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Mining User-Generated Contents to Detect Service Failures with Topic Model

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Abstract : Online user-generated contents (UGC) significantly change the way customers behave (e.g., shop, travel), and a pressing need to handle the overwhelmingly plethora amount of various UGC is one of the paramount issues for management. However, a current approach (e.g., sentiment analysis) is often ineffective for leveraging textual information to detect the problems or issues that a certain management suffers from. In this paper, we employ text mining of Latent Dirichlet Allocation (LDA) on a popular online review site dedicated to complaint from users. We find that the employed LDA efficiently detects customer complaints, and a further inspection with the visualization technique is effective to categorize the problems or issues. As such, management can identify the issues at stake and prioritize them accordingly in a timely manner given the limited amount of resources. The findings provide managerial insights into how analytics on social media can help maintain and improve their reputation management. Our interdisciplinary approach also highlights several insights by applying machine learning techniques in marketing research domain. On a broader technical note, this paper illustrates the details of how to implement LDA in R program from a beginning (data collection in R) to an end (LDA analysis in R) since the instruction is still largely undocumented. In this regard, it will help lower the boundary for interdisciplinary researcher to conduct related research.

Keywords : latent dirichlet allocation, R program, text mining, topic model, user generated contents, visualization
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