

ADDITIONAL RESOURCES

At the very heart of business operations is the production of products or services: the input of raw materials, human resources and capital, the transformation process that turns input into output, and the output – the actual product or service itself. Operations also extend to areas such as transport of raw materials, distribution of products or services, advertising and marketing and finance and management.

This resource examines operations using interviewees from four quite different case study businesses in New Zealand and Australia. Sections include unpacking operations, inputs, the transformation process, outputs and operations, productivity and competitiveness.

It is ideal for learners in business and commerce-related disciplines at senior secondary and post-secondary levels.

Interviewees include: Nick Cowper, General Manager, Hummingbird Coffee NZ Rob Nugent, Commercial Manager, Vega Press Martz Witty, Business Developer, NZ Angela Nichols, Sustainability Communications Manager Visy Industries.

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For Teachers

Introduction

Operations is the core function or purpose of any organisation. This is where the actual work of transforming inputs into final goods and services ready for sale to consumers occurs. This program explores the key elements of an operations system in different types of large-scale organisations and provides an insight about what actually happens on the production floor through the eyes of different operations managers.

Timeline

00:00:00	Unpacking operations management
00:04:57	The operations system Inputs
00:10:01	Transformation process
00:14:32	The operations system Outputs
00:19:19	Operations, productivity and competitiveness
00:22:38	Credits
00:23:16	End program

Related Titles

External Factors Affecting Business: Natural Disasters

Recommended Resources

<http://manufacturing.stanford.edu/>

<http://www.mrwood.com.au/>

Student Worksheet

Initiate Prior Learning

1. Poster Activity
Develop a collage of what resources are – remember to include examples of land, labour and capital and place images of these examples on poster paper so that they can be displayed on noticeboards in your classroom
2. Key Terms Activity
Provide a definition for each of the following terms which will feature in the program:

Business Term	Definition
Operations Management	
Productivity	
Tangible	
Intangible	
Competitiveness	
Efficiency	

Operations Processes

Inputs, Transformation, Outputs

3. Group Activity

In groups of up to four students share your experiences about the businesses you have been in contact with and have some knowledge of. This could be through part-time work or personally visiting them to make a purchase. Provide examples of 5 businesses. Complete the table and list what was used to make them, what happened to them during the production process and what the final product looked like. An example has been provided for you:

Name of business	What was used to make the product	What happened during the production process	The final product
McDonald's Fast Food Outlets	Employees, Raw materials like meat, vegetables, potatoes etc. Machinery like fryers, grillers, benches etc.	Employees take the ingredients for a menu item like chips and fry the cut potatoes, salt and package them ready to sell	Hot chips ready for the consumer to purchase and eat

Operations Processes

Inputs, Transformation, Outputs

4. Pair and Share – YouTube Research Activity

Visit the YouTube website and find clips that show how a product is made. Use key words in the search box to locate a business that shows the steps in the production process. Examples include; how it's made - ice-cream cones, or yoghurt production. List the steps and resources used to produce that product. Prepare a flow chart that can then be used as part of your oral presentation to share with the other students in your class.

5. Cake Making Activity

In groups of up to four students you are required to bake a cake using a packet mix. Designate a leader who becomes the Operations Manager. Their role is to oversee the production process for making the cake. The team is to work together to follow the steps on the packet and produce the cake. The teacher in the class should act as the quality control person and taste each cake to ensure it is of the highest quality ready for purchase by the consumer. When the cake is completed, each student should write up a report. The report should contain the following headings:

- Operations Process – all the steps to make the cake
- Team Assessment– a discussion of the role of each team member
- Performance Indicators– a list and explanation of the performance indicators that will be used to evaluate the success of the project

Active Viewing Guide

Unpacking operations management

1. What is operations?

2. Compare the operations process of Vega Press and the ANZ Bank.

3. 'One of the key areas involved in operation management is developing and sustaining positive supplier relationships'. Analyse this statement.

Operations Processes
Inputs, Transformation, Outputs

The operations system – inputs

4. Raw materials, human resources and capital equipment can all be classified as inputs. Provide examples of the inputs used at Hummingbird Coffee and Vega Press.

5. Which resource is the most critical for Martz Witty and why?

6. List the five rights that Martz Witty refers to in relation to Human Resources.

Operations Processes
Inputs, Transformation, Outputs

Transformation process

7. Describe the transformation process and provide an example from one of the businesses referred to in the program.

8. Evaluate the impact of technology on operations.

9. Discuss the role of an operations manager in a large-scale organisation.

Operations Processes
Inputs, Transformation, Outputs

10. What criteria does Vega Press use to assess the quality of their product?

The operations system – outputs

11. 'Operations Managers must be aware of socially responsible and ethical management when pursuing their organisational objectives'. Provide examples from Hummingbird coffee and Visy to support this statement.

12. Identify and justify two performance indicators that Leopard Bus Company uses to evaluate its performance.

Operations Processes
Inputs, Transformation, Outputs

Operations, productivity and competitiveness

13. True or False:

- a) Productivity is all about achieving maximum efficiency without compromising quality. _____
- b) Businesses really only compete on the price of their product. _____
- c) Productivity is easy to measure when a good is produced. _____
- d) Productivity cannot be used as a performance indicator to measure the efficiency of an organisation. _____

14. Analyse the relationship between operations, productivity and competitiveness

Operations Processes

Inputs, Transformation, Outputs

15. Complete the following table by giving examples of each element of an operations system.

Type of Organisation	Inputs	Transformation Process	Outputs
Coffee Roasting Company			
Printing Company			
Bus Company			
Secondary School			

Extension Activities

1. Research Activity

- a) Use the Internet or the employment section of a newspaper to find a job advertisement for an operations manager. The advertisement should have a list of job responsibilities. Use a graphic organiser to categorise each of these responsibilities into the four management roles – planning, organising, leading and controlling.
- b) Write your own advertisement of an operations management position in a large-scale organisation that you have researched in class this year

2. Investigation Activity

Select an organisation that you are familiar with such as McDonalds, Target, Woolworths, Westpac, Telstra etc. Examine their website and locate three of their business objectives. Look at their annual report, any statements made by the CEO etc. For each of the business objectives you have found, suggest some operations strategies the operations manager could employ to help achieve these objectives at the operations level.

3. Mind Map Activity

Create a mind map for two organisations – one that produces goods and one that produces services and identify the inputs, transformation process and output for each

4. Movie Report

Watch the movie “Monsters Inc.” and make notes under the following headings.

- the type of organisation that Monsters Inc. is (i.e. good or service)
- the internal environment at Monster’s Inc. (think management styles, corporate culture etc.)
- the elements of the operations system in use at the production level (what are the inputs, transformation process and outputs)
- The role of technology at Monster’s Inc.

5. Group Research Activity

Research the role of ethics and social responsibility in the operations process and prepare a summary of your findings.

Suggested Student Responses

Initiate Prior Learning

1. Poster Activity

Develop a collage of what resources are – remember to include examples of land, labour and capital and place images of these examples on poster paper so that they can be displayed on noticeboards in your classroom

Definition of what resources are i.e. the inputs used in the production process. They include land, natural resources, labour, entrepreneurial skills, capital and technology. Students can then use a graphic organiser to show images visually of what each resource is.

2. Key Terms Activity

Provide a definition for each of the following terms which will feature in the program:

Business Term	Definition
Operations Management	The management of resources to achieve the efficient output of goods and /or services
Productivity	The amount of output per unit of work over a specific period of time
Tangible	A physical item that can be seen, touched and stored e.g. a good like a computer
Intangible	Something that is incapable of being seen or touched e.g. a service which is work done for others as a job, or business, in return for payment – dentist for example
Competitiveness	An organisation's ability to match or better its rivals in a specific market
Efficiency	The process of making the best possible use of an organisation's resources

Operations Processes

Inputs, Transformation, Outputs

3. Group Activity

In groups of up to four students, share your experiences about the businesses you have been in contact with and have some knowledge of. This could be through part-time work or personally visiting them to make a purchase. Provide examples of 5 businesses. Complete the table and list what was used to make them, what happened to them during the production process and what the final product looked like. An example has been provided for you:

Answers will vary. Another example could be:

Name of business	What was used to make the product	What happened during the production process	The final product
McDonald's Fast Food Outlets	Employees, Raw materials like meat, vegetables, potatoes etc. Machinery like fryers, grillers, benches etc.	Employees take the ingredients for a menu item like chips and fry the cut potatoes, salt and package them ready to sell	Hot chips ready for the consumer to purchase and eat
ANZ Bank	Employees, computers, buildings, desks, safety deposits etc.	Investment advice, deposits of money, loan applications processed, credit card approvals, checking financial data of a customer	Delivery of financial services to the meet the customer's specific needs

4. Pair and Share – YouTube Research Activity

Visit the YouTube website and find clips that show how a product is made. Use key words in the search box to locate a business that shows the steps in the production process. Examples include; how it's made - ice-cream cones, or yoghurt production. List the steps and resources used to produce that product. Prepare a flow chart that can then be used as part of your oral presentation to share with the other students in your class.

Answers will vary but there are a range of how to make clips on YouTube which students can view and then use to create their flow charts

Operations Processes

Inputs, Transformation, Outputs

5. Cake Making Activity

In groups of up to four students you are required to bake a cake using a packet mix. Designate a leader who becomes the Operations Manager. Their role is to oversee the production process for making the cake. The team is to work together to follow the steps on the packet and produce the cake. The teacher in the class should act as the quality control person and taste each cake to ensure it is of the highest quality ready for purchase by the consumer. When the cake is completed, each student should write up a report. The report should contain the following headings:

- Operations Process – all the steps to make the cake
- Team Assessment– a discussion of the role of each team member
- Performance Indicators– a list and explanation of the performance indicators that will be used to evaluate the success of the project

- Operations Process – all the steps to make the cake
 - **Inputs: team of students, kitchen facility, utensils, ovens, sinks, cake packet mixes and other ingredients such as eggs, water etc. gas/electricity**
 - **Process: Students place equipment on the kitchen bench, open packet, add necessary ingredients, mix, and pour into a baking dish. Place in the oven and cook for a period of time at the required temperature**
 - **Output: cake ready for eating by the teacher and the team members**

- Team Assessment– a discussion of the role of each team member
 - **Describe the role of each team member – who did the mixing and blending, who did the cake decorating, who did the cleaning up after the cooking was finished**

- Performance Indicators– a list and explanation of the performance indicators that will be used to evaluate the success of the project
 - **Customer satisfaction measured by feedback on the quality and appearance of the cake; the productivity levels of the team members etc.**

Active Viewing Guide

Unpacking operations management

1. What is operations?
Operations is the core function of any business. It is where the production of goods or services occurs.
2. Compare the operations process of Vega Press and the ANZ Bank.
Vega Press: produces a tangible product, which is transported to customers and issued or consumed by them after it is purchased. Production and consumption occur separately and productivity is easy to measure. The product can be stored for later use and standardised to enable economies of scale.
ANZ Bank: provides an intangible product where production and consumption occur at the same time. There is no storage of any product and the service is tailored to meet the needs of the individual customers.
3. 'One of the key areas involved in operation management is developing and sustaining positive supplier relationships'. Analyse this statement.
One of the key elements of the operations process is input. The organisation needs to source high quality materials from reliable suppliers to be able to use these in the production process. If suppliers are unreliable or disagreements arise, then this could hold up production causing the business to lose money, as their goods are not delivered to their retail outlets in time to meet consumer demand.

The operations system – inputs

4. Raw materials, human resources and capital equipment can all be classified as inputs. Provide examples of the inputs used at Hummingbird Coffee and Vega Press.
Hummingbird Coffee: green coffee beans (imported), employees, coffee roasters, grinders
Vega Press: water, solvent, inks, paper, energy, light power, compressed air, human resources
5. Which resource is the most critical for Martz Witty and why?
Martz Witty identifies time as the most important resource because it cannot be made. Money can be saved or money can be made, but you can't get back time that you have lost in the operations of your business.
6. List the five rights that Martz Witty refers to in relation to Human Resources.
The five rights are: the right person doing the right job at the right time with the right tools at the right price.

Transformation process

7. Describe the transformation process and provide an example from one of the businesses referred to in the program.
The transformation process is any activity an organisation undertakes in order to convert inputs into outputs. The process for manufacturers of tangible products like Hummingbird Coffee and Vega Press involves technology and machinery to convert inputs to outputs. e.g. converting the green coffee beans, which are raw materials into ground coffee ready to use for different types of coffee beverages.

Operations Processes

Inputs, Transformation, Outputs

8. Evaluate the impact of technology on operations.
Technology continues to drive change. Organisations are constantly looking for greater efficiencies and the best use of resources. Technology reduces costs in the long term and leads to increased productivity as employees can now do more work in less time. However the initial cost of purchasing and setting up the new technology is significant and there maybe job losses, the deskilling of staff or the need for them to retrain in the process.
9. Discuss the role of an operations manager in a large-scale organisation.
The role of the operations manager is to oversee the production process. They are involved in planning, organising, leading and controlling as they constantly seek ways of improving productivity without compromising the product or service. Operations Managers must constantly monitor, review and look for ways to improve the production process.
10. What criteria does Vega Press use to assess the quality of their product?
In the printing industry the quality of the output is an important way to measure the success of the transformation process. They follow international standards and have a comprehensive internal checking system. Vega also uses the ISO12647 certification.

The operations system – outputs

11. 'Operations Managers must be aware of socially responsible and ethical management when pursuing their organisational objectives'. Provide examples from Hummingbird coffee and Visy to support this statement.
Social Responsibility is the way an organisation demonstrates some commitment to their community beyond that imposed by the law. Ethics refers to the application of moral standards to organisational behaviour. Hummingbird Coffee pay fair prices to growers importing Fair-trade coffee. They are also actively involved in tree replanting with growers. Visy are exploring sustainability and recycling trying to produce lightweight products so that every bottle will use less of the Earth's resources.
12. Identify and justify two performance indicators that Leopard Bus Company uses to evaluate its performance.
Performance indicators are criteria used to evaluate the success and achievements of the organisation. Leopard Bus Company provides a service to customers so customer feedback is important. It can be in the form of complaints if the buses are running late or compliments if the company is delivering a high standard of customer service.

Operations, productivity and competitiveness

13. True or False:
- a) Productivity is all about achieving maximum efficiency without compromising quality.
TRUE - Productivity is a measure of output compared to input. Both productivity and quality improvements are the keys to achieve international competitiveness.
 - b) Businesses really only compete on the price of their product.
FALSE - Businesses compete on both quality and price.
 - c) Productivity is easy to measure when a good is produced.
TRUE – Goods are tangible items that can be counted and stored.

Operations Processes

Inputs, Transformation, Outputs

- d) Productivity cannot be used as a performance indicator to measure the efficiency of an organisation.
FALSE – Productivity measures the organisation’s ability to transform inputs into outputs.

14. Analyse the relationship between operations, productivity and competitiveness
Most businesses exist to earn a profit for either the owners or shareholders. An organisation that effectively manages its production of goods and services will use resources efficiently trying to keep customers satisfied, leading to increased profit. Operations Managers would be targeting increased amounts of output from each of their workers over a period of time. This is so that the organisation can become more competitive and match or better their rivals through lower prices or improved quality in a specific industry.

15. Complete the following table by giving examples of each element of an operations system.

Type of Organisation	Inputs	Transformation Process	Outputs
Coffee Roasting Company	Labour Green Coffee Beans Electricity Gas Coffee roasting and grinding machines Time Money Factory and cafe	Roasting of coffee Beans Grinding of coffee beans Packaging of ground coffee	Packets of coffee ready for purchase by consumers or businesses to make their coffee beverages
Printing Company	Labour Materials like: ink solvents, paper Printing Machines Printing Facility etc.	Design of material Printing of material such as business cards, stationary, envelopes etc.	Printed material to customer instructions ready for their personal or business use
Bus Company	Labour Buses Ticket machines Tools etc. Bus Depot Petrol Browsers	Transporting Booking Tours Maintaining buses Negotiating contracts	Tours, transportation of residents, tourists and school children to their chosen destination
Secondary School	Teachers School building Computers Books Paper Printers, Faxes, Telephones,	Lesson preparation and delivery Exam marking	Educated students ready to proceed to higher education or a job

Extension Activities

1. Research Activity

- a) Use the Internet or the employment section of a newspaper to find a job advertisement for an operations manager. The advertisement should have a list of job responsibilities. Use a graphic organiser to categorise each of these responsibilities into the four management roles – planning, organising, leading and controlling.

Answers will vary

- b) Write your own advertisement of an operations management position in a large-scale organisation that you have researched in class this year

Answers will vary

2. Investigation Activity

Select an organisation that you are familiar with such as McDonalds, Target, Woolworths, Westpac, Telstra etc. Examine their website and locate three of their business objectives. Look at their annual report, any statements made by the CEO etc. For each of the business objectives you have found, suggest some operations strategies the operations manager could employ to help achieve these objectives at the operations level.

Answers will vary

Sample answer for McDonald's Family Restaurants

Business objective	Operations Strategy
To serve good food in a friendly and fun environment	<ul style="list-style-type: none"> • Materials management strategy of Just In Time so the ingredients get delivered on a regular basis to be fresh and of the highest quality • Facility design and layout ensures the smooth flow of production in the kitchens, that meet all occupational health and safety standards
To be a socially responsible company	<ul style="list-style-type: none"> • Source raw ingredients for the food on the menu from ethical suppliers • Explore ways to reduce waste and excess packaging, • Recycling programs • Offer fair pay and working conditions for employees • Equal opportunity employment policy
To provide customers with food of a high standard, quick service and value for money	<ul style="list-style-type: none"> • Implement a quality approach such as quality control where benchmarks are set and the product is monitored on a regular basis as well as the delivery of service to ensure a consistently high standard is maintained • Seek customer feedback in the form of surveys to assess the level of service offered to customers

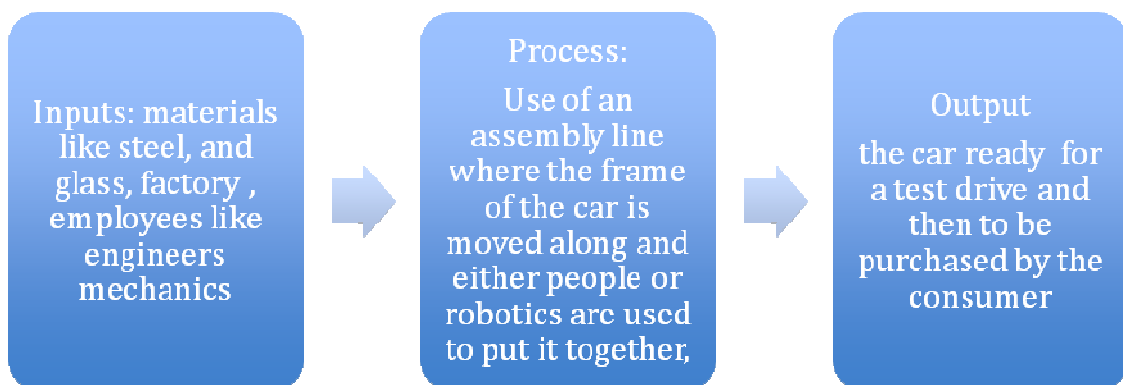
Operations Processes

Inputs, Transformation, Outputs

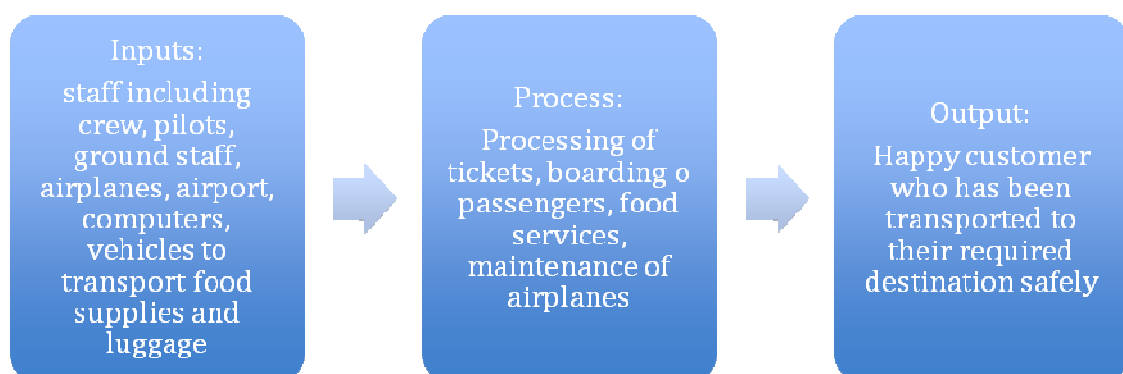
3. Mind Map Activity

Create a mind map for two organisations – one that produces goods and one that produces services, and identify the inputs, transformation process and output for each
Answers will vary for this question.

Ford Motor Company – example of a manufacturer of a good



Qantas - example of a service provider.



Operations Processes

Inputs, Transformation, Outputs

4. Movie Report

Watch the movie "Monsters Inc." and make notes under the following headings.

- the type of organisation that Monsters Inc. is (i.e. good or service)
- the internal environment at Monster's Inc. (think management styles, corporate culture etc.)
- the elements of the operations system in use at the production level (what are the inputs, transformation process and outputs)
- The role of technology at Monster's Inc.
Answers will vary, sample answer:

- the type of organisation that Monsters Inc. is (i.e. good or service)
A goods/product manufacturer produces tangible items, which can be touched, picked up and stored away, whereas a service firm does something for you – e.g. a hairdresser. Monsters Inc. is both a goods/product manufacturer and a service provider because they collect screams, which are stored away and converted, into power, which provides electricity for the town.

- the internal environment at Monster's Inc. (think management styles, corporate culture etc.)
The Internal Environment
The management style is autocratic. Decisions are made without consultation and are given without question. This culture created a line of command within Monsters Inc. making it very conservative and profit driven. This created competitiveness between employees (e.g. James P. Sullivan and Randall) and created a power-hungry mentality in some employees. There were also hidden schemes within the organisation (scream extractor). Employees worshipped/idolised James P. Sullivan. They would treat him extra nicely and ask for autographs, etc. People of higher authority (e.g. Mr. Watnoose and Roz) tend to give instructions to employees and don't show much sympathy towards them.

- the elements of the operations system in use at the production level (what are the inputs, transformation process and outputs)
The Operations System
Inputs or the resources used in the production process: Doors, facility, filling machine, cards, dead door machine, waste-crusher/conveyor belt, scream extractor.
Transformation Process, which involves the converting of inputs into outputs: Scaring the children and filling up the containers to store the children's screams.
Output or the final good or service ready for consumers to purchase or use:
Power/electricity for the town.

- The role of technology at Monster's Inc.
Technology at the Organisation
Examples in the movie include:
Mid-air conveyor belts to deliver the doors to the scaring stations instead of having people carry the doors themselves. These belts allow for a great degree of precision and reduce waste and inefficiencies.

5. Group Research Activity

Research the role of ethics and social responsibility in the operations process and prepare a summary of your findings.

Answers will vary for this question. Students should refer to ethical and social considerations for each of the three elements of the operations system in their answer.