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An examination of effectiveness of demand pull practices for accomplishing sustainable development in manufacturing industries

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ABSTRACT

The main objective of study is to estimate and extract various significant Demand Pull (DP) practices influencing Sustainable Development in Indian manufacturing industries. The study critically examines the effectiveness of DP strategies in manufacturing enterprises. An extensive survey of 92 companies has been executed for this study, to identify improvements made by DP practices to achieve sustainable development in manufacturing industries. The companies in the survey include medium- and large-scale manufacturing enterprises. The correlations between various DP practices and sustainable development parameters are evaluated and validated using various numerical methods and tools. The focus of the paper is on the distinguishable contributions made by DP practices like stringent implementation of government regulations, transforming capabilities, unionized labor and customer attributes towards achieving sustainable development in manufacturing industries. The inter-relationships between different DP practices with sustainable development parameters have been evaluated, to efficiently manage the objectives of sustainability and growth. However, it is also acknowledged that manufacturing enterprises need to work more actively on managing certain practices of DP. In the present study the contributions of DP practices are investigated to accomplish sustainable development in manufacturing industries. Though, issue-wise independent examination can also be organized to compute the effectiveness of DP strategies towards achieving sustainable development and quality under specific orientations. The research gives priority to enhancement in planning among various DP practices and sustainable development indicators in the industries, to impart DP as an important practice to meet the challenges of competent markets worldwide. It has been exhibited from the observations that adequate DP strategies can efficiently contribute towards recognition of sustainable development to compete in the highly progressive global market. The results of various inter-relationships among DP practices and sustainable development parameters represent the effectiveness of DP practices for accomplishment of social as well as organizational objectives. The paper examines that DP practices are significant initiatives employed by the manufacturing organizations for performance improvement and sustainable development. The paper peeks into the study to find out DP issues that need to be assessed efficiently by companies to avail the benefits of sustainable development to meet the challenges posed by international markets.

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1. Introduction

Accelerated market changes, rise in diversity of products, truncated activity of items and enhanced competitive strategies outlines present manufacturing plot. The fluctuations in demand of goods and services respond rapidly to survive against competitive markets. In the current manufacturing scenario, industries utilize almost identical manufacturing operations and techniques; henceforth competition is not limited to manufacturing technology, but how diversely organizations manage technology relative to its customers. Innovation is recognized as a continuous and inbuilt process in manufacturing industries with regular improvement. A substantial output can be obtained from industries if there is a good coordination between demand and technology forces. The commitment of fulfilling the demand in time plays a significant role in raising the standard of manufacturing enterprises and its overall sustainable development.

Demand Pull (market need) is a recognized need that stimulates innovation with the help of research and development. The industries manufacture the required products, do its marketing and fulfill the demand of its consumers. In addition to this, Demand Pull inflation is likely to emerge when total demand overtakes total supply in an economy. This is broadly perceived as too much money chasing too few goods. Parker (1997) focused on new and emerging technologies, each accentuating demonstration and deployment, with varying degrees. One thread tying them together is the importance of Demand Pull. It was inferred that DP is a significant departure in technology development and deployment. Seyoum (2004) stated that the level of demand of high technology products in a country is a strong predictor of export performance and other variables like customer satisfaction. A proper clarification of this relation will assist industries to formulate proper strategies for encouraging overall growth and sustainable development. According to Sastry (2011) business being the most significant sector is the main strength of a market. Moreover, the industries impact the economy and employment, and the sustainable development favors business as well as society at large. As a result numerous national companies have become global and strongly contended with established multinational players in the market. Yadav (2012) stated that trade is an essential benchmark among different aspects of globalization. It incorporates ever changing plans of the industries which are more extensive as compared to the previous formats. With the passage of time several emerging economies have influenced the demand of products in global arena and proved to be the contemporary drivers of development.

Undoubtedly, numerous definitions of sustainable development are suggested over the time. World Commission on Environment and Development stated that, Sustainable development is a strategy of progress in which the utilization of assets, command on investments, arrangement of technological development and corporate revolution, are made persistent with subsequent and existing demand. Global rise in DP along with industrial revolution leads to competitive sustainable manufacturing. It is important to acknowledge that nations show different levels of development, from economic growth to economic development and beyond. Sustainable development is escalating as a world-wide key perception that we must recognize to accommodate environmental, socio-economical and technological challenges. The progress of social security and sustainable development can only be achieved if humans are able to make overall employments and better living conditions for human ethical quality (Jovane et al., 2008).

Manufacturing, stated as conversion of materials and data into assets for the contentment of human wants is the fundamental wealth-creating exercises of a nation. Encouraging perfection in manufacturing arises as a vital objective of industry along-with society (Chrysosouris, Mavrikios, & Mourtzis, 2013). Schon (1967) suggested that DP is an essential inspiration and dynamic effort behind the diversification of a new technology. As per Chau and Tam (2000) DP is a key simulator of technology adoption. It was inferred that an important role is played by DP, so the transforming capabilities should be given thorough consideration than technical capabilities.

2. Literature review

It was argued in 1950s and 1960s that demand drives the rate and direction of innovation. The changes in market conditions create opportunities for industries to invest in innovation to satisfy unmet demands of consumers. The demand steers firms to work on certain issues. Shifts in relative prices of products and geographic variation in demand affect the size of payoff in successful investments in new models and techniques. In the specific case of energy technologies, changes in the prices of conventional sources of energy affect the demand for innovation both within existing processes and for alternative devices. The critics of the DP argument attacked it on three grounds. Methodologically, the definition of 'Demand' in empirical studies had been inconsistent and was considered too broad a concept to be useful. A second line of criticism was that demand explains incremental technological change far better than discontinuous change, so it fails to account for the most important innovations. A third angle addresses the arguments' assumptions concerning firm capabilities, expressing uncertainty about: (1) how effectively firms can identify 'unrevealed needs' from an almost infinite set of possible human needs, (2) the extent to which firms in general have access to a large enough stock of techniques to address the variety of needs, and (3) how far firms might venture from existing 'routines' in order to satisfy unmet demands (Nemet, 2009).

In the present scenario, competition has entered each and every field of business worldwide (Koberg, Detienne, & Heppard, 2003). A vigorous rise in market demand exhibits the notion of current and potential customers towards adoption of new technology (Nielsen & Sahay, 1993). Prosperity is created through industrialization and development of economy is well recognized by growth of manufacturing industries. Subsequently, the prosperity of an economy depends on the excellence of its production capacity and how well it fulfills the demand of various products (Yamashina, 2000). The manufacturing industries flourish in light of market needs, whereas according to technical experts the change in technology is the critical factor for development (Chidamber & Kon, 1994). According to Gilgeous and Gilgeous (1999), there are activities practiced in industries which governs working condition of the business and contribute most to the manufacturing significance. According to Halachmi (2002) to compete globally, manufacturing

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