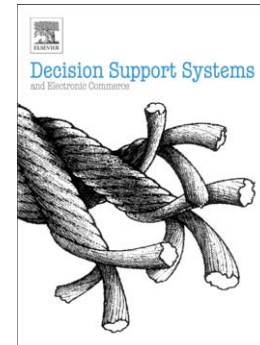# Accepted Manuscript

A new web personalization decision-support artifact for utility-sensitive customer review analysis

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A New Web Personalization Decision-Support Artifact

A NEW WEB PERSONALIZATION DECISION-SUPPORT ARTIFACT

FOR UTILITY-SENSITIVE CUSTOMER REVIEW ANALYSIS

ABSTRACT In recent years there has been increased consumer use of the vast array of online reviews. Given the increasingly high volume of such reviews, automatic analyses of their quality have become imperative. Not surprisingly, this situation has attracted the interest of researchers. However, prior approaches are insufficient to address the consumers' need for non-burdensome sense making of online reviews. This research attempts to close this gap by proposing novel design science *artifacts* (i.e. *construct*, *architecture*, *algorithms* and *prototype*) to address the consumers' need. We evaluate these artifacts using a set of experiments and hypothesis tests. The results validate the effectiveness and efficiency of the proposed artifacts. We demonstrate their practical utility and relevance using real world pilot experiments. This paper contributes theoretical knowledge to the review quality literature and, what we believe is the first exemplifier for adequately validating the solutions of review quality research.

1. INTRODUCTION

In recent years there has been increased consumer use of the vast array of online customer reviews [69], yet not all of such reviews are useful or helpful for improving consumers' purchase decisions [9]. Given the large volume of online reviews, manual effort to find the most helpful reviews is an intractable task for any consumer [7, 23]. Review quality analysis aims to automate the assessment of *review quality,* i.e., the helpfulness/utility of each review to inform purchase decisions [35]. Review quality analysis is a difficult problem that has received the attention of researchers [37, 52]. Generally speaking, previous review quality research has not addressed the issue of review spams, primarily because review spam detection is a very complex problem addressed in a separate research area known as *review spam research* [35, 50]. However, some researchers argue that addressing review spams in review quality research improves its rigor and relevance [68] since review spams known as fake reviews are detrimental to review quality. The spams are crafted with extravagate and misleading appraisals of the product to damage or promote the product [43]. Therefore, review spams should be spotted and discarded during review quality analysis, and our current research addresses this issue.