A suspect or person-of-interest during legal case review or forensic evidence review can exhibit signs of their individual personality through the digital evidence collected for the case. Such personality traits of interest can be analytically harvested for case investigators or eDiscovery professionals. However, manual review of case evidence for such flags can take time, trigger potential rework, and contribute to increased costs. This dissertation focuses on analytical approaches to certain use-case scenarios of sentiment analysis and behavior detection of case suspects as a critical requirements for a legal case’s success and offers a custom software prototype as a proof-of-concept to help automate the entire process for case investigators.