



Research School for Operations  
Management and Logistics

**AI-Based Replenishment & Order Fulfilment Strategies for Supply Chains**

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While retailers are investing heavily in integrating online channels to their traditional offline channels, only multiple giant players' efforts are profitable. The main problem is the failure to integrate essential operations of online and offline channels. To tackle this problem, this PhD research provides a real-time, data-driven planning strategy by integrating the decisions on three cornerstones of omnichannel retail: 1) inventory replenishment policy, 2) customer fulfilment policy, and 3) consumer delivery options and prices. We provide a new AI-based methodology to enable the real-time integrated control of these three cornerstones. Our study provides the omnichannel retailers with decision support tools that tell them when and where products in the supply chain should be replenished and stored and how customer orders should be fulfilled. In this way, we identify profitable omnichannel business models that will help these business to stay alive in the e-commerce market