A data-oriented framework of trip planning through user-generated contents

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The prevalence of information and communication technologies (ICT) and the proliferation of user-generated contents (UGC) provide great opportunities to examine the word-of-mouth related to travel experiences, which allows for facilitating trip planning. In contrast to traditional ways of trip planning, which involves manually cross-examining online reviews from multiple sources, we propose a data-oriented framework of travel-planning tool by crowdsourcing multiple UGCs to provide customized information for tourists. First, hotel customer reviews from online travel agencies (OTAs) and travel forums are extracted to derive multifaceted characteristics of hotel quality with natural language processing (NLP). Second, photo-sharing social media data are used to rank the popularity of different tourism attractions. Third, travel costs are estimated through ride-sharing platforms. Finally, travel route recommendations are provided through network analysis and spatial optimization approaches. The proposed data-oriented framework is illustrated through a cloud-based interface to let users communicate with the system interactively, which provides integrated recommendations including attractions, hotels, and visit route sequences. The proposed travel planning tool is not only beneficial to support customized travel decision-making, but also supportive for hotel managers with strategic management implications.