

Discursive Legitimation Strategies of Marketing a Disruptive Innovation: A Web-Based Discourse Analysis and Ethical Assessment of Artificial Intelligence in Radiology

The rapid introduction of artificial intelligence (AI) into radiology constitutes a disruptive innovation that requires discursive legitimation to secure professional and public acceptance. This study examines how metaphorical framing on over 130 selected websites that advertise radiological AI is deployed as a strategy for legitimating AI adoption in radiology. Drawing on content analysis methods (Kuckartz 2018) and an integrative discursive legitimation framework (Vaara et al. 2006; Vaara et al. 2024), we identify how metaphors (e.g., “tool,” “ally,” “pilot,” “assistant” etc.) function within five key legitimation strategies—authorization, rationalization, moralization, normalization, and narrativization—to construct AI as an acceptable partner in radiological practice. We then interpret these findings through three combined analytical lenses: 1. postphenomenology to understand technologically mediated perception and identity (Ihde 1990; Verbeek 2005); 2. performative ethics to capture the normative force of metaphors in revealing why these metaphors matter ethically by showing how they perform shifts in moral agency (Coeckelbergh 2023); and 3. Vaara et al.’s (2024) discursive legitimation framework to explain where they function strategically within the discourse to legitimize AI in healthcare and situate these metaphors in broader strategies of innovation acceptance. Thereby we draw implications for moral agency, responsibility distribution, and professional identity. This project will guide a doctoral researcher through corpus compilation, coding of metaphorical framings and legitimation strategies, and theory-driven ethical analysis to reveal how language choices shape the institutionalization of AI in radiology.

References

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Working Plan

Work Package (WP)	Months	Objectives & Tasks
WP1: Foundations & Framework	1–2	• Conduct a rapid literature review on AI in radiology, metaphor framing, and discursive legitimation • Familiarize with Kuckartz’s qualitative content analysis and the five legitimation strategies (authorization, rationalization, moralization, normalization, narrativization) • Define inclusion/exclusion criteria for websites:
WP2: Corpus Compilation	2–3	• https://radiology.healthairegister.com/ • Gather and archive 130 web pages • Record metadata (source type, date, audience)
WP3: Coding Scheme Development	4–5	• Develop a codebook integrating: – Metaphorical frames (e.g., “tool,” “ally,” “pilot”). – Discursive legitimation strategies (Vaara et al. 2006). • Pilot coding on a subset (10%) and refine the scheme
WP4: Qualitative Content Analysis	6–7	• Apply Kuckartz’s structured content analysis using MAXQDA: – Code full corpus for metaphors and legitimation strategies. – Iteratively adjust codes
WP5: Theoretical-Ethical Interpretation	8–10	• Map coded metaphors to legitimation strategies and technology-philosophical theories (e.g., technological mediation approach and performative ethics) • Analyze implications for moral agency, responsibility distribution, and professional identity
WP6: Validation & Triangulation	11–13	• Conduct 5–10 expert interviews (radiologists, AI developers) to verify interpretations • Refine analysis based on practitioner feedback
WP7: Dissemination & Guidelines	14–16	• Write up journal manuscript • Draft ethical-communication guidelines for metaphor use in AI promotion.

Deliverables

- Annotated corpus of 100 websites, codebook for metaphor and content analysis.
- Thematic report with categorized metaphors and narrative framings.
- Ethical analysis paper with journal submission.