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SYSTEMATICALLY UNPACKING DATA TENSIONS AND DATA FRICTIONS IN AI: FROM TRENDS TO RESEARCH AGENDA

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Introdução

Although the AI literature acknowledges data as a core element for deploying AI systems, the role of data tensions and data frictions in AI development and implementation remains unclear. Insights from prior studies fail to capture the intricacies and dynamics of these phenomena, thereby limiting our systematic understanding of their emergence and evolution. Consequently, the findings are heterogeneous and dispersed across various contexts, analytical levels, and sectors, resulting in inconsistencies and compromising generalizability.

Problema de Pesquisa e Objetivo

Given the conceptual and empirical issues in the field, a systematic literature review (SLR) is necessary to consolidate the current body of knowledge in the field, as well as to identify underexplored areas, emerging trends, and propose directions for future research. The following research question guides this study: How does the literature address data and related challenges in AI development and implementation?
I applied Tranfield and colleagues' (1) framework to address this research question.

Fundamentação Teórica

Autonomy, learning, and inscrutability are the features that distinguish contemporary AI systems from other technologies. Autonomy reflects the capacity to make decisions without human intervention, whereas learning refers to the ability to learn from data and experience, and inscrutability illustrates the opacity of AI's inner workings to developers and users (2).
Data frictions represent solvable obstacles that hinder data flow across organizations and technologies, whereas data tensions refer to strategic contradictions surrounding data use from varying needs and interests (3,4).

Discussão

One, studies treat data as peripheral to AI, failing to capture the socio-technical complexity of data in AI development and implementation. Exploring frictions and tensions is a way forward to address this issue; Two, we need snapshot-based and longitudinal studies to understand, respectively, the short- and long-term dynamics; Three, inter-organizational and multi-level studies will reveal the complex realities organizations face when deploying AI, as they must navigate conflicting goals across organizational boundaries; Four, studies test or tweak theories, instead of building new ones.

Conclusão

The purpose of this SLR was to review the AI literature to unpack the data-related challenges by identifying underexplored areas, emerging trends, and proposing directions for further research. However, this study has two main limitations: The journal selection considered a small number of domains ranked on 3 or above on CABS, disregarding several journals outside the set threshold and in other domains; Two, the choice of databases may exclude publications not indexed in any. Snowballing techniques may overcome this limitation, but they decrease transparency. Thus, I opted not to employ them.

Contribuição / Impacto

Data and AI, when studied in tandem, are still underexplored in the field. Thus, multi-level qualitative and snapshot-based studies are needed to depict mechanisms, and longitudinal investigations to capture longer-term dynamics. A paramount goal in these studies should be treating data and AI as co-equal subjects of investigations, as a way out of a vicious cycle of incomplete insights on challenges related to AI deployment, particularly in collaborative projects. Studying both in tandem will capture the socio-technical nuances and provide a more complete picture of such challenges.

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