

MISQ Archivist

Toward a Better Measure of Business Proximity: Topic Modeling for Industry Intelligence

Zhan (Michael) Shi, Gene Moo Lee, and Andrew B. Whinston

Abstract

In this article, we propose a new data-analytic approach to measure firms' dyadic business proximity. Specifically, our method analyzes the unstructured texts that describe firms' businesses using the statistical learning technique of topic modeling, and constructs a novel business proximity measure based on the output. When compared with existent methods, our approach is scalable for large data sets and provides finer granularity on quantifying firms' positions in the spaces of product, market, and technology. We then validate our business proximity measure in the context of industry intelligence and show the measure's effectiveness in an empirical application of analyzing mergers and acquisitions in the U.S. high technology industry. Based on the research, we also build a cloud-based information system to facilitate competitive intelligence on the high technology industry.

Keywords: Big data analytics, business proximity, topic modeling, industry intelligence, information system