























goods. This raises the real importance of structuring such mathematical optimization models to contribute to the literature and add value to the maritime shipping field and literature.

Nevertheless, a better addition to our model is to determine the optimal discounted freight rate ( $W_{d1}$ ) to guarantee even more total line profit ( $\Pi_{LT}$ ). Moreover, it would be great to integrate the demand sensitivity to speed, since that the vessel speed affects directly the total sailing cycle time  $S$ . these two additions are already our concerns in further developing this optimization model. A further dimension would add a great value, is considering the  $CO_2$  emissions, which is a global environmental concern raising these years.

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## Biography

**Walaa Ishnaineh** is currently a part-time student in the Master of Science in Engineering Management, University of Sharjah, UAE, in Addition to working as a Marine Data System Analyst in Dubai Municipality. She graduated with a BSc in industrial engineering in 2012 from University of Sharjah, UAE. Her BSc graduation senior project was about optimizing inventory levels for different packaging items in a courier company, which faces seasonal demand, may cause high storage costs beside extra cost for wrong ordering decisions. Optimizing the inventory level led to an important cost reduction and to changing the packaging materials ordering practices wisely.

**Ali Cheaitou** is Assistant Professor in Industrial Engineering and Engineering Management, coordinator of the PhD program in Engineering Management, College of Engineering, and member of SEAM Research Group, University of Sharjah, P.O.Box 27272 Sharjah, United Arab Emirates. Prior to joining University of Sharjah, Ali Cheaitou worked as assistant professor at Euromed Management (Kedge Business School), Marseilles, France and as lecturer at Ecole Centrale Paris, Paris, France. He also spent two year in the industry as ERP and supply chain management

consultant, with the main mission at L'Oreal, Paris, France. His main research interests are in production planning and inventory control, supplier selection, sustainable supply chain management, shipping and maritime transportation. His latest three key publications appeared in *Computers and Operations Research* (2017), *International Journal of Shipping and Transport Logistics* (2017), and *International Journal of Production Economics* (2014).