Editorial: New service and manufacturing environments: challenges for operations management researchers and practitioners

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Biographical notes: Dr. Angappa Gunasekaran is a professor of Operations Management in the Department of Management at the Charlton College of Business, University of Massachusetts-Dartmouth (USA). He teaches undergraduate and graduate courses in operations management and management science. Dr. Gunasekaran has 170 papers published in 40 different peer-reviewed journals. He has presented over 50 papers and published about 50 papers in conferences and given a number of invited talks in more than 20 countries. Dr. Gunasekaran is on the editorial board of 20 journals. He has organised several international workshops and conferences in the emerging areas of operations management and information systems. Dr. Gunasekaran edits journals in operations management and information systems areas. He has edited a number of special issues for highly reputed journals. Dr. Gunasekaran is currently interested in researching benchmarking, management information systems, e-commerce (B2B), information technology/ systems evaluation, performance measures and metrics in new economy, technology management, logistics, and supply chain management.

First of all, I would like to welcome all of you for this inaugural issue of the *International Journal of Services and Operations Management* (*IJSOM*). *IJSOM* proposes and fosters discussion on service and manufacturing competitiveness, with emphasis on strategic alliances, supply chain, network of firms, enterprise resource planning, globalisation and information technology and their implications on organisational productivity and competitiveness in global and electronic markets. Globalisation of markets, services and manufacturing is closely related to the success of a company. This perspective indicates the importance of developing effective and efficient service and manufacturing systems for organisational competitiveness.

Considering the globalisation of services and manufacturing, a journal focusing on global perspective of operations management is paramount important. Globalisation of market and operations places a tremendous pressure on productive management of service and manufacturing enterprises. There is a growing importance of services in today's developed economies. This is evidenced by the large share of GDP from services, which accounts for 70–80% of total employment in services. Nevertheless, manufacturing plays a major role in national economies and it becomes critical even for the survival of service organisations. Developing suitable strategies, techniques and tools

for effective management of manufacturing and services is a key factor for the success of the 21st century organisational competitiveness. This century organisations are characterised by integrated supply chain, network of firms through outsourcing, globalisation of manufacturing and service operations, and the implications of enterprise resource planning systems. Traditional costing and quality control systems need to be revised in order to suit the needs of the new enterprise environments. New strategies, techniques and technologies for improving productivity and quality in both networked manufacturing and services will be the main focus of this journal. This journal is aimed at shaping the future of service and manufacturing operations.

Traditional companies relied on doing everything ranging from marketing and after sales services. Also, manufacturing standardised products in high volume in order to achieve economies of scale. But nowadays companies compete based on mass customisation that is producing services and products based on individual customer requirements. This has complicated the service and manufacturing functions and therefore, the operations management function (Gunasekaran and Kobu, 2002; Gunasekaran and Yusuf, 2002). Considering the importance of globalisation, responsiveness and flexibility, and the advances in information technology and systems, companies focus on supply chain and enterprise resource planning with the objective of reaching the market as quickly as possible with the right products/services. Realising the importance of operations management function in the new enterprise environment, we felt a dedicated journal to this field is a must.

The main objective of the journal is to provide a platform for interaction between researchers and practitioners who are dealing with service and manufacturing operations management. It also aims at promoting and coordinating developments in the field of service and operations management functions in evolving new enterprise environments (Gunasekaran et al., 2002). Global dimension is emphasised with the objective of overcoming various cultural barriers and in turn to meet the needs of technological and organisational changes in global e-markets (Gunasekaran and Ngai, 2004). *IJSOM* is to provide executives and academics with the state of the art of service and manufacturing systems. Moreover, it is to facilitate the exchange of information about service and manufacturing management including strategies, tactics and operations, tools and technologies among service and manufacturing management researchers and practitioners. The Journal acts as a vehicle to help professionals, academics and researchers, working in the field of service and manufacturing management, to disseminate information and latest developments and to learn from each other's research. The journal publishes original papers, review papers, technical reports, case studies, conference reports, management reports, book reviews, notes, commentaries, and news. Special issues devoted to important topics in services and operations management will occasionally be published.

This inaugural issue contains seven papers discussing a range of issues dealing with service and manufacturing management in a new enterprise environment. We provide a brief overview of the papers appear in this issue.

Enterprise Resource Planning (ERP) has become a key technology for integrating various functions both within and outside of an organisation and it could be either in services or in manufacturing. ERP has become an indispensable technology for managing operations in a global enterprise environment. Multinational and supply chain ERP face the added complexity from national differences. The paper, 'Issues in multinational ERP implementation', by Olson, Chae and Sheu paper seeks to review lessons learned from a

number of studies of ERP systems, and to suggest issues in need of study in this important and growing area of information technology application. Business Process Reengineering (BPR) complicates ERP implementation in firms operating across international boundaries. The use of federalism as a way to implement multinational ERP systems is considered in light of the limits this place on BPR. The factors of supply chain linkage and outsourcing in multinational ERP systems are also elevated. Issues of culture, management style, political factors, labour skills, and the need for business cases are discussed.

The paper, 'Buyer-supplier behaviour in electronic reverse auctions: a relationships perspective', by Dani, Burns and Backhouse presents a conceptual framework for studying and understanding buyer–supplier in Electronic Reverse Auctions (ERA) from a relationships viewpoint. ERA though very popular with buyers, suppliers view them as being harmful to the health of their business in the long run. This has resulted in various issues arising, which can be/or are detrimental for the future of ERA. These issues have been addressed by various researchers (Jap 2003; Beall et al., 2003; Griffiths, 2003) as being unethical practices, and the auction providers have built in some codes of conduct in the process to curb this behaviour. Though this has been successful to some extent, it has not eliminated these practices. This paper tries to explain some of the behaviour from a different perspective using a conceptual framework and a tool used in psychological therapeutic counselling 'Transactional analysis'.

Scheduling problems deal with how to sequence a list of jobs with the objective of minimising some measurement of the job completion times. Inverse scheduling problems assume that a job sequence is given and the objective is to determine the minimal perturbation to the job parameters (e.g., processing times) so that the given sequence becomes optimal with respect to a pre-selected objective function. Koulamas in his paper, 'Inverse scheduling with controllable job parameters', studied inverse scheduling problems. It has been shown that these problems can be formulated as linear programming (LP) problems even when, in some cases, the corresponding forward scheduling problems are not solvable in polynomial time. Several applications are discussed, including the generation of benchmark optimal solutions for NP-hard forward scheduling problems.

Damien Krishnan, Meyer and Ramaswamy in their paper, 'Software product assessment based on customer inputs: metrics and managerial implications' extend the conceptual framework presented in Kekre et al. (1995) to assess the alignment of features in a software product with customer preferences. This framework entails assessment of a firm's product portfolio and market alignment using customer-based metrics at the firm and product levels. They calibrate metrics that capture both the mean and variability across customer in their latent overall satisfaction, and also assess the marginal effects of different product quality attributes. The framework has been illustrated using recent data from customer of database products.

Chen and Parlar in their paper, 'Dynamic analysis of the newsboy model with early commitments' consider a product with random demand and a short-life cycle. In order to reduce demand uncertainty, the retailer offers a price-incentive to potential customers before the regular sale season starts. Those who commit themselves to purchasing the product receive a discount when the product becomes available during the regular season. After observing the number of customers who commit, the retailer determines the optimal order quantity to maximise the total expected profit. Two different dynamic programming models are considered to solve this sequential decision problem with price incentive and

order quantity decisions. In the first model, the probability that the potential customers will commit themselves is assumed to be an increasing function of the discount rate and the purchase probability is a beta-distributed random variable and use Bayesian analysis normally distributed demand, the optimal sequential decisions are computed by solving the dynamic programming functional equations. The numerical results show that when it is optimal to offer price incentives one can reduce demand uncertainty and increase total expected profit.

In the context of international logistics, benchmarking systems such as quality assurance accreditation (QAA), total quality management (TQM) and internal composite logistic modelling (CLM) tools can be combined to maximise logistics efficiency. The provision of a global logistics service is particularly challenging due to the length and complexity of the supply chains involved. Several modes of transport, materials handling and support services are normally required to produce a given solution. The paper, 'Improving supply chain performance through quality management in a global distribution environment' by Beresford et al. assesses the contribution of TQM/CLM systems to performance enhancement in a global logistics environment. The pursuit of quality and the supply chain operations are highlighted by means of a survey of the top 200 UK logistics companies and a case study of a global logistics service provider: Excel. The company makes use of both internal and external quality management systems and CLM techniques in order to provide optimal solutions primarily for the global distribution of automotive components. It is shown that the use of external benchmarking and internal TQM and CLM techniques contributes positively to a company's internal efficiency and to its position in the market.

Faced with demand uncertainty for their products companies bear the associated burdens such as holding cost, spoilage and shrinkage for excess inventory and lost sales, expediting cost and shortage penalty upon stockouts. Consequently, much attention and effort are channelled toward the reduction of these costs. Components commonality promotes this endeavour by designing products to share some of their components. Consequently, the variability of demand for the components is reduced followed by a decrease in the management cost of materials. A recently introduced approach is demand reshape where firms attempt to influence some consumers to switch to a different product even though their original choice is available. Consequently, total variability of demand for the products is reduced as well as inventory management costs. As both approaches rely on the risk pooling effect to gain benefits, Eynan and Fouque in their paper, 'Benefiting from the risk-pooling effect: internal (component commonality) vs. external (demand reshape) efforts', explore the efficiencies of the two approaches; they compare performance and also investigate the potential benefits of employing both simultaneously.

Manufacturing has become more of a service. Service plays a major role in manufacturing productivity within the context of 21st century organisational competitiveness. The *International Journal of Services and Operations Management* is a referred journal that acts as a forum and source of information in the field of service and manufacturing operations management. *IJSOM* will focus on the

- service perspective of manufacturing including pure service industries
- globalisation of manufacturing and the role of service concepts
- taking the manufacturing and services to the next level for achieving dramatic improvements
- motivating the growth of manufacturing
- an integrated perspective of manufacturing and services.

Papers of the following types will be considered: strategies, analytical and simulations models, empirical research, case studies and industry experiences.

The main objectives of the journal are to promote research and practice of new strategies, techniques and technologies for improving organisational competitiveness of both service and manufacturing industries around the world. *IJSOM* aims to help professionals working in the field of services and manufacturing operations management, academic educators, industry consultants, and practitioners to contribute, to disseminate and to learn from each other's work. Global dimension is emphasised to overcome cultural and national barriers and to meet the accelerating technological changes and changes in global economy. *IJSOM* aims to act as a forum for exchanging innovative ideas and sharing research and practical experiences in services and manufacturing operations management. *IJSOM* will publish high quality papers in all areas of manufacturing and service operations management.

Academics and practitioners are invited to forward their contributions in the areas of service and manufacturing operations management for possible publication in *IJSOM*. Potential editors are welcome for guest editing special issues in emerging areas of service and manufacturing operations management. Please direct all your communication to the editor-in-chief (agunasekaran@umassd.edu). The following are the list of topics (but not limited to) that would be considered for publication in *IJSOM*.

- operations strategy in services and manufacturing
- designing the service and manufacturing enterprises
- service and operations management from value chain perspectives
- service blue printing
- service delivery process
- managing capacity in manufacturing and services
- managing and measuring quality in services and manufacturing
- information technology in services and manufacturing
- human resources in services and manufacturing
- production planning and control
- just-in-time
- lean/agile production
- supply chain management in services and manufacturing

- product and process design
- e-commerce and operations
- inventory management
- scheduling in service and manufacturing enterprises
- small and medium enterprises and their operations management
- performance measures and metrics in services and manufacturing
- location and facility planning
- Material Requirements Planning (MRP) and Enterprise Resource Planning (ERP)
- B2B e-Commerce
- virtual enterprise.

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