Transparent, Trade Efficient Supply Chain Network Design using Blockchain

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Abstract

A globally integrated supply or service industry concentrates on making supply chains efficient and competitive and slogan is *competition is supply chain vs supply chain*. However, global supply chains are far from perfect. Transactions involve manual paper transfers of records (purchase orders, invoices, bills of lading, customs documentation, etc.) and are subject to human error, loss, damage, theft and fraud. The inter-company financial transactions are done through banks paying high interest rates. New Technologies: Mobile Internet, IOT, Social media, Algorithmic Governance, Blockchains, Driverless cars, etc are changing the industry structure. The network governance model is generally hierarchical with all the data and decision making are with one company. Thus, Supply Chain transparency; Supply Chain Finance; Smart contracts and Network Governance need attention. Also AI and machine learning are used to automate the managerial decision making.

In this lecture, we talk about supply chain design using Blockchain technology, which is a recent blockbuster that allows all supply chain participants— importers and exporters, insurers, credit-rating agencies, shipping companies, logistics service providers — to share a single view of the data such as financing, shipped products, etc. Blockchain technology – which creates a permanent and transparent record of transactions – has the potential to obviate intractable inhibitors across industries. Currently the blockchain technology is an area of immense interest and is in initial stages of development. There are start-ups in this areas and Industry is highly focussed on its development. Thus this area is highly attractive for researchers as well start-ups.

Speaker's Bio

N. Viswanadham is INSA Senior Scientist in the Computer Science and Automation at the Indian Institute of Science. From 1967-1998, he was faculty at the Indian Institute of Science (IISc). Professor **Viswanadham** was Professor and Executive Director for The Center of Excellence Global logistics and manufacturing strategies in the Indian school Of Business, during 2006-2011. He was Deputy Executive Director of The Logistics Institute-Asia Pacific and also Professor in Department of Mechanical and Production Engineering at the National University of Singapore during 1998-2005.

He is the recipient of the 1996 **IISc Alumni award** for excellence in research. He was conferred the **Distinguished Alumni Award** in 2009 by IISc. He was awarded the 2012

Prof S K Mitra Memorial Award by the INAE. He is a **Fellow** of the IEEE, a **Fellow** of Indian National Science Academy, Indian Academy of Sciences, Indian National Academy of Engineering, and Third World Academy of Sciences.

Professor **Viswanadham** has made significant contributions to the areas of manufacturing, logistics and global supply chain networks. He is the author of Four Textbooks, Nine Edited Volumes, over two hundred forty journal and top tier conference papers. His current research efforts are on use of new technologies for Future Supply chain network design using blockchains and smart contracts and design of Competitive Business Models.