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Summary: Supply chains can often be complex due to the large mesh of interconnected suppliers, manufacturers, distributors and customers. Recent advances in communication technologies can help participants collaborate across a supply chain. However, the huge amount of data generated can impede effective decision-making, particularly since some data may be incomplete or have errors. Inaccurate estimates of the state of the supply chain system can lead to incorrect decisions, with consequent adverse effects on product availability, lead times and inventory levels. What would be beneficial in overcoming this problem is an approach to obtain a better state estimation of the supply chain system. The paper aims to address this issue by proposing an approach that combines an extended Kalman filter with a network approach that models the supply chain as an abstraction. This approach is termed Augmented Trans-Nets and has several potential advantages: multiple participants in a supply chain can be modelled without undue complexity; and different considerations can be examined, such as cost and lead time. Furthermore, by using this approach, it is relatively straightforward to achieve an improved system estimation, which can help in managing the supply chain effectively.

MSC:

90B05   Inventory, storage, reservoirs

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Full Text: DOI

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paper as accurately as possible without claiming the completeness or perfect precision of the matching.