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Bridging Clinical, Financial, and Operational Analytics: The Operationalization of Analytics and AI in Healthcare

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Bridging Clinical, Financial, and Operational Analytics: The Operationalization of Analytics and AI in Healthcare

TREO Talk Paper

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Abstract

As the efficacy of analytics and artificial intelligence (AI) is becoming apparent, healthcare organizations feel an urgency to embrace robust analytics capabilities to reduce costs, enable evidence-based medicine, and improve patient outcomes. Most advances in analytics and AI are still viewed primarily from the development of various technical and statistical models. Yet, analytics and AI initiatives are more likely to fail if their operationalization does not account for key factors such as an analytics strategy, analytics translators, leadership, analytics platform, or potential ethical, social, and regulatory implications. Matheny et al warns that “[d]isconnects between reality and expectations have led to prior precipitous declines in use of the technology, termed AI winters, and another such event is possible, especially in health care” (Matheny et al. 2020, p. 509).

This study employed a qualitative case study methodology using an interpretive philosophy to investigate the operationalization challenges of analytics and AI in healthcare. The use of an interpretive methodology allowed our interdisciplinary team of PhD, MD, and JD researchers to account for differences in individual perspectives, engagement in analytics initiatives, and account for the medical domain. Semi-structured interviews were conducted with a total of 28 key informants holding leadership and decision-making roles in healthcare organizations. The spectrum of the informants ranged from the technical and analytics teams to the most senior management across a variety of healthcare organizations. This included data analytics officers, clinical innovation officers, chief medical information officer, surgeons, chief operating officers, vice presidents, healthcare advisory services, and hospital presidents. Organizations included hospital systems, payers, pharmaceutical, healthcare consulting, healthcare reporting, and government agencies.

Our findings from this ongoing study suggested that many factors challenge how organizations operationalize their analytics and AI initiatives. While most healthcare organizations focus on establishing analytics and AI tools and capabilities, insufficient attention was directed toward tasks that extend beyond a typical model life cycle. The results showed that prioritizing AI initiatives with respect to strategic objectives, assessing their impacts vis-à-vis operational metrics, and integrating these into practice were major shortcomings into successful operationalization practices. Another significant discovery in our findings is an opportunity to bridge the organizational silos to pursue greater integration of AI endeavors spanning the clinical, financial and operational domains. We discuss an emerging theoretical framework of analytics and AI operationalization that can achieve significant improvements in health outcomes by leveraging synergies across domains, identifying critical steps required, and finally closing the loop of analytics and AI operationalization. We further explain how this framework can be extended, and the practical implications for AI practices in healthcare organizations.

References

Matheny, M. E., Whicher, D., and Thadaney Israni, S. 2020. "Artificial Intelligence in Health Care: A Report from the National Academy of Medicine," *JAMA* (323:6), pp. 509-510.