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Automation-Only Is NOT AI: Beware, HEOR Colleagues!!

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Context and Approach

The Excitement

- The growing dialogue around artificial intelligence (AI) in HEOR signals a positive shift - AI is no longer a distant concept but a credible frontier for the field.
- The enthusiasm reflects a shared optimism that AI can enhance efficiency, transparency, and evidence generation in HEOR.
- This surge of interest is encouraging - it shows that the HEOR community is ready to embrace intelligent systems, even if their practical use remains limited today.

The Risk

- Despite this excitement, most tools/studies currently branded as "AI" or "Gen-AI" are traditional automation or new-age automation i.e., simple GPT/LLM invocation.
- This confusion between automation and true AI can lead to: Misunderstanding of capabilities, Misguided investments, and Erosion of credibility for genuine AI innovation.
- It is essential to differentiate learning intelligence from programmed automation to ensure AI's role in HEOR evolves responsibly and credibly.

Objectives

This study explores how "AI" is being represented in HEOR and clarifies the boundary between automation and real intelligence.

Methods

A targeted and desk review was conducted to identify studies that reference or apply AI/Gen-AI methods within HEOR. Timeline: Journal articles (January 2023 – August 2025); Conferences: ISPOR US & EU 2024 and ISPOR US & EU 2025. Detailed data extraction form was developed.

AI Categorisation

A) AUTOMATION ONLY

Systems that follow predefined rules with no learning, reasoning, or adaptation.

- A1. Traditional Automation: Rule-based tools, macros, or scripts performing fixed, repetitive tasks (e.g., automated data cleaning or batch processing).
- A2. New-Age Automation: Using LLMs (e.g., GPT-5) *as-is* for text generation, summarization, or extraction and not using reasoning. These are AI-powered tools, but still automation since they don't adapt, reason, or evolve beyond programmed prompts.

B) AUTOMATION WITH AI ELEMENTS (OR INTELLIGENT AUTOMATION)

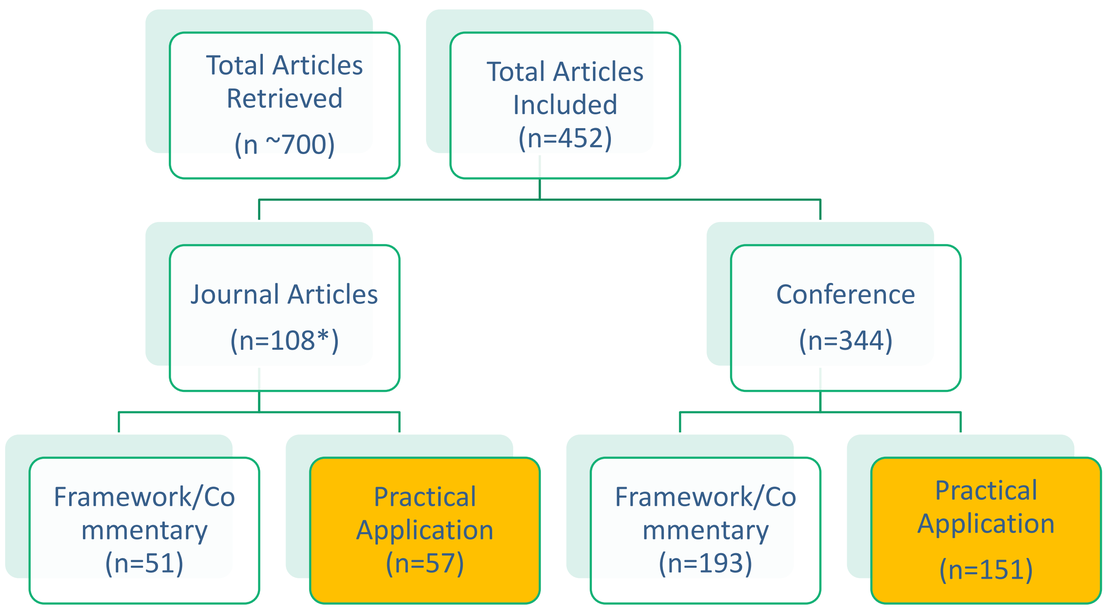
Workflows enhanced by machine learning or customized LLM pipelines (e.g., RAG, predictive models) to improve efficiency and insights. They leverage AI components but remain static - outputs don't change without human-driven retraining or design updates.

C) TRUE AI

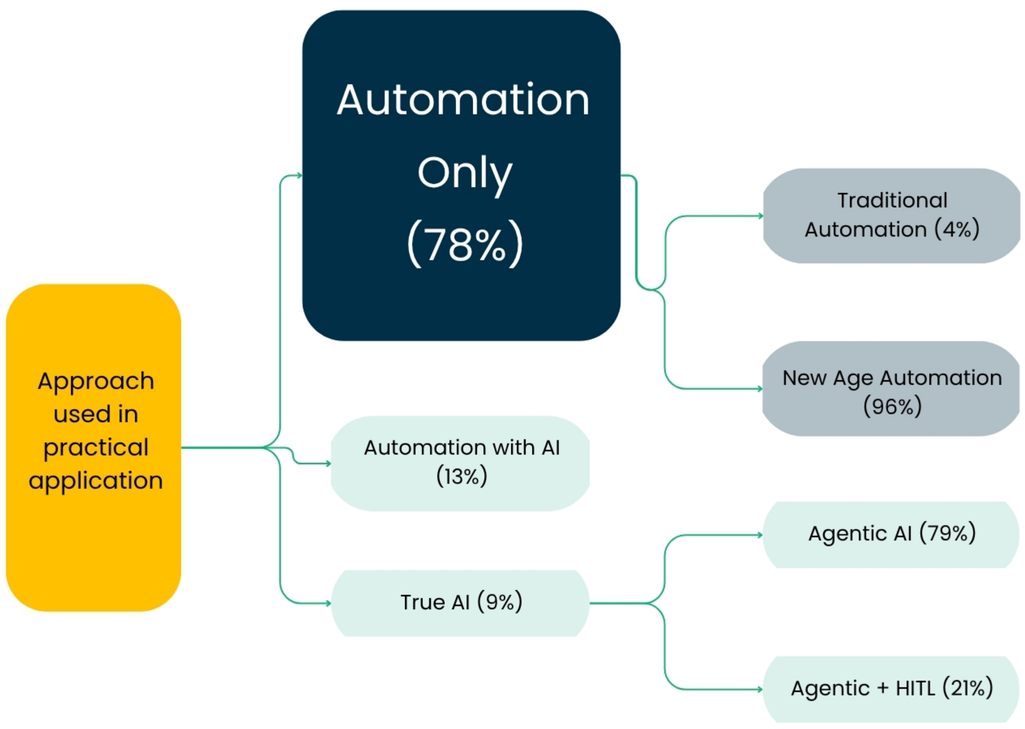
Adaptive, context-aware, and agentic systems where AI drives decision-making through learning, reasoning, and minimal human control.
Such systems may integrate context engineering, autonomous agents, and feedback-driven adaptation - showing continuous improvement and human–AI collaboration.

In today's world,
GPT/LLM invocation = the new automation ?

Findings



~92% studies focused on literature review



HITL, Human in The Loop.

Discussion and Conclusion

Most "AI" in HEOR remains automation-driven.
Current applications largely rely on rule-based or LLM-assisted tools that improve efficiency but lack learning, adaptation, or reasoning capability.

AI use in HEOR is still in its early maturity phase.
Most studies apply AI in rudimentary ways, whereas other industries have progressed toward adaptive, benchmarked applications. HEOR is now evolving from 'using ChatGPT' toward interpretable, transparent, and regulatory-aligned AI workflows**.**

AI's potential goes far beyond automation.
The real opportunity lies in contextual, insight-driven applications that support deeper evidence generation and decision-making. Hybrid intelligence - combining human expertise with AI augmentation—offers a credible, practical pathway toward trustworthy, explainable innovation in healthcare and HEOR.

A key challenge is the lack of shared benchmarks.
Unlike other healthcare domains (e.g., disease diagnosis or drug discovery), HEOR lacks standardized datasets for AI evaluation. Most studies build and test models on non-comparable, isolated datasets, resulting in inconsistent or non-generalizable outcomes—particularly evident in post-LLM automation-only implementations.

HEOR is embracing AI - but still at the surface. True progress lies in building autonomous and multi-agent systems capable of handling complex health and economic data efficiently. Exploring their potential in an "HEOR way" - transparent, interpretable, and evidence-aligned is the path forward.

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