

Abstract: Amy Xia will share her research interests and some of her on-going research projects. She will focus on the project that designs a sourcing plan with supply chain sustainability performance and operational factors (e.g. cost structure, capacity, supply risk, and delivery time of the supplier) as decision criteria. The sourcing plan selects suppliers from multiple potential candidates to form a supply chain and determines the investment and order allocation among these selected suppliers in order to achieve both high sustainability performance and cost efficiency. Environmental, Social, and Governance (ESG) index is adopted to quantify a supply chain's sustainability performance; a frontier approach is used to provide a set of effective solutions, of which none is superior or inferior. This is cast as a nonlinear integer-programming problem. Special features of the problem are discovered; an effective algorithm to solve the problem is then proposed. Numerical results verify that the proposed algorithm outperforms an existing algorithm, and provide managerial insights into how sustainability considerations alter the supply chain sourcing planning. A simulation of Apple's sourcing decisions with iPhone 6 provides additional confirmation of the effectiveness of the proposed approach.

The presentation is based on:

Yu Xia & Gang Li, Achieving Sustainability and Cost Efficiency through Sourcing Plan and Supplier Development, currently under 3rd revision at Production Operations Management.