

## **Cambridge Technicals**

### **Unit 17 – Internet of Everything**

#### **Introduction**

LEVEL 3

UNIT 17: Internet of Everything

H/507/5020

Guided learning hours: 60

Essential resources required for this unit: Access to the internet and research materials

This unit is internally assessed and externally moderated by OCR.

#### **UNIT AIM**

This unit is about the use of the internet and how it is impacting people and society. You will learn about the Internet of Everything (IoE) and how it is used. Using your knowledge you will carry out a feasibility study for a potential idea. You will pitch your idea to potential stakeholders and use their feedback to revise your proposal.

This unit is an optional unit in the Extended Certificate and all of the specialist pathways in the Diploma suite, as the Internet of Everything is everywhere. The Internet of Everything is expanding, appearing in all of the everyday devices found in homes, businesses and cities.

Knowledge gained in the study of this unit will also help prepare you for relevant industry qualifications such as Cisco IoE.

**Name:** \_\_\_\_\_

**Assessor:** \_\_\_\_\_

**Date Assignment Issued:** \_\_\_\_\_

**Deadline Date:** \_\_\_\_\_

## Guidance for tutors on using this assignment

### General

OCR Cambridge Technical model assignments are available to download from our website: [www.ocr.org.uk](http://www.ocr.org.uk).

The purpose of this assignment is to provide a scenario and set of tasks that are typical of how a Project Manager would use project management skills, to enable you to assess your learner against the requirements specified in the grading criteria. The scenario and its tasks are intended to give a work-relevant reason for applying the skills, knowledge and understanding needed to achieve the unit.

This assignment will not instruct learners how to meet the highest grade. Whether learners achieve a pass, merit or distinction will depend on what evidence they produce.

You can modify the scenario we provide in this assignment to make it more relevant to your local or regional needs. Please refer to the information under 'Modifying the model assignment' later in this section.

You don't have to use this assignment. You can use it as a guide to help you to design your own assignment, and we provide an assignment checking service. You'll find more information on these matters in section 8 of the qualification handbook.

In the tasks, we'll refer to the format of evidence. Learners are not required to follow that format unless we tell them otherwise.

It's essential that the work every learner produces is their own. Please make sure you read through the information we give on authenticity in section 8 of the qualification handbook and make sure that your learners and any staff involved in assessment understand how important authenticity is.

We provide this assignment to be used for summative assessment. You must not use it for practice or for formative assessment.

Before using this assignment to carry out assessment

Learners will need to take part in a planned learning programme that covers the knowledge, understanding and skills of the unit.

When your learners are ready to be assessed, they must be provided with a copy of the following sections of this assignment:

- General information for learners
- Assignment for learners
- Evidence Checklist

# When completing the assignment

## Time

- Learners must be allowed sufficient time to complete all of the tasks. The amount of time may vary depending on the nature of the tasks and the ability of individual learners. To help with your planning against each of the tasks we have given an indication of how long it should take.
- Learners can produce evidence in several sessions.

## Format of evidence

- Learners have to produce evidence that demonstrates how they have met the grading criteria. At the very least they must produce evidence that meets **all** of the pass criteria. **Please make sure your learners realise that missing just one pass criterion means they will not pass the unit, even if they have successfully met the merit and distinction criteria.**
- We have stated the format in which the evidence **could** be presented for each task. Learners are **not** required to follow the format we have given **unless** we have told them otherwise. For example, if we say 'You could include a report on ...' the evidence does not have to follow any specific reporting conventions. You can modify the format of the evidence but you must make sure the format allows the learner to access all of the grading criteria. If we require that evidence **must** take a specific format, we will make that clear in the task for learners. Please look out for this and make sure learners realise that we have prescribed the format.
- If we have not specified a format for evidence learners are free to use the format that they feel is most appropriate for the purpose and target audience for each individual task.

For more guidance on generation and collection of evidence please refer to the section on *Internal Assessment* in the *Qualification Handbook*.

## Authenticity

- Authenticity in assessment is about making sure the work the learner produces for assessment is their own. We give information on authenticity in the qualification handbook under section 8. You must read through this and make sure all staff involved in assessment and your learners understand how important authenticity is.
- Our information on authenticity includes managing group work. There are lots of opportunities for group work in this unit and on-going collaboration between team members. Should a centre find itself in a position where it only has one learner taking this unit assessment then appropriate modifications should be made to this model assignment to ensure the

learner can achieve the highest outcome possible – e.g. employers, teachers taking on the role of the client, non-assessed candidates taking on particular roles within the implementation phase of the project and the project scope being more tightly defined to ensure control is maintained by the individual learner throughout the duration of the assessment, etc.

## Information to support the scenario/tasks

Learners must work on an IT project that would reflect the type of project carried out in the IT industry. For those learners following the technical qualifications, their chosen project will ideally reflect the pathway that they are following.

Synoptic assessment could be used across a number of units with learners' project managing scenarios linked to other units in the qualification, e.g. creating a network, creating a game, creating a management information system, etc.

## Resources to complete the tasks

Learners will need access to the internet to research different project management methodologies, project management tools and suitable resource material in relation to project management and methodologies.

Learners will need access to sample documentation for the different phases of project management, e.g. project initiation document (PID), control records, business case, etc.

Learners will need access to a 'client' for the purposes of feedback, the presentation of the business case and the selection of the option for the learner to take forward. This client could be the tutor or an engaged employer who is providing a meaningful contribution to this unit assessment.

### Group work

Ideally, learners will be working as part of a small team (no more than four members), and will be taking on the role of a project manager. It will be their responsibility to provide individual and authentic evidence to meet the assessment criteria. For the initial planning phase of the project each team member will create a business case. The client must select one of these business cases for the team to take forward. At this point, team members will be allocated different parts of the overall project to manage. This will ensure that all learners have the opportunity to attain the highest grade.

### After completing the assignment

Once the learner has submitted their work to you to be assessed, you must judge or 'mark' the work against the grading criteria for the unit and identify one grade for the unit. For further information about assessment, please refer to section 8 of the qualification handbook.

Your assessment decisions must be quality assured across the cohort of learners in your centre who are being entered for the same unit. This must be done through an internal standardisation process. We give information on internal assessment and standardisation in the qualification handbook.

# General information for learners

## ***Q What do I need to do to pass this assignment?***

A You need to produce evidence to meet the requirements of **all** the pass criteria for the unit this assignment relates to. If you miss just one pass criterion, you will not achieve this unit and will receive an unclassified result.

## ***Q What do I need to do if I want to get a merit or distinction for this assignment?***

A For a merit, you need to produce evidence to meet the requirements of **all** the pass criteria for the unit this assignment relates to **and** you need to produce evidence to meet **all** the merit criteria.

For a distinction, in addition to the above, you also need to meet **all** the distinction criteria for this unit.

## ***Q What help will I get?***

A Your tutor will support you when completing this assignment and will make sure that you know what resources or facilities you need and are allowed to use. We've given your tutor information about how much support they can give you.

## ***Q What if I don't understand something?***

A It's your responsibility to read the assignment carefully and make sure you understand what you need to do and what you should hand in. If you are not sure, check with your tutor.

## ***Q I've been told I must not plagiarise. What does this mean?***

A Plagiarism is when you take someone else's work and pass this off as your own, or if you fail to acknowledge sources properly. This includes information taken from the internet.

It's not just about presenting a whole copied assignment as your own; you will also be plagiarising if you use the ideas or words of others without acknowledgement, and this is why it's important to reference your work correctly (see Q&A below for more information on referencing).

Plagiarism has serious consequences; you could lose the grade for this unit or you may not be allowed to achieve the whole qualification.

**Always remember that the work you produce must be your own work. You will be asked to sign a declaration to say that it is.**

## ***Q What is referencing and where can I find out more information about it?***

A Referencing is the process of acknowledging the work of others. If you use someone else's words and ideas in your assignment, you must acknowledge it, and this is done through referencing.

You should think about why you want to use and reference other people's work. If you need to show your own knowledge or understanding about an aspect of subject content in your assignment, then just quoting and referencing someone else's work will not show that **you** know or understand it. Make sure it's clear in your work how you are using the material you have referenced **to inform** your thoughts, ideas or conclusions.

You can find more information about how to reference in the [The OCR Guide to Referencing](http://www.ocr.org.uk/i-want-to/skills-guides/) available on our website:  
<http://www.ocr.org.uk/i-want-to/skills-guides/>.

***Q Can I work in a group?***

A Yes. However, if you work in a group at any stage, you must still produce work that shows your individual contribution. Your tutor can advise you how to do this.

***Q Does my work for each task need to be in a particular format?***

A You can present your work in a variety of ways – it can be handwritten, word-processed, on video or in digital media. What you choose should be appropriate to the task(s) and your tutor can advise you. There may be times when you need proof that you have completed the work yourself: for example, if you do something during work placement that you want to use as evidence, the tutor might ask the employer to provide a witness statement.

Make sure you check the wording in each task carefully. For each task, we'll tell you if your evidence has to be in a specific format:

- If we say use the word '**must**', for example 'You must produce a report' or 'Your evidence/work must include a diagram', then you must produce the work in the stated format.
- If we use the word '**could**', for example 'You could include sketches of your ideas' or 'You could do this by annotating your diagram', this means that you are not required to follow the format we have given, but you must make sure that the work you do produce allows you to demonstrate the requirements of the grading criteria.

If you are unsure about what evidence you need, please ask your tutor.

***Q Can I ask my tutor for feedback on my work?***

A Yes, but they can't give you detailed feedback.

We have given your tutor instructions on what kind of feedback they can give you. For example, they are **not** allowed to tell you exactly what to do to make your work better, but they **can** remind you about what they've taught you and you can use this additional learning to try and improve your work independently. They can say what they've noticed might be wrong with your work, for example if your work is descriptive where an evaluation is required, but your tutor can't tell you

specifically what you need to do to change it from a description to an evaluation – you will need to work out what you need to do and then do it for yourself.

***Q When I have finished, what do I need to do?***

A If you have included the personal details (such as name, address or date of birth) of someone other than yourself in your work, this must be blanked out (anonymised) – your tutor will tell you how to do this. You don't need to do this for information contained in references.

You can complete the evidence checklist to show your tutor where they can find the evidence for each grading criterion in your work.

You should make sure your work is labelled, titled and in the correct order for assessing.

Hand in the work that you've completed for each task to your tutor. They might ask to see your draft work, so please keep your draft work in a safe place.

***Q How will my work be assessed?***

A Your work will be marked by someone in your centre who has been authorised to do so. They will use the information in the grading criteria to decide which grade your work meets. The grading criteria are detailed in each unit and are also given in the tasks within this assignment. Please ask your tutor if you are unsure what the grading criteria are for this assignment.

## **Assignment 1 – The Internet of Everything**

<b>Scenario</b> <b>You have been approached by Northumberland County Council to produce a report that is available to local businesses and residents about information regarding "The Internet of Everything".</b>	
<b>Assessment Method</b>	A detailed report discussing the below.
<b>Criteria Covered By task</b>	<b>Task Description</b>
<p>P1: Explain the concept of the IoE</p> <p>P2*: Explain the four pillars of the IoE and how its innovations can transform businesses</p> <p>D1: Evaluate the potential negative impacts of these innovations on businesses</p>	<p>Explain the internet of everything and give relevant examples of it's uses.</p> <p>1.1 Things, i.e.:</p> <ul style="list-style-type: none"> <li>• physical objects</li> <li>• experiential interactions</li> <li>• aids to people</li> <li>• aids to society/community</li> <li>• machines</li> </ul> <p>1.2 Where the IoE is used</p> <p>1.3 Applications of the use of the IoE, i.e.:</p> <ul style="list-style-type: none"> <li>• body/health</li> <li>• home/garden</li> <li>• city/neighbourhood</li> <li>• industry</li> <li>• the environment</li> </ul> <p>The interconnection of the four pillars of IoE (people, data, process and things) in the evolution of technology must be explained with an explanation of how these innovations can transform businesses.</p> <p>1.5 The four pillars of the IoE, i.e.:</p> <ul style="list-style-type: none"> <li>• people</li> <li>• data</li> <li>• process</li> <li>• things (devices and objects)</li> </ul> <p>1.6 People, i.e.:</p> <ul style="list-style-type: none"> <li>• students</li> </ul>



- members of society
- connecting people in relevant ways

1.7 People and how they connect, i.e.:

- devices
- social networks
- wearables

1.8 Converting data into information to allow people to make decisions

1.9 Data, i.e.:

- raw data
- connected things (devices)
- analysis
- decisions
- results

1.10 Information gathering devices, i.e.:

- computers
- smart phones
- vehicles
- other devices with sensors

1.11 Process, i.e.:

- delivery of information
- delivery to whom
- timing of processing
- methods to deliver processed information

1.12 Processing capabilities, i.e.:

- local
- server
- big data technologies
- cloud services

**You are** required to analyse the global impacts that the IoE has on **individuals, society and the environment**. This could be an **extension** to the evidence generated in P2. Evidence can be in the form of a written report, a presentation with detailed speaker notes, a video of the information being presented to an audience, or an information guide.

**It must be based on analysing the global impacts the IoE has on society and the environment.**

M1: Analyse the global impacts of the IoE on society and the environment	1.4 Global impacts, i.e.: <ul style="list-style-type: none"> <li>• positive</li> <li>• negative</li> <li>• cost savings</li> <li>• increased productivity</li> <li>• new sources of revenue</li> <li>• enhanced citizen experiences</li> </ul>
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**Task Feedback**

**Date:**

## Assignment 2 – Be able to repurpose technologies to extend the scope of the IoE

### Task 1

Scenario	
Assessment Method	A presentation with detailed speaker notes
Criteria Covered By task	Task Description
P3: Outline potential development projects that could extend the scope of the IoE	<p>In order to consider potential developments for the IoE it will be necessary for you to explore <b>existing</b> developments. <b>For example these are products that are currently already on the market such as the Apple Watch.</b></p> <p><b>Below is a list that could help you outline potential development projects of existing products. Note - these are NOT products that do not yet exist, these are <u>current projects</u>.</b></p> <p>2.1 Developments, i.e.:</p> <ul style="list-style-type: none"> <li>• body/health, e.g.: <ul style="list-style-type: none"> <li>o sensors, e.g. wearable thermometer</li> <li>o social safety wearables</li> <li>o Wi-Fi mattress cover</li> <li>o Bluetooth stethoscope</li> <li>o biometric patch</li> <li>o running analytics</li> <li>o Bluetooth weather sensor</li> <li>o Bluetooth maps for visually impaired</li> <li>o Bluetooth sunglasses</li> </ul> </li> <li>• home/garden, e.g.: <ul style="list-style-type: none"> <li>o smart air conditioner</li> <li>o Bluetooth tape measure</li> <li>o smart locks o smart lights</li> <li>o smart batteries o global location devices</li> <li>o Bluetooth measurement jars</li> <li>o Bluetooth flower pots</li> <li>o wireless water shutoff</li> <li>o Wi-Fi shopping lists</li> <li>o solar powered window blinds</li> <li>o Wi-Fi gas and carbon monoxide detectors</li> </ul> </li> <li>• city/neighbourhood, e.g.: <ul style="list-style-type: none"> <li>o real-time air traffic</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>o smart signage</li> <li>o bicycle barometer</li> <li>o city dashboard</li> <li>o intelligent street lights</li> <li>o taxi locator</li> <li>o surveillance systems</li> <li>o wearable air quality sensor</li> <li>o smart urban furniture</li> <li>o connected car safety devices</li> </ul> <ul style="list-style-type: none"> <li>• industry, e.g.: <ul style="list-style-type: none"> <li>o industrial smart helmet</li> <li>o smart glasses for warehouses</li> <li>o wireless pest monitoring</li> <li>o smart paving capturing kinetic energy</li> <li>o intelligent packaging</li> <li>o smart luggage/cargo</li> <li>o workforce driving monitors</li> <li>o connected e-paper displays</li> <li>o Wi-Fi cold storage monitoring</li> <li>o smart noise sensors</li> <li>o smart bottle labels</li> </ul> </li> </ul>
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<b>Assessment Method</b>	A detailed report		
M2: Conduct a feasibility study on one of these development projects	<b>Feasibility Study</b> <ul style="list-style-type: none"> <li>This is an extension of P3. A feasibility study must be carried out on <b>one of the above development projects you chose in P3 and discuss if developing the project further would it be of benefit to users and or the company who created it.</b></li> <li>Evidence presented must detail the nature of the feasibility study to be carried out</li> <li>An analysis and evaluation of the findings is also required.</li> </ul> <p>In your presentation slides include:</p> <ul style="list-style-type: none"> <li>Introduction to the project</li> <li>A description of the project what is the current market like?</li> <li>Benefits the project will bring</li> <li>Drawbacks of the project</li> <li>Evaluation - what conclusions have you drawn(is the project worth pursuing?)</li> </ul>		
To achieve the criteria you must show that you are able to:		Unit	Criterion reference
Be able to repurpose technologies to extend the scope of the IoE			2.1 – 2.2

**Task Feedback**  
**Date:**

**Assignment 3 - Be able to present concept ideas for repurposed developments**

Scenario	
Assessment Method	A detailed business proposal.
Criteria Covered By task	Task Description
P4: Prepare a business proposal for the chosen development project	<p>This criteria requires learners to prepare a business proposal for the chosen development project. The business proposal should cover the headings below. The evidence will be the completed business proposal.</p> <p>3.1 Business proposal, i.e.:</p> <ul style="list-style-type: none"><li>• target audience</li><li>• processing required</li><li>• data to be exchanged</li><li>• things</li><li>• networking requirements</li><li>• devices to be used</li><li>• security issues</li></ul>
Assessment Method	A <b>revised</b> business proposal

<p>M3: Revise business proposal for the chosen development project incorporating stakeholder feedback</p>	<p>You are required to consider the feedback from the potential stakeholders and <b>revise</b> the <b>business proposal</b>. The business proposal produced for P4 <b>will be updated to reflect the stakeholder feedback</b>.</p> <p>The evidence will be the <b>revised business proposal with a rationale for decisions made based on the feedback</b>.</p> <p><b>Note - the revisions are based on the business proposal and not the improvements to the presentation. So for example, how would it benefit the business, what would the cost be? Is it worth pursuing with cost? Would people really buy it? What does the current market look like? Is there room for this product?</b></p> <p>3.3 Feedback, e.g.:</p> <ul style="list-style-type: none"> <li>• stakeholders</li> <li>• developers</li> <li>• written</li> <li>• verbal</li> </ul> <p>3.5 Revision of proposal, i.e.:</p> <ul style="list-style-type: none"> <li>• analyse the feedback <ul style="list-style-type: none"> <li>o identify types of problems</li> <li>o determine consistency of comments</li> </ul> </li> <li>• decision on whether the proposal is still viable</li> <li>• make changes to proposal in line with feedback and viability considerations</li> </ul>
<p><b>Assessment Method</b></p>	<p><b>Evidence will be in the form of a presentation with detailed speaker notes with an accompanying witness statement. Evidence of feedback from stakeholders must also be included.</b></p>
<p>P5: Deliver a business proposal pitch to potential stakeholders on the chosen development project</p>	<p>This criteria requires learners to deliver a business proposal pitch to potential stakeholders</p> <p>3.2 Pitch, e.g.:</p> <ul style="list-style-type: none"> <li>• report</li> <li>• presentation</li> <li>• website/multimedia</li> </ul> <p>3.4 Stakeholder considerations, i.e.:</p> <ul style="list-style-type: none"> <li>• who benefits from the application?</li> <li>• how does society benefit?</li> <li>• how do companies benefit?</li> <li>• who will develop the application?</li> </ul>
<p><b>Assessment Criteria</b></p>	<p>The evidence will be an extension to the evidence presented for P5/M3</p>

D2: Evaluate the success criteria that would be used to judge the sustainability of the chosen development project	<p>You are required to evaluate the success criteria that would confirm the sustainability of the development project. The success criteria should provide a stakeholder with a good indication as to how to measure the success of the development and therefore should be measurable.</p> <p>3.6 Possible success criteria (must be measurable), e.g.:</p> <ul style="list-style-type: none"> <li>• improved efficiency</li> <li>• increase in profits</li> <li>• increase in productivity</li> <li>• reduction in wasted time</li> <li>• reduction in overhead costs</li> </ul>	
To achieve the criteria you must show that you are able to:	Unit	Criterion reference
Be able to present concept ideas for repurposed developments		3.1 – 3.6

### **Task Feedback**

**Date:**



## **Assignment**

<b>Scenario</b>		
<b>Criteria Covered By task</b>	<b>Task Description</b>	
<b>Assessment Method:</b>		
To achieve the criteria you must show that you are able to:	Unit	Criterion reference

**Task Feedback**  
**Date:**