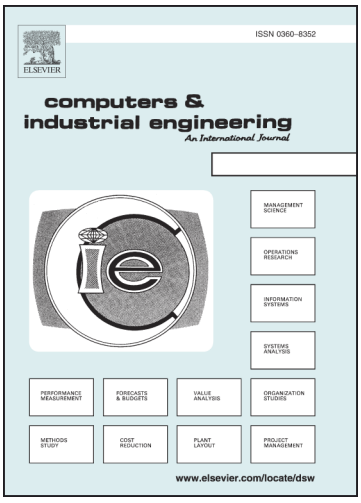

An activity-based defect management framework for product development

Huimeng Zheng, Weidong Liu, Chengdi Xiao

PII: S0360-8352(18)30062-7
DOI: https://doi.org/10.1016/j.cie.2018.02.027
Reference: CAIE 5089

To appear in: *Computers & Industrial Engineering*

Received Date: 6 November 2015
Revised Date: 7 November 2017
Accepted Date: 18 February 2018

Please cite this article as: Zheng, H., Liu, W., Xiao, C., An activity-based defect management framework for product development, *Computers & Industrial Engineering* (2018), doi: https://doi.org/10.1016/j.cie.2018.02.027

An activity-based defect management framework for product development

Article Type: Original Research Paper

Keywords: Design activity; Work breakdown structure; Defect management; Bayesian networks; Defect assessment; Defect identification

Corresponding Author: Huimeng Zheng

Corresponding Author's Institution: School of Engineering, Huzhou University

Address: No. 759 East Second Ring Road, Huzhou, Zhejiang, China, 313000

Email: zhmzj1980@163.com

First Author: Huimeng Zheng

Order of Authors: Huimeng Zheng [1,2,] Weidong Liu[2]; Chengdi Xiao[2],

1. School of Engineering, Huzhou University, Huzhou, China, 313000
2. School of Mechanical Engineering, Nanchang University, Nanchang, China, 330031

Abstract: As competition intensifies, development of complicated hardware products and the decrease in development cycle lead to increasing design defect risk in hardware products, resulting in all kinds of problems such as unsafe product, product development failure and so on. Therefore, it is important to manage design defect during all stages of product development to improve product design quality and product development success rate. Factors influencing design defects injection vary according to the different attributes of a product development, including the product complexity, the experience of the developers, the development cycle and tool. The most significant challenge in design defect management is to identify design activities that are likely to cause defects. This paper proposes a design defect management framework based on design activities that assess and identify design defects. First, the product development process is decomposed by using a work breakdown structure (WBS) to obtain