both economic and environmental performance in conjunction, and assess the overall effectiveness of EPR programs, we propose a social welfare construct that considers supply chain profit, environmental externalities, and consumer surplus. We present conditions under which EPR program cost sharing can improve social welfare. The results of this research are of value to firms either anticipating or subject to product recovery legislation, and to social planners that attempt to balance economic and environmental outcomes. I plan to submit a paper based on this research titled *Sharing Responsibility for Product Recovery Across the Supply Chain to Manufacturing & Service Operations Management* by November 15, 2008.

The second part of my dissertation empirically investigates the impact from various types of corporate environmental initiatives and environmental awards and certifications on

market value of the firm. This research analyzes the shareholder value effects of environmental performance by measuring the stock market reaction associated with announcements of environmental performance. We examine the market reaction to two categories of environmental performance. The first category includes 430 announcements of Corporate Environmental Initiatives (CEIs) that provide information about self-reported corporate efforts designed to avoid, mitigate, or offset the environmental impact of the firm's goods, services, or processes. The second category includes 381 announcements of Environmental Awards and Certifications (EACs) that provide information about recognition granted by third parties specifically for environmental performance. Although the market does not react significantly to the aggregated CEI and EAC announcements, we do find statistically significant market reactions for certain CEI and EAC subcategories. Specifically, announcements of philanthropic gifts to environmental causes are associated with significant positive market reaction, voluntary emission reductions are associated with significant negative market reaction, and ISO 14001 certifications are associated with significant positive market reaction. Thus, we find that the market is highly selective in reacting to environmental efforts; when the market does react, it does not do so uniformly as certain environmental efforts are even significantly discredited by the market. I am currently making editorial changes for submitting a paper based on this work to *Journal of Operations Management*.

**Plan for the Near Future:**

My plan for the near future is to extend my research into the following areas:

- A. *Remanufacturing and Recycling*: Empirically studying how the concentration of these activities affects the financial performance of the firm
- B. *Environmentally Preferable Purchasing (EPP)*: Empirically studying the impacts of EPP on purchasing effectiveness, and on financial and environmental performance of the firm