Abstract

Time and again manufacturing companies face challenges to overcome competitive situations. Though the momentum of competitive forces had been uniform till 1970s, its intensity increased to greater levels after modern manufacturing scenario witnessed the globalisation of markets. As a result, the demand for producing increased varieties of products at varied volumes and reduced prices was realised. Companies meeting these conditions are found to be flexible, responsive and efficient to continuously evolve and adapt to their markets, be innovative and capture new markets. This capability is called as agility. The manufacturing companies which have been attaining agility are capable of thriving in today's competitive market. The remaining manufacturing companies fail to reach the frontier stages in today's competitive market. Some of those manufacturing companies are slowly acquiring agile capabilities. However this slow pace of progress towards agility will defeat the purpose because competitors are quicker than them in meeting market demands. Hence, modern manufacturing companies are required to use appropriate models that would enable them to progress towards agility. In order to fulfill this need, this doctoral work was started with the major objective of contributing models for metamorphosing traditional manufacturing companies into Agile Manufacturing (AM) enterprises.

During the initial phase of this doctoral work, literature was knitted to identify the criteria for encapsulating AM requirements. This model has been termed as twenty criteria agile model. After that, the managerial and research perspectives with reference to twenty criteria agile model were gathered from industrial sectors where agility is yet to anchor. Followed by this it, was found necessary to adopt models for qualification and quantification of agility in companies where scientific and engineering principles are adopted either partially or fully. Since an agile qualification model developed by

researchers by names Zhang and Sharifi was found to be powerful in declaring the qualification of agility in manufacturing organisations, it was adopted without any refinements and modifications during this doctoral work. In order to quantify the gap in fulfilling agility in manufacturing organisations, a quantification model was developed by referring to the twenty criteria agile model. Both these models were applied in two Indian manufacturing companies to derive inferences on agility with reference to the manufacturing scenario. In a nutshell, the models developed during this doctoral work would enable the manufacturing companies to estimate the actions to be taken to attain agility.

This doctoral work has brought out vital contributions which are useful to a considerable number of industrial sectors which are now anxiously exploring the means of attaining core competence in today's competitive market scenario. Today, the practitioners from those industrial sectors are disappointed because they had anticipated that implementation of TQM would pave the way for attaining core competence forever. Since the global market has advanced tremendously, they are knowingly or unknowingly looking for a model for becoming agile within a short period of time. In the absence of such a standardised model, the contributions of this doctoral work assume special importance to both research and practicing communities. Wider dissemination of the contributions of this doctoral work and willingness of manufacturing community to volunteer to test implement the contributions are prerequisites for the complete utility both in theory and practice.