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**Identifying Product Opportunities Using Social Media Mining: Application of Topic Modeling and Chance Discovery Theory**

**Abstract**

As an emerging voice of the customer (VOC) containing feedback, such as opinions and expectations about products, social media data have the potential use for product improvement and new product development. However, most prior studies have focused on determining customer concerns, while neglecting to incorporate them into a systematic approach to identify product opportunities. In response, this paper suggests an approach to identify product opportunities from customer reviews in social media. This approach employs topic modeling to identify the product topics discussed by customers from largescale review posts related to a given product. A keygraph is then constructed based on the co-occurrences among the topics contained in each post. The chance discovery theory is then applied to generate new product opportunities from the chance nodes obtained from the keygraph. Our approach contributes to the systematic ideation process for product opportunity analysis based on large-scale and real-time VOC.