

# GreenVETAfrica

## Lesson 1.6: Technology Evolution

**Unit 1: Introduction to Smart Expert Solution and the Technologies which Enable it**  
**Module 3: Remote Expert Solution for Vocational Technical Training Programmes**



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# TECHNOLOGY EVOLUTION

## Integration of Artificial Intelligence, Geolocalisation etc

The evolution of remote expert solutions has been shaped by advancements in technology, particularly in the fields of communication, information technology, artificial intelligence and geolocalisation. These solutions have become increasingly sophisticated over time, enabling organisations to access expert knowledge and support remotely with accuracy and efficiency.



## Mobile Devices and Location-Based Services

- The proliferation of smartphones and tablets led to the development of mobile applications that provided remote expert support.
- Mobile apps started using GPS and Wi-Fi triangulation to offer location-based services, including finding nearby experts or service providers.
- Geolocation technology began to integrate with remote expert solutions.
- When users required assistance, their precise location could be shared with experts, facilitating faster and more accurate troubleshooting or support.

## Augmented Reality (AR) and Virtual Reality (VR)

- AR and VR technologies began to be integrated into remote expert solutions.
- With AR, experts could leverage geolocation data to overlay information, direction onto a user's real-world view through smart glasses or mobile devices, aiding in maintenance, repair, and training scenarios. VR offered immersive training environments and remote collaboration spaces.

## IoT and Sensors (2010s)

The Internet of Things (IoT) has enabled remote experts to monitor and control physical equipment and devices from anywhere in the world. This is particularly important in industries like manufacturing, healthcare, and utilities.



## Artificial Intelligence (AI) and Machine Learning (ML)

AI-driven chatbots, virtual assistants, and expert systems have become integral to remote expert solutions. These AI technologies can answer common questions, provide troubleshooting guidance, and assist experts in diagnosing and solving complex issues.





## Blockchain and Security Enhancements

- Ensuring the security and integrity of data exchanged in remote expert solutions has become a top priority. Blockchain and advanced encryption techniques have been applied to protect sensitive information.
- These concerns about privacy and data security also have led to the development of more robust encryption and anonymisation techniques for geolocation data to protect user information while still enabling effective remote expert solutions.

## Cloud Computing

Cloud-based platforms have made it easier to deploy and scale remote expert solutions, as they offer flexibility, accessibility, and cost-efficiency.



**5G-6G Connectivity:** The rollout of 5G (and 6G) networks has improved the speed and reliability of remote communication, making it even more feasible to transmit high-quality video and data in real-time.



**Humanoid Robots and Telepresence (Ongoing):** Some industries, such as healthcare and manufacturing, are experimenting with humanoid robots and telepresence solutions to provide expert guidance remotely.

Future developments may include further integration with edge computing, and advanced AI algorithms to provide even more accurate and context-aware remote assistance based on geolocation data.

The technology evolution of remote expert solutions continues to advance, driven by a combination of hardware and software innovations. These solutions have the potential to revolutionize various industries by enabling experts to provide support and guidance from anywhere in the world, ultimately improving efficiency and reducing downtime.



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