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The Evolution of Future Artificial Intelligence (AI) and Digital Life Transformation: An Insight into Policy and Best Practices of AI in Saudi Arabia

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Outline



What is AI



Artificial Intelligence (AI)



What is AI?

Compared to Science and Engineering, AI is new comer and started after World War II then known widely in 1956.

Russell, S., Norvig, P (2010) classify AI definition in four main categories:

- AI that focused on Thought Processes and Reasoning
- AI that focused on Behaviour
- AI that focused on Conformity to human performance
- AI that focused on ideal performance

Artificial Intelligence (AI)

What is AI?

Ai Definition [Russell, S., Norvig,P (2010)]

Thinking Humanly

"The exciting new effort to make computers think ... *machines with minds, in the full and literal sense.*" (Haugeland, 1985)

"[The automation of] activities that we associate with human thinking, activities such as decision-making, problem solving, learning ... " (Hellman, 1978)

Thinking Rationally

"The study of mental faculties through the use of computational models." (Charniak and McDermott, 1985)

"The study of the computations that make it possible to perceive, reason, and act." (Winston, 1992)

Acting Humanly

"The art of creating machines that perform functions that require intelligence when performed by people." (Kurzweil, 1990)

"The study of how to make computers do things at which, at the moment, people are better." (Rich and Knight, 1991)

Acting Rationally

"Computational Intelligence is the study of the design of intelligent agents." (Poole et al, 1998)

"AI ... is concerned with intelligent behavior in artifacts." (Nilsson, 1998)

Thinking Humanly

- Cognitive Modelling Approach- How to determine human thinking?



Introspection

"the act of looking into your own thoughts and feelings"



Psychological experiments

Seeing a person doing some activities



Observing

•Analyzing the brain

Acting Humanly

- Turing test Approach proposed by Alan Turing(1950)



Natural Language Processing

"Able to perform communication in English "



Knowledge Representation

Collect and save information



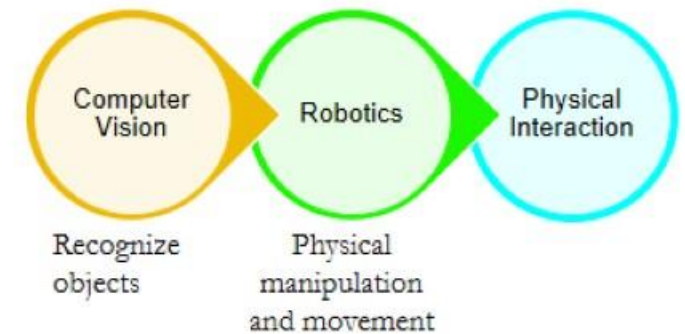
Automated Reasoning

•Use the owned information to give an answer and took a new assumption



Machine Learning

Ability to adapt toward new situation or environment



Thinking Rationally

- “The law of Thought”
- Right thinking



Solving Problem



Logical expression

Acting Rationally

- “The law of Thought”

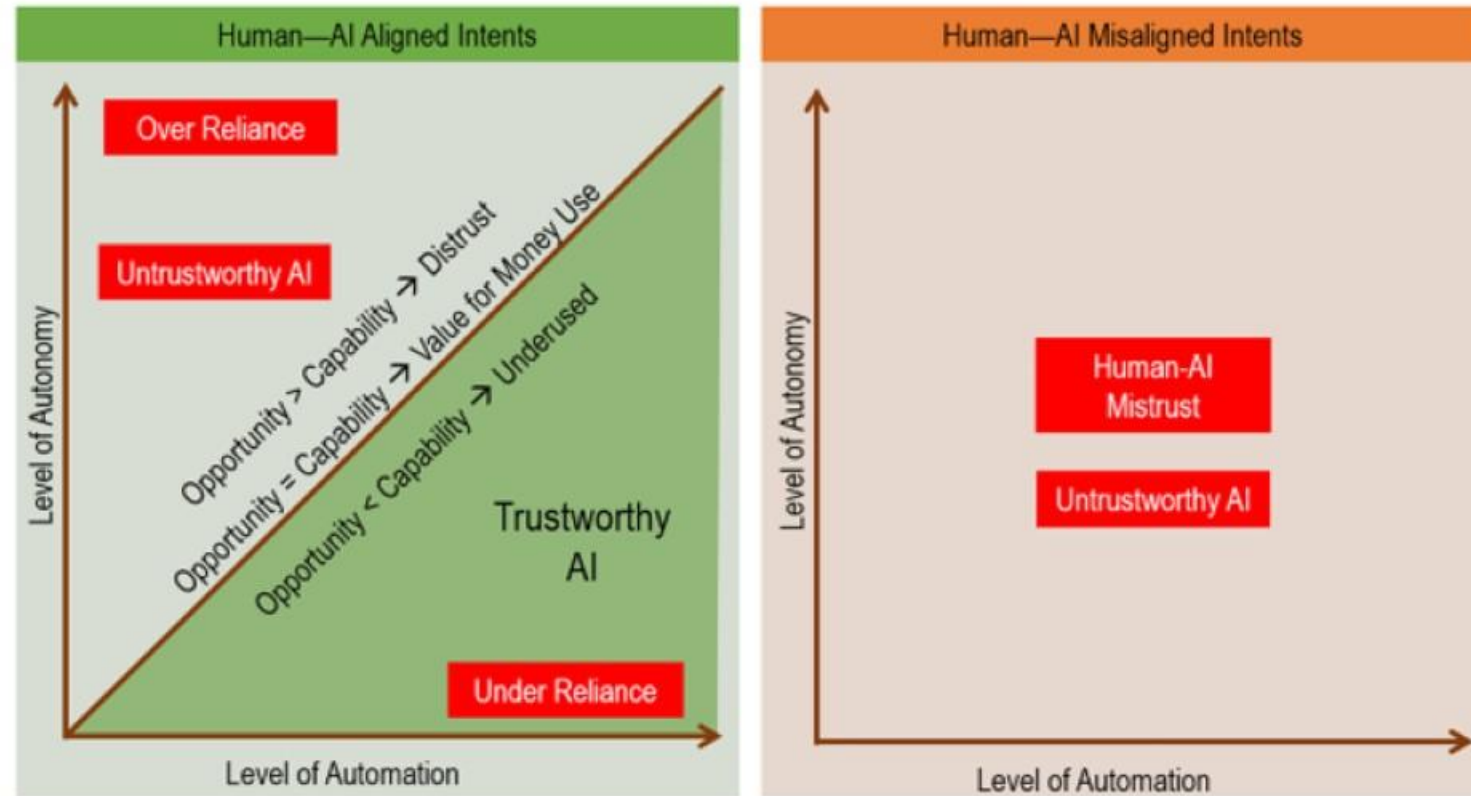


An agent should be able to work automatically, observing the environment, adaptation to change, and chasing objective.



A rational agent should act to achieve best outcome

Human-AI Trust



¹Human AI Relationship

¹Abbas, A. Hussein (2019) Social Integration of Artificial Intelligence: Functions, Automation Allocation Logic and Human-Autonomy Trust Cognitive Computation (2019) 11:159–171 <https://doi.org/10.1007/s12559-018-9619-0>