RELATIONSHIP BETWEEN AGILE MANUFACTURING & JUST-IN-TIME

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Abstract:

Agile manufacturing is the winning strategy to be adopted by manufacturers for dramatic performance enhancements to become national and international leaders in an increasingly competitive market of fast changing customer requirements. The methodology of this research is archive type which exploited of various foreign articles and books. A structural model includes the primary components of Just-In-Time-purchasing and production. Paper is focus on survey and model that indicate agile manufacturing has a direct positive relationship with the operational performance of the firm. Lean manufacturing is based on cost cutting. The move to lean production from agile and vice versa is a major challenging task.

Keyword: Agile, performance, purchasing, Asset, Market.

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Introduction:

Agile Manufacturing is an operational strategy focused on inducing velocity and flexibility in a make-to-order or configure-to-order production process with minimal changeover time and interruptions. Agile Manufacturing products compete directly with standard products, providing a customer with configurable opportunity to specialize a product. Agile Manufacturing differs with Lean Manufacturing in the sense that lean manufacturing is oriented toward a repetitive manufacturing environment with order characteristics of high-volume/low-mix, and Agile Manufacturing applies to low-volume/high mix. Agile manufacturing is seen as the next step after LEAN in the evolution of production methodology. The key difference between the two is like between a thin and an athletic person, agile being the latter. One can be neither, one or both. In manufacturing theory being both is often referred to as legible. It applies to environments where customized, configurable, or specialized orders, offer a competitive advantage. Agile Manufacturing requires an agile supply chain to function optimally. Supply chain agility is the extent of network capability that the organization possesses. Key to the success of an agile supply chain is the speed and flexibility with which these activities can be accomplished and the realization that customer needs and customer satisfaction are the very reasons for the network. Customer satisfaction is paramount. Achieving this capability requires all physical and logical events within the supply chain to be enacted swiftly, accurately, and effectively. The faster parts, information, and decisions flow through an organization, the faster it can respond to customer needs. just-in- time purchasing as a management innovation can be adopted by organizations as a strategy to gain advantage over their competitors. Seven characteristics of JIT purchasing are identified based on a comprehensive literature review. These elements are supplier cooperation, materials quality, quantities purchased, transportation, top management support, training and employee relations. In this paper section consists related work and section B describes structural model of agile manufacturing.

Section A

Related Work:

The literature shows that researchers have conceptualized and measured JITP in different ways. JITP is measured most often by a single scale [11].JITP is measured in some cases by a single item [12]. The use of a single item measure is problematic since the reliability of a single item measure cannot be determined. Tyson et al. have said that implementation of lean practices will reduce waste and decrease costs. Novelty and buffering affect the relationship between lean implementation and production costs [8]. Shah et Al. proposes a conceptual definition of lean production and identified ten factors of lean system [3]. Brosnahan et al. have said that lean accounting concepts reflect the financial performance of a company that has implemented lean manufacturing processes. Lean accounting concept include organizing costs by value stream, changing inventory valuation techniques, and modifying financial reports to include nonfinancial information [4]. Womack et al. have said that inventory should be minimized [4]. Chan et al. have discovered that by adopting lean production inventory holding is decreased [5]. Zipkin et al. have mentioned that lean inventory management can be compared to good inventory management [6]. Brian et al described that lean accounting is an integrated system therefore it cannot be implemented in piecemeal for making improvements. If lean accounting is implemented in piecemeal performance will negatively effected. Principles, Practices & tool of lean accounting were developed in first national Lean Accounting Summit conference in Dearborn, in September 2005.Lean manufacturing cannot be sustained long term without lean accounting [7].

Section B

Structural Model of Agile Manufacturing:

Just-in-time purchasing is antecedent to agile manufacturing. Within the manufacturing sector increased use of JIT-purchasing practices lead to improved agile manufacturing capabilities. Leanness, specifically JIT implementation, is a "foundation" or a precursor to agility (mutually supportive).When viewed from a performance perspective, leanness is a precursor to agility. Only one of the two primary elements of JIT was support agility. The relationship between JIT-production and agile manufacturing was non-significant. JIT-purchasing, rather than in

combination with JIT-production, explains a significant portion of the variation in agile manufacturing. some studies have shown that JIT flow is less significant than other elements The results for JIT-production do not support the notion that JIT-production is antecedent to agile manufacturing nor does it support the notion that the two are mutually exclusive. Agile manufacturing can subsume the paradigm of lean production. Is the production aspect of JIT so much a part of agility that one may not distinguish a difference between JIT-production and the production element within an agile manufacturing firm. Agile does imply that many of the principles and techniques of lean manufacturing are in place" If the JIT-production element is already in place then increased supplier/customer integration, in the form of high levels of JIT-purchasing, could show a far greater impact on agility than JIT-production alone. JIT-production is assessed as antecedent to JIT-purchasing. The idea that manufacturing excellence may generate a certain level of performance, but that additional improvement

requires the level of supply chain integration suggested by JIT-purchasing is consistent with "outward-facing" firms. Agile manufacturers can improve operational and firm performance. Agile firms exceed lean and other firms on most performance measures used. Interestingly, this is consistent with the proposed relationships among three of the four perspectives in balanced scorecard logic; customer perspective (marketing performance), internal business perspective (operational performance), and financial perspective (financial performance)

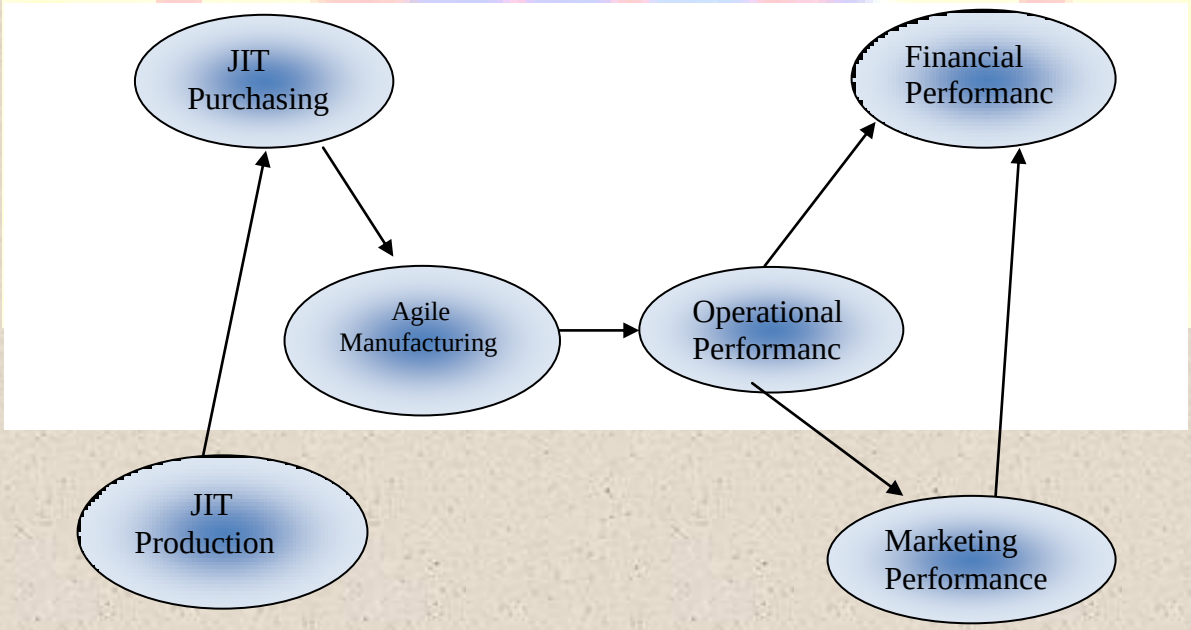

Figure- Structural Model of Agile Manufacturing

Agile manufacturing is a vision of manufacturing that is a natural development from the original concept of "lean manufacturing". In lean manufacturing, the emphasis is on cost-cutting. The requirement for organizations and facilities to become more flexible and responsive to customers led to the concept of the "agile" manufacturing as a differentiation from the "lean" organization. This requirement for manufacturing to be able to respond to unique demands moves the balance back to the situation prior to the introduction of lean production, where manufacturing had to respond to whatever pressures were imposed on it, with the risks to cost and quality. The move to lean production from agile and vice versa is a major challenging task.

Conclusion:

In the manufacturing sector**,** JIT-purchasing combined with JIT production enhances a firm's manufacturing agility. Improved manufacturing agility leads to the improved operating performance of the firm, which in turn leads to the improved marketing and financial performance of the firm.

Paper has an important theoretical role in guiding enterprises in realizing their agile manufacture. Company's operational performance is improved by agile manufacturing.

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