



**ID034: Qualitative theory building method for lean sustainable framework development:  
A methodology**

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**Abstract**

Research in manufacturing engineering was commonly conducted by employing quantitative methodology. Experimental and survey questionnaire methods are widely used by researchers. Hence, this paper will explain the justification for using the mix method of grounded theory and survey questionnaires to develop a lean sustainable framework. The authors used a non conventional method in mechanical engineering to develop the framework. The research method was classified as interpretative method. The grounded theory method is used to link the collected data until the emergence of an inductive theory generation. The rigor of the research was based on triangulation. Triangulation method improves the reliability and validity of the research. The end product of this research was the development of lean sustainable framework.

**Keywords:** Theory building; Operation management; Grounded theory method; Sustainable manufacturing;

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