



University of Bradford eThesis

This thesis is hosted in [Bradford Scholars](#) – The University of Bradford Open Access repository. Visit the repository for full metadata or to contact the repository team



© University of Bradford. This work is licenced for reuse under a [Creative Commons Licence](#).

**THE DEVELOPMENT OF HYBRID KNOWLEDGE-BASED
COLLABORATIVE LEAN MANUFACTURING
MANAGEMENT (CLMM) SYSTEM FOR AN AUTOMOTIVE
MANUFACTURING ENVIRONMENT**

MOHD KAMAL MOHD NAWAWI

PhD

UNIVERSITY OF BRADFORD

2009

**THE DEVELOPMENT OF HYBRID KNOWLEDGE-BASED
COLLABORATIVE LEAN MANUFACTURING
MANAGEMENT (CLMM) SYSTEM FOR AN AUTOMOTIVE
MANUFACTURING ENVIRONMENT**

The Development of a Hybrid Knowledge-Based (KB)/ Analytic
Hierarchy Process (AHP)/ Gauging Absences of Pre-Requisites
(GAP) Approach to the Design of a Collaborative Lean
Manufacturing Management (CLMM) System for an Automotive
Manufacturing Environment

Mohd Kamal MOHD NAWAWI

submitted for the degree of
Doctor of Philosophy

**School of Engineering, Design and Technology
University of Bradford**

2009