Agentic Al for HEOR

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Interacting with large language models



Definitions

Agenticness

"The degree to which a system can adaptably achieve complex goals in complex environments with limited direct supervision"

Shavit et al. (2023). Practices for Governing Agentic Al Systems. Research Paper, OpenAl.

Agentic Al

"An advanced form of artificial intelligence that demonstrates autonomous decision-making capabilities, independent goal-setting mechanisms, and adaptive problem-solving behaviors without continuous human intervention"

Viswanathan (2025). Agentic AI: a comprehensive framework for autonomous decision-making systems in artificial intelligence. IJCET, 16 (1), 862-880.

4 Key Characteristics of Agentic Al



	Non-Agentic Al	Agentic Al
Primary purpose	Task-specific automation	Goal-oriented autonomy
Human involvement	Pre-defined routines Limited	
Adaptability	Low High	
Environment interaction	Pre-defined	Dynamic
Decision-making Data-driven or static rules Autored		Autonomous, contextual reasoning

Different levels of agency

Agency Level	Name	Description
***	Simple Processor	LLM output has no impact on program flow
***	Router	LLM output determines an if/else switch
\star	Tool Caller	LLM output determines function execution
$\star \star \star$	Multi-step Agent	LLM output controls iteration and program continuation
$\star \star \star$	Multi-Agent	One agentic workflow can start another agentic workflow

Controller Agent (Tool Caller or Multi-step Agent)

Multi-Agent



Application examples



Simulating review committee discussions

Iterative writing of dossiers

Living HTA

Benefits... and caveats

- Greatly increase speed of evidence generation
- Provide evidence in an accessible format at much larger scale
- Increase robustness of generated evidence
- Counteract model-specific biases by combining multiple LLMs
- But we have to implement Agentic AI in a thorough, validated manner:
 - Setting appropriate boundaries to AI autonomy
 - Develop insightful reporting traces
 - Evaluation and benchmarking of the implementation
 - Life-cycle maintenance of the implementation

Thank

you