ICTICT426

Identify and evaluate emerging technologies and practices

Assessment 1 of 4

Short Answer Questions

Assessor Guide

Version 1

Assessment Instructions

Task Overview

Read each question carefully before typing your response in the space provided.

Important: Before commencing your work, you must update your *Student name* and *Student number* in the footer from **page 2** onwards.

Additional Resources and Supporting Documents

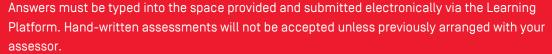To complete this assessment, you will need:

–   Learning Material

Assessment Information

Submission

You are entitled to three (3) attempts to complete this assessment satisfactorily. Incomplete assessments will not be marked and will count as one of your three attempts.

All questions must be responded to correctly to be assessed as satisfactory for this assessment.

Answers must be typed into the space provided and submitted electronically via the Learning Platform. Hand-written assessments will not be accepted unless previously arranged with your assessor.

Reasonable adjustment

Students may request a reasonable adjustment for assessment tasks.

Reasonable adjustment usually involves varying:

–   the processes for conducting the assessment (e.g. allowing additional time)
–   the evidence gathering techniques (e.g. oral rather than written questioning, use of a scribe, modifications to equipment)

However, the evidence collected must allow the student to demonstrate all requirements of the unit.

Refer to the Student Handbook or contact your Trainer for further information.

Please consider the environment before printing this assessment.

Question 1

Listed below are research approaches used to explore emerging technologies within the Information and Communication Technology [ICT] sector.

    i.   Describe the methods followed in each approach.

    ii.   Describe how they may potentially impact current ICT technologies.

In your descriptions, include how these approaches could shape the development, adaptation, or phasing out of current technology within the sector.

Assessor instructions: Students must complete the tables below.

The acceptable responses must:
- Be within the specified word limit.
- Reflect the characteristics described in the exemplar answer.

Benchmark answers are provided below.

Research Approach	Description	Potential Impact on Current Technologies
	[Approximate word count: 40 – 60 words] **Assessor Instructions:** The student must describe the methods followed in each research approach. Although responses will vary, for satisfactory performance, the student's response must: ▪ Correspond to the given approach ▪ Provide a clear and concise description ▪ Describe how each approach is employed, including essential steps and processes involved	[Approximate word count: 60 – 80 words] **Assessor Instructions:** The student must describe how research approaches may potentially impact current ICT. In their descriptions, they must include how these approaches could shape the development, adaptation, or phasing out of current technology within the sector. Although responses will vary, for satisfactory performance, the student's response must: ▪ Correspond to the given research approach ▪ Provide a clear and concise description ▪ Give ways by which the given approach could influence the development, adaptation and phasing out of current technologies
i. Delphi Method	The Delphi method is a structured communication technique used to reach a consensus among experts on a specific topic. It involves multiple rounds of anonymous surveys or questionnaires, with a facilitator summarising responses between rounds. Participants revise their opinions based on the group's feedback, aiming for	The Delphi method has a constructive impact in the development of current technologies by leveraging expert insights to discern emerging trends and foster the generation of inventive technologies. In terms of adaptation, its iterative expert feedback mechanism proves instrumental in aligning current technologies with evolving needs, guaranteeing their ongoing relevance and effectiveness. Furthermore, the Delphi

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	convergence towards a consensus viewpoint.	method offers a forward-looking consensus, signalling the potential obsolescence of specific technologies and guiding a phased transition towards more pertinent alternatives.
ii. Technology Road Mapping	Technology Road Mapping is a strategic planning tool that visually outlines the developmental path and evolution of technologies over time. By identifying key milestones, predicting potential challenges, and elucidating interdependencies between emerging technologies, it provides organisations with a roadmap for informed decision-making in the ever-evolving landscape of Information and Communication Technology.	Technology Mapping shapes the development of current technologies by strategically outlining key steps and milestones for creating modern technologies. For adaptation, it visually portrays the evolution of technologies, facilitating agile adjustments to align with emerging trends or unforeseen challenges. Regarding phasing out, Technology Maps is a proactive tool, identifying when technologies should be retired and enabling a seamless transition to more advanced solutions.
iii. Patent Analysis	Patent analysis is the examination of patent information to discern patterns, trends, and innovations. This research approach offers insights into the competitive landscape, technological advancements, and potential directions for research and development. It serves as a strategic tool for decision-making, guiding organisations in identifying promising areas for innovation within the rapidly evolving Information and Communication Technology sector.	Patent analysis contributes to the development of emerging technologies by revealing ongoing research trends and offering insights for innovation or building upon existing patented technologies. For adaptation, informed decision-making based on patent insights ensures that current technologies remain competitive and aligned with market demands. In terms of phasing out, monitoring patent activity becomes a crucial signal for identifying when technologies lose relevance, guiding a strategic transition away from outdated technologies towards more advanced alternatives.

Question 2

Listed below are research approaches used to explore emerging practices within the Information and Communication Technology (ICT) sector.

    i.   Describe the methods followed in each research approach.

    ii.   Describe how they may potentially impact on current ICT practices.

In your descriptions, include how these approaches could shape the development, adaptation, or phasing out of current technology within the sector.

Assessor instructions: Students must complete the tables.

The acceptable responses must:

- Be within the specified word limit.
- Reflect the characteristics described in the exemplar answer.

Benchmark answers are provided below.

Research Approach	Description	Potential Impact on Current Practices
	[Approximate word count: 50 – 70 words]	[Approximate word count: 50 – 70 words]
	Assessor instructions: Students must describe the methods followed in each research approach.	Assessor instructions: Students must describe how research approaches may potentially impact current ICT practices in 50 or more words.
	Although responses will vary, for satisfactory performance, the student's response must:	*In their descriptions, they must include how these approaches could shape the development, adaptation, or phasing out of current practice within the sector.*
	▪ Correspond to the given approach ▪ Provide a clear and concise description ▪ Describe how each approach is employed, including essential steps and processes involved	Although responses will vary, for satisfactory performance, the student's response must: ▪ Correspond to the given research approach ▪ Provide a clear and concise description ▪ Give ways by which the given approach could influence the development, adaptation and phasing out of current practices

i.	Case Study Analysis	Case study analysis involves a detailed examination of a specific case within its real-life context, emphasising a holistic and in-depth exploration. It employs qualitative data from multiple sources, uses rigorous analysis methods, and contributes to theory building. The process is iterative, flexible, and considers ethical considerations, making it a comprehensive approach to studying emerging practices.	Case study analysis shapes the development of current practices by offering real-world examples, guiding decision-making, and fostering continuous improvement. It influences adaptation by providing insights and benchmarks that inspire innovation and guide decision-making in changing environments. Furthermore, it prompts the phasing out of outdated practices by highlighting inefficiencies, demonstrating obsolescence, and highlighting alternatives, enabling informed decisions and innovation adoption.
i.	Action Research	Action research is a systematic inquiry approach where practitioners, typically educators, collaboratively identify problems, implement interventions, and evaluate the outcomes in their real-world context. It emphasises the integration of qualitative and quantitative data, fostering a holistic understanding of the issues at hand. It involves a cyclic process of planning, acting, observing, and reflecting, promoting continuous improvement in professional practices and solutions.	Action research shapes the development of current practices by involving stakeholders in collaborative problem-solving and fostering continuous reflection. In terms of adaptation, it encourages real-time adjustments and builds adaptive capacity. Furthermore, action research influences the phasing out of ineffective practices by revealing shortcomings, engaging stakeholders in decision-making, and prompting the gradual adoption of more efficient alternatives aligned with research findings.
i.	Trend Analysis	Trend analysis methodology involves the systematic examination of historical data to identify patterns, shifts, or recurring trends over a specific period. It employs statistical tools and data visualisation techniques to analyse the trajectory of variables, enabling researchers to make informed predictions about future developments and make strategic decisions based on past patterns.	Trend analysis shapes the development of current practices by identifying emerging patterns and shifts by examining market trends, technological advancements, and societal changes. It enables proactive adaptation by sustaining growth, adjusting strategies, adopting emerging technologies, and staying competitive. Moreover, it influences the phasing out of outdated practices by revealing shifts in market demands and technological advancements, guiding organisations to align practices with current trends and industry needs strategically.

Describe the methodology of each of the listed technology implementation planning methods in ICT.

Assessor instructions: Students must describe the methodology of each of the listed technology implementation planning methods in ICT in the table below.

The acceptable responses must:
- Be within the specified word limit.
- Reflect the characteristics described in the exemplar answer.

Benchmark answers are provided below.

Technology Implementation Planning Methods	Description
	[Approximate word count: 40 – 70 words] **Assessor instructions**: Students must describe the methodology of the listed technology implementation planning methods in ICT. Although the wording may vary, for satisfactory performance, the student's response must: ▪ Correspond to the given technology implementation planning method ▪ Provide a clear and concise description ▪ Describe how each method is employed, including essential steps or processes involved
iv. Agile Project Management	In Agile Project Management within the ICT sector, the process unfolds systematically. It begins with defining user stories to articulate desired functionalities. The product backlog is then created, listing all tasks. Sprint planning follows, where tasks are selected for the upcoming iteration. During sprints, teams self-organise to develop and test the features. Regular sprint reviews and retrospectives allow for continuous improvement, and adjustments are made based on feedback.
v. ITIL/ITSM	In ITIL/ITSM for ICT, the process unfolds methodically. In the beginning, service strategy sets the overall service direction. Then, service design crafts efficient structures. Service Transition follows to ensure smooth deployment. After, service operation manages ongoing services. Finally, continual service improvement iteratively refines and enhances service quality for a dynamic and responsive IT framework.

vi. ADKAR Model	The ADKAR model delineates a methodical change process. Commencing with creating awareness of the change, it progresses to instilling the desire to support it. Knowledge is then imparted, followed by the development of the ability to enact the change. Reinforcement is the final step, ensuring the change becomes ingrained for sustained success without emphasising specific benefits.
vii. Rapid Application Development (RAD)	Rapid Application Development (RAD) in ICT involves defining requirements, swiftly prototyping, and iteratively refining based on user feedback. This iterative process continues through implementation, testing, and deployment. A constant feedback loop ensures ongoing user collaboration, with maintenance adapting the application to evolving needs, fostering flexibility and responsiveness.
viii. Six Sigma	Six Sigma in ICT adopts a structured robust process improvement methodology and employs the DMAIC cycle: Define identifies project goals and customer requirements. Measure collects data to quantify existing processes. Analyse examines data for root causes of defects. Improve and implement changes to enhance operations. Control ensures the sustained success of improvements.

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Assessment submission checklist

Students must have completed all questions within this assessment before submitting. This includes:

1	Three (3) short answer questions completed in the spaces provided.	☐

Assessment feedback

Assessors are to indicate the assessment outcome as Satisfactory [S] or Not Yet Satisfactory [NYS].

Assessor comments:	☐ S	☐ NYS

Congratulations, you have reached the end of Assessment 1!