Guest editorial

Data-driven food supply chain management and systems

Food supply chain management (FSCM) plays an important role in our daily life since it supplies us with the necessity for our lives (Marsden *et al.*, 2000). However, inefficient and inappropriate management systems may cause large number of food losses. Gustavsson *et al.* (2011) pointed out that 492,000,000 tons of fruit and vegetables were wasted worldwide in 2011. In order to reduce the food waste, advanced technologies such as various sensors, Internet of Things (IoT), and cloud computing have been used to support FSCM (Yu *et al.*, 2001; Kelepouris *et al.*, 2007; Manzini and Accorsi, 2013; Yu and Nagurney, 2013). After deploying the advanced technologies like great myriad of sensors, vast data have been collected (Zhong *et al.*, 2015). Such massive and invaluable data from FSCM may bring new challenges such as data processing, data visualization, data-driven decision models, decision support systems, etc. in the era of IoT.

Big Data, an emerging technology for dealing with large and complex data sets, is able to address the challenges (Tan *et al.*, 2015; Zhong *et al.*, 2016). Driven by the significant awareness and concerns for the food sustainability, this special issue aims to highlight some works like innovative research methodologies, Big Data-driven modeling and optimization for FSCM, case studies, FSCM system, and so on. There are total 17 research studies which could be categorized into the following dimensions.

FSCM modeling

For achieving a multi-objective approach under an RFID-enabled HMSC network design, a cost-effective decision-making algorithm was proposed (Mohammed *et al.*, 2017). A new risk assessment model was introduced for agricultural products cold chain logistics (Zhang *et al.*, 2017). Chandrasekaran and Ranganathan (2017) introduced a modeling and optimization of Indian traditional agriculture supply chain to reduce post-harvest loss and CO_2 emission. Under the IoT-enabled fresh agricultural products supply chain, Yan *et al.* (2017) proposed a three-level supply chain coordination model to consider the influence of FAP on market demand and costs of controlling freshness on the road. To evaluate sustainability of supply chain, a dynamic network DEA approach was proposed (Shokri Kahi *et al.*, 2017). Zhang *et al.* (2017) reported a modeling of an IoT-enabled supply chain for perishable food with two-echelon supply hubs using the real-time data. In the food supply network, a model for traffic flow routing and scheduling was illustrated to prevent traffic flow congestion by Bocewicz *et al.* (2017). A constraint-driven model was introduced to FSCM using generalization of data-based control (Sitek *et al.*, 2017).

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Data-driven FSCM systems and cases

Li *et al.* (2017) introduced an IoT-based tracking and tracing platform for prepackaged food supply chain. Hu *et al.* (2017) reported a comparative study on the effect of different food recall strategies on consumers' reaction to different recall norm. Pan *et al.* (2017) demonstrated a case by using customers-related data to enhance E-grocery home delivery. Uddin (2017) introduced a case of the Australian agri-food industry supply chain using inter-organizational relational mechanism on firm performance to examine the influences of structural and economic issues on a supply chain performance. Kong *et al.* (2017) demonstrated a robot-enabled execution system for perishables auction logistics. Ghadge *et al.* (2017) took Greek dairy supply chains, for example, to discuss the drivers and barriers for SMEs who were implementing environmental practices in their business.

Review papers included in this special issue concentrated on the agri-fresh food supply chain quality (Ghadge *et al.*, 2017), planning for food products supply chain (Memon *et al.*, 2017), and FSCM (Zhong *et al.*, 2017).

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