

# Classification and application of problem solving quality tools: A manufacturing case study

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## **Abstract:**

**Purpose** – The complexity of problem solving requires use of quality tools to assist in the organization and analysis of information and data surrounding the concern. A proposed classification scheme for problem-solving tools allows the user to identify the correct tool at the proper time in the problem-solving process. This may assist the problem solver to efficiently and effectively work toward problem solution. The classification scheme, in the form of a matrix, identifies, organizes, and defines tools of the six sigma problem-solving process as taught and implemented at a large manufacturing company.

**Design/methodology/approach** – Development of a problem-solving matrix to enable more efficient and effective use of tools applied to a six sigma project in a large manufacturing company.

**Findings** – The application of the methodology to a case study in a large manufacturing company related to an Air Conditioning (A/C) No Fill concern. The exercise of applying the six sigma tools matrix to this project would have been improved if conducted at the beginning of the six sigma Belt training and start of the A/C No Fill project.

**Research limitations/implications** – Since, the matrix was not fully completed at the start of either the training or the project, the team was unable to begin using the developed matrix until midway through both. This posed some limitations in judging the efficiency and effectiveness of the matrix. Although it is believed that both were improved, the maximum benefit may not have been achieved because of timing in application. Future application of the matrix should commence at the beginning of the project to enable maximum results for more efficient and effective problem solving and identification of proposed solution.

**Practical implications** – Manufacturing and service organizations can improve their problem-solving methodology by using the approach outlined in this paper. It will enable companies to better “match” the tools necessary to solve real-life business problems.

**Originality/value** – Although this approach uses existing quality management and problem-solving tools, its novel application in the development of a more thorough approach to problem solving, aided by the classification of problem-solving tools may enable companies to more successfully and expeditiously reach proposed solutions.