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Amit V. Deokar is an Assistant Professor of Management Information Systems in the Manning School of Business at the University of Massachusetts Lowell. Deokar received his PhD in Management Information Systems from the University of Arizona. He also earned a MS in Industrial Engineering from the University of Arizona and a BE in Mechanical Engineering from VJTI, University of Mumbai. His research interests include data analytics, enterprise data management, business intelligence, business process management, and collaboration processes. His work has been published in journals such as Journal of Management Information Systems, Decision Support Systems (DSS), The DATA BASE for Advances in Information Systems, Information Systems Frontiers, Business Process Management Journal (BPMJ) and IEEE Transactions. He is currently a member of the editorial board of DSS and BPMJ journals. Deokar was recognized with the 2014 IBM Faculty Award for his research and teaching in the areas of analytics and big data. He currently serves as the Chair of the AIS Special Interest Group on Decision Support and Analytics (SIGDSA).

**Location Analytics in Business: A Position Statement**

Location analytics has emerged as a distinct area of interest to scholars and practitioners in the area of decision support and analytics. Particularly, spatial decision support challenges that have traditionally relied on the joint foundations in decision support systems and geographical information systems are poised to leverage recent advances in big data and analytics. This interest is further fueled by external drivers such as mobile device adoption, proliferation of sensors and Internet of Things.

Spatial decision support, also referred to as location analytics, has found applications in many different domains. Applications such as crime prediction based on social media data with location content, optimal placement of wireless towers in rural areas, and so forth are some such examples in non-business domains. Location analytics, has now become more prominent in business applications, and is often referred to as a subset of business analytics, similar to text analytics and streaming data analytics.

Within business domains, different applications leveraging geospatial data are evolving and are presenting new research opportunities. For example, in marketing, enhancing in-store consumer experience through personalization and retargeting consumers outside stores is a pressing issue for
brick-and-mortar stores. A related issue is that of providing an omni-channel experience to avoid consumer messaging fatigue, and achieving consumer engagement—pestering delicate balance. In a different business area such as logistics and supply chain, autonomous drones working on spatial data are being deployed to do more efficient inventory recording and search in warehouse management. These are some examples of analytics applications where location data, in tandem with non-location data, can be integrated effectively. Further, sharing economy presents opportunities for leveraging location data to offer services. Applications like telematics that involve location data are being deployed by many auto insurance companies. In many of these applications, several socio-technical and socio-economic issues have emerged that deserve attention from the research community. In addressing these issues, applying methods from spatial analysis as well as data mining to detect patterns and test hypotheses is key.

As a co-editor of a recent special issue published in the premier Decision Support Systems (DSS) journal, the editorial article “Location analytics and decision support: Reflections on recent advancements, a research framework, and the path ahead” (Pick, Turetken, Deokar, & Sarkar, 2017) emphasizes opportunities in two broad aspects:

(a) **Data sources**: Harness newer spatial, i.e., georeferenced data sources, emerging as a byproduct of technological advances and dynamic global environment factors, among others.

(b) **Methods**: Integrate spatial analysis techniques and data analytics (descriptive, predictive, and prescriptive) techniques. This may include conceptual integration.

In terms of application areas, location analytics research needs to be expanded in business sectors that are under-researched, yet present a vital geospatial data platform. This includes real estate, utilities, banking, oil and gas, telecommunications, and insurance, among others. In many of these sectors, strategic, operational, and tactical decision support applications such as resource allocation, location-based marketing, preventative maintenance and planning of infrastructure are still relatively in early stages of maturity. Such applications provide opportunities for research into predictive modeling of geospatial phenomena.

From a methods perspective, analytic models, particularly predictive models that utilize spatial analysis methods such as local indicators of spatial association (LISA) techniques are required. Concerted development of algorithms with geospatial considerations can have considerable impact in the field of location analytics. These analytical methods broadly fall under the design science methodological paradigm within information systems field. Further, in studying research phenomena related to location analytics in business, it can be expected that multi-methodological approaches such as qualitative, quantitative, and design science will need to be harnessed in a synergistic manner to triangulate findings and address research questions of interest.

From a theory perspective, research questions in this area, like many interdisciplinary fields, can tremendously benefit from integration and development of theory that builds on theoretical models, instruments, and evaluation techniques in diverse fields such as information systems, geography, psychology, consumer behavior, and so forth.
In sum, location analytics for business presents strong potential for research opportunities in terms of novel applications, methods development, and theory development. Location analytics in business is poised to push the envelope in terms of how to meaningfully use geospatial data along with non-locational data, ultimately to gain deeper understanding of research phenomena. Leadership workshop on this topic, as being organized by UCSB and Esri, Inc. are indicative of the strong interest from research and practice communities to advance the field.

Reference:


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