**NZQA**

**Approved**

Achievement standard: 91361 Version 3

Standard title: Demonstrate understanding of sociocultural factors, and how competing priorities are managed, in technology

Level: 2

Credits: 4

Resource title: Characteristics of communications

Resource reference: Generic Technology VP-2.8 v2

Vocational pathway: Manufacturing and Technology

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| Date version published | February 2015 Version 2  To support internal assessment from 2015 |
| Quality assurance status | These materials have been quality assured by NZQA.  NZQA Approved number A-A-02-2015-91361-02-8257 |
| Authenticity of evidence | Assessors/educators must manage authenticity for any assessment from a public source, because learners may have access to the assessment schedule or exemplar material.  Using this assessment resource without modification may mean that learners’ work is not authentic. Assessors/ educators may need to change figures, measurements or data sources or set a different context or topic to be investigated or a different text to read or perform. |

Vocational Pathway Assessment Resource

Achievement standard: 91361

Standard title: Demonstrate understanding of sociocultural factors, and how competing priorities are managed, in technology

Level: 2

Credits: 4

Resource title: Characteristics in communications

Resource reference: Generic Technology VP-2.8 v2

Vocational pathway: Manufacturing and Technology

Learner instructions

# Introduction

This assessment activity requires you demonstrate your understanding of sociocultural factors and how competing priorities are managed in the field of mobile communication and in a particular femtocell technology within that field.

You are going to be assessed on how comprehensive your understanding is of sociocultural factors and how competing priorities are managed in the field of mobile communication and in a particular femtocell technology within that field.

The following instructions provide you with a way to structure your work so you can demonstrate what you have learnt and achieve success in this standard.

Assessor/educator note: It is expected that the assessor/educator will read the learner instructions and modify them if necessary to suit their learners.

# Task

## Confirm your area of research

In this activity you are to create a report or presentation about a particular femtocell development within the mobile communication field. Confirm the scope with your assessor/educator.

This task is based around the communications industry. You may choose to focus on another area of technology.

Confirm the format of your report or presentation with your assessor/educator. This could be, for example, a written report, a pamphlet, a portfolio or an audio-visual presentation.

## Conduct research

Research femtocell technology within the field of mobile communications and gather information you could use in your report or presentation. Your assessor/educator will advise you on how you might go about accessing suitable information.

The evidence you gather could include photographs, diagrams, notes you have written, and material from books, magazines, brochures or websites. Make sure you keep a record of the sources of this information.

You may work individually or in a group to conduct research but you must produce your report or presentation individually.

See Resource A for an example of how you may organise your investigation.

## Create a report or presentation

Create a report or presentation in which you do the following:

* Discuss the interactions between sociocultural factors and technological developments in mobile communication. Describe what these sociocultural factors are and explain how and why they influence technological developments in this field, providing detailed examples.
* Describe and explain the relationships between competing priorities and aspects of technological practice in the field of mobile communication.
* Describe and explain how competing priorities were managed in the development of femtocell technology in mobile communication. Identify and discuss decisions made to manage these competing priorities.

# Resource A

## Structuring your investigation

Here are some sample questions you could use to help you begin your investigation into sociocultural factors and competing priorities in technological developments within a field of technology (for example, mobile communication). This is only one way to go about the task and it does not fully cover all the information that you may require to write your report or presentation.

### Sociocultural factors

* What sociocultural factors could impact on technological developments (for example, femtocell technology) in this field? You may consider, but are not limited to:
  + social factors
  + political factors
  + environmental factors
  + economic factors
  + cultural factors
  + spiritual factors.
* What limitations could these sociocultural factors place on technological developments in this field? For example, wind farm technology is a technological development in the energy field that involves, but is not limited to, the following sociocultural factors: concerns about the impact on birds (environmental factor); the visual impact of the turbines (social factor); and the need for consultation with tangata whenua over the use of land (cultural and spiritual factors).

### Competing priorities

* What competing priorities influence the development of technological developments in this field? You may consider, but are not limited to:
  + opposing stakeholder viewpoints
  + innovation versus social acceptance
  + expedient practices versus ethically acceptable practices
  + the use of renewable versus non-renewable resources
  + budget constraints versus the use of most suitable materials
  + the use of resources of cultural significance in traditional versus contemporary contexts.
* How do these priorities affect aspects of technical practice? You may consider, but are not limited to:
  + establishing a need or an opportunity
  + design decisions and outcome development
  + resources selection, use and availability
  + manufacturing and/or production processes and methods
  + implementation and evaluation within a social or physical environment
  + maintenance and disposal issues
  + ethical, social and moral responsibilities.

### Competing priorities in a particular technological development

* With reference to a particular technological development within this field, how have competing priorities been managed?
* What decisions had to be made to manage or resolve these competing priorities?
* How were such decisions justified?
* You may consider, but are not limited to:
  + the stakeholders in the development work and the outcome produced
  + the social and physical environment in which the development work took place and in which the outcome was situated
  + legal requirements within the workplace and of the outcome and where the outcome operates
  + cost restrictions in terms of material selection and equipment availability
  + resource selection and justification
  + maintenance and disposal
  + cultural considerations which may be relevant to the particular development
  + ethical, social, and moral responsibilities.

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Assessor/Educator guidelines

# Introduction

The following guidelines are supplied to enable assessors/educators to carry out valid and consistent assessment using this internal assessment resource.

As with all assessment resources, education providers will need to follow their own quality control processes. Assessors/educators must manage authenticity for any assessment from a public source, because learners may have access to the assessment schedule or exemplar material. Using this assessment resource without modification may mean that learners' work is not authentic. The assessor/educator may need to change figures, measurements or data sources or set a different context or topic. Assessors/educators need to consider the local context in which learning is taking place and its relevance for learners.

Assessors/educators need to be very familiar with the outcome being assessed by the achievement standard. The achievement criteria and the explanatory notes contain information, definitions, and requirements that are crucial when interpreting the standard and assessing learners against it.

# Context/setting

This activity requires learners to demonstrate comprehensive understanding when creating a report or presentation exploring the interactions between sociocultural factors and how competing priorities are managed in a field of technology and in a particular technological development within this field.

One technological development has been suggested for exploration in this assessment resource. You may wish to select or negotiate other examples to meet the identified needs of your learners. These could be within or outside your learners’ chosen context(s) for practice, but they need sufficient diversity of potential sociocultural considerations to enable learners to meet the requirements of the standard.

# Conditions

Learner investigation of selected technological developments can occur in parallel with their own technological practice or during a concentrated period of time with a major focus on this activity. Sufficient time should be allocated to allow learners to gather the depth and breadth of evidence required to meet the requirements of the standard.

# Resource requirements

Learners will require access to the internet to find relevant information about the selected technology field and particular technological development.

Give learners guidance on how to access information about the relevant technological practice and on what sort of evidence they could collect.

Useful websites related to femtocells include:

Airvana <http://www.airvana.com/>

Ubiquisys <http://www.ubiquisys.com/>

# Additional information

None.

## Other possible contexts for this vocational pathway:

* flat-pack furniture
* electric-powered vehicles
* smart fibres.

# Assessment schedule: Generic Technology 91361 – Characteristics in communications

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner demonstrates understanding of sociocultural factors, and how competing priorities are managed, in technology by:   * describing the interactions between sociocultural factors and technological developments in a field of technology   For example:  The learner describes the influence of the rapid adoption of new technology on the speed of technological development in the field of mobile communications and the need to maintain acceptable safety and operating standards*.*   * describing the relationships between competing priorities and aspects of technological practice in a field of technology   For example:  The learner identifies and describes competing priorities such as differing stakeholder perspectives in the physical siting of cell phone towers, and costing issues relating to addressing resource management requirements.   * describing the competing priorities that were managed within a particular development in a field of technology   For example:  *People expect to buy their own cell phone and for the cell phone provider to outlay the cost of towers. Femtocell contradicts this practice, with each household or company bearing the cost of a base station to improve coverage. This cost needs to be balanced against the benefits, especially in low lying areas …*  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner demonstrates in-depth understanding of sociocultural factors, and how competing priorities are managed, in technology by:   * explaining the interactions between sociocultural factors and technological developments in a field of technology   For example:  The learner explains the factors behind the rapid development of mobile communications technology over recent times and the increasing socioeconomic influences on the emerging group of large infrastructure and equipment providers.   * explaining the relationships between competing priorities and aspects of technological practice in a field of technology   For example:  *Competing priorities in the drive to expand the consumer base for adoption of new products can compromise safety and alienate local communities because of the importance placed on ongoing stakeholder input into design decisions and outcome development in areas like new cell tower placement …*   * explaining how competing priorities were managed within a particular development in a field of technology   For example:  *People in New Zealand expect to buy their own cell phone and for the cell phone provider to outlay the cost of towers. People think that a local provider should ensure there is adequate cell phone reception before it can charge for its service. Femtocell contradicts this practice, with each household or company bearing the cost of a base station to improve coverage. This cost needs to be balanced against the benefits, especially in areas with poor cell phone reception where local homes and businesses might put off buying femtocells if they are too expensive …*  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner demonstrates comprehensive understanding of sociocultural factors, and how competing priorities are managed, in technology by:   * discussing the interactions between sociocultural factors and technological developments in a field of technology   For example:  The learner considers and comprehensively discusses the influence of a range of factors including economic, environmental and ethical issues on the progressive development of mobile communication technology. The influence of competing priorities such as a growing need for national cellular coverage in an increasingly regulated market was addressed in the discussion. A strong social influence is identified and its impact explained.   * explaining the relationships between competing priorities and aspects of technological practice in a field of technology   For example:  *Competing priorities in the drive to expand the consumer base for adoption of new products can compromise safety and alienate local communities because of the importance placed on ongoing stakeholder input into design decisions and outcome development in areas like new cell tower placement …*   * discussing the decisions made to manage competing priorities within a development in a field of technology   For example:  The learner highlights competing priorities for femtocell developers as they attempt to address the resource management costs and actual cost of building new cell phone towers.  *In New Zealand there have been public protests when Vodafone and Telecom proposed to install new towers in populated areas …*  *People in New Zealand expect to buy their own cell phone and for the cell phone provider to outlay the cost of towers. People think that a local provider should ensure there is adequate cell phone reception before it can charge for its service.*  *Femtocell contradicts this practice, with each household or company bearing the cost of a base station to improve coverage. This cost needs to be balanced against the benefits, especially in areas with poor cell phone reception where local homes and businesses might put off buying femtocells if they are too expensive …*  The learner considers impacts on the development process and outcomes from a variety of different perspectives. They discuss how design decisions for femtocell were made and how these were based on technological and social research which suggested that cell phone access could be improved and costs reduced.  *The above expected learner responses are indicative only and relate to just part of what is required.* |

Final grades will be decided using professional judgement based on an examination of the evidence provided against the criteria in the Achievement Standard. Judgements should be holistic, rather than based on a checklist approach.