

## Unit 5 activities

### Activity 1

*Read the article by El Khatib et al 2023. How does the author define a knowledge based economy?*

In the paper by El Khatib et al., a knowledge-based economy is framed around three core elements: production, distribution, and use of knowledge. Central to this model is individual expertise and Information and Communication Technology, shifting away from traditional resource dependency toward intellectual assets. The approach integrates advances across all production stages, fuelling innovation and sustainable development. The narrative highlights the UAE's trajectory from an oil-centered to a diversified, knowledge-driven economy. This transition, driven by strategic investments in ICT and innovation, underscores the critical role of knowledge in crafting competitive and resilient economic landscapes.

### Activity 2

*Read the article by Du et al 2023 and answer the following questions:*

- *What is a knowledge base?*

In this paper, a knowledge base is described as a structured database that stores domain-specific knowledge in a way that allows for efficient retrieval and use. It acts as a repository of embedded text information that provides the system with necessary expertise and context, which can be used to guide operations and decision-making within the framework.

- *How is a knowledge base applied in the system discussed in this paper?*

In the context of the Tree-GPT system discussed in the paper, the knowledge base plays a crucial role by storing ecological knowledge related to forestry. This base is utilized to address the issue of "hallucination" in large language models (LLMs), where inaccurate data might be generated. By embedding ecological knowledge in the forestry domain, the knowledge base enables the retrieval of pertinent information that can be used as prompts to guide the LLM in generating accurate professional knowledge and performing specific tasks. When the system receives a natural language instruction, this embedded knowledge is accessed to ensure that the responses and analyses provided by the Tree-GPT are both precise and contextually relevant, thereby enhancing the system's efficacy in the domain of forest remote sensing image analysis.