Sustainable operations in production and logistics

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For a long time, contributions to business economics mostly focused on economic aspects, leaving ecological and social issues behind. This has significantly changed within the last decades, and sustainability issues are prevalent in this area of research. The Journal of Business Economics was a pioneer in identifying this trend and thus, it is not surprising that this special issue is in line with many other special issues enlightening the different facets of sustainability. For example, *Sustainability in Supply Chains* (Fandel et al. 2014), *Ethics in Academia and Management* (Haase and Fandel 2014), *Experimental (Business) Ethics* (Küpper and Schreck 2017), just to name the most recent ones.

When inviting for contributions, the definition of Sustainable Operations by Jaehn (2016) was used. This especially implies that ecological and/or social constraints or objectives had to be considered, which are not complementary to the economic objectives. This very general field was further restricted to Production and Logistics, but allowing for very different approaches within these fields.

All submitted manuscripts went through a thorough double-blind peer-review process. Four submission have been rejected or they were withdrawn after a first round of reviewing. Six submissions have finally been accepted, each after at least two rounds of reviewing. Both, Productions and Logistics are covered by these six contributions, which present very original views on the topic.

The first article is by Krapp and Kraus, who present a review paper on contracts in reverse supply chains. Besides a classical overview on numerous papers on this topic, the field has been structured using a content and cluster analysis. There are two main areas differed by active and passive returns. For each area, four clusters have been identified. Using this classification, the authors were able to point out research gaps and provide an agenda for future research efforts.

An extensive computational study on a new Vehicle Routing Problem is presented in the second article by Kopfer and Vornhusen. The research question to be answered here is on the composition of a fleet for solving a Vehicle Routing Problem. The fleet might differ concerning the engine (electric vehicles vs. combustion engines), and thus concerning the energy consumption, the driving

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range, and the payload. Within each group, further distinctions can be made. The authors present a binary integer program, which is then used to compare fleets of electric vehicles with fleets of combustion engines. Then, the effect of increasing battery capacity is analyzed and finally, a situation with recharging stations is investigated.

Based on the concepts of natural resource-based view (NRBW), both, pollution prevention and product stewardship mainly influence a company's competitive advantage. The third article by Schwens and Wagner empirically tests three related hypotheses: They assume a positive effect of pollution prevention and of product stewardship on strict firm-internal environmental standards, which in turn are assumed to have a positive effect on the company's organizational performance. The first hypothesis (pollution prevention) is supported, whereas the second (product stewardship) is not. The third hypothesis on the influence on the company's organization performance is supported as well.

The well-known models for Economic Production Quantity and Joint Economic Lot Size are generalized in the fourth paper by Zavanella, Marchi, Zanoni and Ferretti. A variable production rate is considered, which allows machines to speed up, but at the cost of higher energy demand. The energy demand in turn leads to further economic and environmental costs. They use numerical examples to show that the energy costs highly influence the total costs, depending on the production rate.

The fifth article is by Fett, Keles, Kaschub and Fichtner. They consider the situation that many households in Germany have photovoltaic systems, which produce electricity for self-consumption or which feed the electricity grid. A model is developed, which analyzes how a regulatory framework (which includes, e.g. feed-in tariffs, a self-consumption charge, etc.) influences the feed-in levels, the self-consumption level and the self-consumption rate. A strong impact of the regulatory framework can be observed.

The performance of a Sustainable Supply Chain is analyzed in the final paper by Rebs, Thiel, Brandenburg and Seuring. They build a system dynamics model, which is solved using simulation. The main goal is to analyze the influence of stakeholders (such as government or shareholders) and dynamic capabilities on the supply chain. The results show that strong pressure from shareholders and other external stakeholders leads to superior Sustainable Supply Chain Management performance.

Certainly, the six articles of this special issue deliver in-depth insights into a broad variety of topics within Sustainable Operations in Production and Logistics. Besides the knowledge expansion obtained by these papers, each article also delivered aspects for future research trends so that we expect significant future research work, which is based on the papers presented here.

Finally, we sincerely thank all authors and reviewers for contributing to this very nice special issue.

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