

# International Standard ISO 9001 – A Soft Computing View

José Neves<sup>1</sup>(✉), Ana Fernandes<sup>2</sup>, Guida Gomes<sup>1</sup>, Mariana Neves<sup>3</sup>, António Abelha<sup>1</sup>,  
and Henrique Vicente<sup>4</sup>

<sup>1</sup> Algoritmi, Universidade do Minho, Braga, Portugal

{jneves, abelha}@di.uminho.pt, mguida.mgomes@gmail.com

<sup>2</sup> Departamento de Química, Escola de Ciências e Tecnologia, Universidade de Évora,  
Évora, Portugal

anavilafernades@gmail.com

<sup>3</sup> Deloitte, London, UK

maneves@deloitte.co.uk

<sup>4</sup> Departamento de Química, Centro de Química de Évora, Escola de Ciências e Tecnologia,  
Universidade de Évora, Évora, Portugal

hvicente@uevora.pt

**Abstract.** In order to add value to ISO 9001, a Quality Management Systems that assess, measure, documents, improves, and certify processes to increase productivity, i.e., that transforms business at any level. On the one hand, this work focuses on the development of a decision support system, which will allow companies to be able to meet the needs of customers by fulfilling requirements that reflect either the effectiveness or the non-effectiveness of an organization. On the other hand, many approaches for knowledge representation and reasoning have been proposed using Logic Programming (LP), namely in the area of Model Theory or Proof Theory. In this work it is followed the proof theoretical approach in terms of an extension to the LP language to knowledge representation and reasoning. The computational framework is centered on Artificial Neural Networks to evaluate customer's satisfaction and the degree of confidence that one has on such a happening.

**Keywords:** International standard ISO 9001 · Knowledge representation and reasoning · Logic programming · Artificial neural networks · Normalization