

Technical Note

A Comprehensive Bibliography on Justification of Advanced Manufacturing Technologies

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Abstract

As the nature of research on justification of AMT (Advanced Manufacturing Technologies) is difficult to comprehend within the confines of any specific discipline, the relevant materials are scattered throughout numerous scholarly journals in various disciplines. This comprehensive bibliography cites 274 articles from 92 literature sources published during the last two decades. By bringing the voluminous significant work in a wide variety of disciplines into one place, this bibliography can help researchers in this critical research area to keep abreast of new ideas.

Recently, *The Engineering Economist (TEE)* has published two annotated bibliographies on justification of factory automation: the first one by Canada (1986), and the second one by Wallace and Thuesen (1987) to update the Canada work. They helped researchers in this critical research area to keep abreast of new ideas between 1980 and 1986. However, some deficiencies are found. The two bibliographies omitted many articles published before 1980. A third of Canada's bibliography (total 113 citations) is not associated with justification issues, and most of the remainder deals with justification of "stand-alone" AMT (Advanced Manufacturing Technologies) such as robotics and CAD (Computer-Aided Design). About half of Wallace and Thuesen's bibliography (total 65 citations) consists of conference proceedings and working papers.

The two bibliographies omitted many important articles published in the refereed journals in the areas of Production/Operations Management, Engineering Management, Manufacturing Engineering, and Management Ac-

counting. A few examples are *International Journal of Production Research (IJPR)*, *IEEE Transactions on Engineering Management (IEEET-EM)*, *Journal of Operations Management (JOM)*, and *Production and Inventory Management Journal (PIMJ)*.

This paper enriches and updates the two bibliographies. It enriches them by adding many articles published in research journals between the early 1970s and the end of 1986. Every possible effort has been made to supersede authors' working papers and conference papers with their subsequent publications in the refereed journals. This bibliography also updates the two bibliographies by including voluminous literature published since 1987. It is the important period during which research on justification of AMT has remarkably progressed in both quantity and quality. In this period, the research trends of AMT economics have been significantly changed from separate, qualitative, local, and myopic studies to more integrated, quantitative, global, and strategic studies.

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As the nature of research on justification of AMT is difficult to comprehend within the confines of any specific discipline, the relevant materials are scattered throughout numerous scholarly journals in various disciplines. Besides, because of the growing importance of a strategic role of manufacturing functions and the popularity of AMT, many new (refereed) journals have been created since 1980, which include many articles on AMT justification: for example, *Strategic Management Journal* in 1980, *Journal of Operations Management* and *International Journal of Operations and Production Management* in 1981, *Journal of Manufacturing Systems (JMS)* in 1982, *Journal of Manufacturing and Operations Management*, *International Journal of Flexible Manufacturing Systems*, and *International Journal of Computer Integrated Manufacturing* in 1988, *Journal of Engineering and Technology Management* in 1989, and *Production Planning and Control* in 1990.

This bibliography brings together voluminous significant work in a wide variety of disciplines into one place: 274 articles from 92 literature sources (77 journals and magazines and 15 conference proceedings) published during the last two decades. Periodicals which have published at least six articles on AMT justification are *IJPR* (26), *JMS* (19), *Management Accounting* (15), *TEE* (13), *Industrial Engineering* (11), *Proceedings of ORSA/TIMS Conference on Flexible Manufacturing Systems* (9), *IEEE-EM* (8), *PIMJ* (8), *Proceedings of IIE Conference* (8), *Engineering Costs and Production Economics* (6), *JOM* (6), and *Omega* (6). This bibliography includes only the "published articles" focusing on "justification" of AMT. Therefore, books and unpublished working papers on AMT justification are excluded. Many additional articles focusing on such AMT-related issues as AMT (including robot) plan-

ning and implementation, flexibility, cost accounting, and manufacturing strategy are listed in [15, 50, 101, 153, 230, 251]. Unlike the above two bibliographies, this one is not annotated, not only because it is very voluminous but because the title of each article listed gives information enough to tell what it is about.

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Biographical Sketch

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