Information Pack

Unit 516

Analysing and Interpreting Statistics to Inform Management Decisions

INTRODUCTION

This unit/information pack aims to provide you with the information to develop the ability to carry out and use statistical analysis to inform a management decision, as required by a practising or potential middle manager.

As a first-line manager, you will be actively involved in making decisions and solving problems. Indeed, becoming adept in the techniques is a sure way to increase the efficiency and effectiveness of both yourself and your organisation. In organisations, people who solve problems and consistently make good decisions do well! Much of your success in solving problems and making decisions is about the proper application of tools and techniques.

Today, more organisations use data to transform how problems are viewed and solved. By embracing the capabilities of statistical analytical tools to find patterns and trends, organisations can forecast and predict human interactions and behaviours. Data analysis can play a big part in resolving problems based on facts instead of intuition or past events. This data-driven, evidence-based information can be our insight into target audiences, automate processes and improve overall performance.

Organisations that create a data-driven culture can adapt to sudden market changes, become more competitive, deliver high quality, and make reality-based decisions to solve problems.

GUIDANCE

This document is prepared to break the unit material down into bite-size chunks. You will see the learning outcomes above treated in their sections. Therein you will encounter the following structures:

Purpose	Explains *why* you need to study the current section of material. Often, learners are put off by material that does not initially seem to be relevant to a topic or profession. Once you understand the importance of new learning or theory, you will embrace the concepts more readily.
Theory	Conveys new material to you in a straightforward fashion. To support the treatments in this section, you are strongly advised to follow the given hyperlinks, which may be helpful documents or applications on the web.
Example	The examples/worked examples are presented in a knowledge-building order. Make sure you follow them all through. If you feel confident, you might like to treat an example as a question, in which case cover it up and have a go yourself. Many of the examples given resemble assignment questions that will come your way, so follow them through diligently.
Question	Questions should not be avoided if you are determined to learn. Please do take the time to tackle each of the given questions in the order in which they are presented. The order is important, as further knowledge and confidence are built upon previous knowledge and confidence. As an Online Learner, the answers to questions must be immediately available to you. Contact your unit Tutor if you need help.
Challenge	You can cement your new knowledge by undertaking the challenges. A challenge could be to download software and perform an exercise. An alternative challenge might involve a practical activity or another form of research.
Video	Videos on the web can be beneficial supplements to your distance learning efforts. Wherever an online video(s) will help you, it will be hyperlinked at the appropriate point.

Contents

Defining a Problem

First, it is good to establish key definitions for the relevant concepts when studying management. Firstly, let us look at the definitions.

Problem:

'A matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome; a thing that is difficult to achieve.' (Oxford Dictionary)

Decision:

'A conclusion or resolution reached after consideration' (Oxford Dictionary)

Recognising Problems

Recognising that problems are usual in any organisation, dealing with them quickly, and solving them promptly and efficiently contributes to success.

Question

List 10 ways you become aware of problems at work:

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Your answers could be many and varied but may have included, for example:

- Managers communicate the problem to you.
- Brought to you by your team.
- From outside the organisation – e.g., via complaints.
- Through observation – misconduct, poor relationships.
- Though failing to meet targets and measures set, e.g., production targets and sales targets.
- Through an unexpected occurrence – e.g., flood, mechanical breakdown, theft.
- From product returns.
- From feedback systems – computer monitoring of processes, etc.
- From dissatisfaction surveys.
- From the analysis of the external environment – e.g., a change in the law.
- From the analysis of the internal environment – e.g., insufficient staff.
- From quality audits.

What is Problem Finding?

Problem finding is a critical thinking process in which the person articulates an idea that should be addressed, a question that needs to be answered, a hypothesis that should be analysed, or an issue that needs to be solved.

Problem finding can be thought of as a creative process. Some people have a skill for it. Some people need to work on this skill. Successful problem finders might have some of the traits listed below:

- Curiosity and the need to want to know more
- The flexibility of thinking, finding different options
- Listening for what's not been said or seeing what is not there
- Patience and persistence, putting effort in-unit answers can be achieved
- Ability to defer judgment, take the time to think, take all ideas on board
- Reflectivity, considering what went well and what didn't, and figuring out why.

Problem-finding, problem-solving, and decision-making can be complex and necessary in organisations.

Asking what the goal you want to achieve is? Will allow you to identify and shape a problem in the first instance. Then gathering the facts and data will allow you to come to the best decision and strategy to solve the problem.

Watch this short video.

[Video]

Problem Analysis

When we look at resolving problems, we need to define what the problem is first. The solution will need to address either the root cause, symptoms, or both. For example, if we appease a complainant presenting a defect problem with a product by giving them a replacement, we would probably be addressing the symptoms. In making sure that the cause of the defect was eradicated, we would be addressing the root of the problem.

Most problems are relatively straightforward, such as an employee wanting time off to visit the dentist, while some problems are complex and difficult to define and resolve.
Problem classifications include:

- **Well-defined Problems**. These problems have limited inputs with a definite answer, and a specific solution is relatively easily achieved.
- **Fuzzy or Messy Problems.** These complex problems involve many inputs and operations, with no definite solution or best answer.

Problem Solving Approaches

The two main approaches to problem-solving are:

• Rational problem-solving
• Creative problem-solving.

Rational problem solving involves looking at the problem and finding a solution in a logical and organised way. In contrast, Creative problem solving seeks to break conventions associated with the logical and traditional problems by applying creative thinking and random ideas generation to establish innovative solutions.

Global Eight Discipline Problem Solving

The 8-discipline Problem Solving method (8D) was developed by Ford in the 1980s and started as a program to establish a process to address recurring problems and improve quality.

The original method was known as TOPS or **Team Oriented Problem Solving** and was developed by Ford further.

The process is inspired by the Plan Do Study Act method and shares many similarities with DMAIC. Both processes are pretty similar, with several steps that can be mapped from one to the other. Also, like any problem-solving approach, they share many of the same tools.