Student Self-administered case study

Managing capacity

Case duration (Min): **45-60**

Operations Management (OPs)

Managing capacity

Process design and analysis

Worldwide

Case summary:

Sales of Easter eggs in the UK are worth around £200m a year, equivalent to around 80m eggs. This case considers how Easter eggs are made- the case focuses on operations and the production process and the associated seasonal demand/ capacity issues and challenges.

Learning objectives:

Describe the types of process used to produce goods and services.
Explain the concept of capacity.
Discuss capacity management strategies.

Case problem:

Give the problems of seasonal demand, what type of process should be used to make the Easter eggs at the factory? How can companies manage seasonal fluctuations in demand?

Company

Confectioners

Kinnerton Confectionery

http://www.kinnerton.com/business.html

Kinnerton Confectionery is a manufacturer of chocolate and novelty confectionery and was established in 1978 to use character merchandising to promote the sales of its chocolate confectionery. In April 2005, Kinnerton was made part of Zetar Plc, a group dedicated to the snack and confectionery industry. Today, with a turnover of £65M the company develops an extensive range of seasonal and everyday confectionery from Easter eggs and Advent calendars, to chocolate bars and chocolate miniature figures as well as chocolate and jelly lollipops, processing over 6 thousand tonnes of chocolate every year. Over the years their confectionery ranges have included some of the most well known character names from film, TV and music as well as design-led brands. The company is administered over four sites; the London Head Office, structured into teams of Purchasing, Costing, Marketing, Design, Sales and International Sales; the manufacturing plant in Fakenham, Norfolk – a state of the art 125,000 square feet site, Kinnerton Pty in Sydney, New South Wales, Australia and most recently, a Hong Kong office.

First, if you are taking a taught management course then consult with your tutor and ensure that the case has not been scheduled into a teaching class or tutorial. If it has not:
1. Play/ read the media associated with the case. You may need to access the Internet and enter a URL to locate any video clips.
2. Attempt the Case study questions.
Consider attempting the case study as a group exercise; you could form a study group with fellow students.
3. Check the suggested answers - remember these are suggestions only and there are often many possible answers.
Discuss questions and answers with other students.
4. If you feel your answer(s) were weak then consider reading the relevant suggested readings again (also see the case study suggested references).

Title/ Media type	URL/ Media description
Chocolate egg firm booming.	http://news.bbc.co.uk/1/hi/england/7909024.stm
Film	Kinnerton produces millions of chocolate eggs ahead of the Easter celebrations. The video explains the production process, demand and capacity challenges.
How do you make 40m Easter eggs?	http://news.bbc.co.uk/1/hi/uk/7990080.stm
Film	How they make Easter eggs at the Cadbury's factory in Bournville, Birmingham.

NOTES:

Case study questions...

	Action	Pre/During/After class
1	**TRANSFORMATION PROCESS MODEL AND PRODUCTION PROCESS.** With reference to the TRANSFORMATION PROCESS MODEL, analyse and describe how Easter eggs are made at the Kinnerton Confectionery manufacturing plant in Fakenham, Norfolk and the Cadbury's factory in Bournville, Birmingham. In your answer you should identify the inputs/ raw materials and the transformational resources used in the process. Categorise and describe the PROCESS used to make Easter eggs.	During
2	**CAPACITY :** Explain, with reference to the case, what is meant by capacity. Identify examples of short and long term capacity decisions at Kinnerton and Cadburys. Identify and discuss factors likely to influence capacity decisions.	During
3	**FLUCTUATIONS IN DEMAND :** "Easter is probably the biggest seasonable output that [Kinnerton] have…[the company] make around 30-40 million eggs per year", says David Hume, Technical Manager, though production typically takes place approximately 6 weeks prior to consumption. Other challenges the industry must deal with include: half of all eggs are sold in the four days before Easter and Easter eggs typically have a 25 week shelf life - Chocolate is a very stable product in that the moisture content is effectively zero, so deterioration of chocolate occurs when the fat element oxidises. However, perishability or exposure to high temperatures is an issue. Discuss problems associated with over or under capacity and consider how Kinnerton might manage FLUCTUATIONS IN DEMAND? Additionally, discuss the problem of delivering seasonal products i.e. under utilisation of transforming resources out of season.	During

Answers...

CAPACITY

the maximum level of value-added activity that an operation, or process, or facility is capable of over a period of time.

CAPACITY PLANNING

The evaluation of the organization's long-term and short-term capacity to meet customer demand.

DEMAND UNCERTAINTY

The risk of significant and uncer-tain fluctuations in the demand for their products.

SEASONAL ANALYSIS

The study of daily, weekly or monthly sales figures to evaluate the degree to which seasonal factors influence the company's sales

PRODUCTION PROCESS

the way that businesses create products and services

DEMAND MANAGEMENT

an approach to medium-term capacity management that attempts to change or influence demand to fit available capacity.

DEMAND PLANNING

A collaborative effort in which different groups within the organization share information and analysis to create an overall demand forecast for the organization.

EMPLOYEE DEMAND

Need for staff.

ECONOMIES OF SCALE

A decrease in the per unit cost of production as a result of producing large numbers of the good

DISECONOMIES OF SCALE

a term used to describe the extra costs that are incurred in running an operation as it gets larger.

Question/ Answer

1 **TRANSFORMATION PROCESS MODEL and PRODUCTION PROCESS.**

With reference to the TRANSFORMATION PROCESS MODEL, analyse and describe how Easter eggs are made at the Kinnerton Confectionery manufacturing plant in Fakenham, Norfolk and the Cadbury's factory in Bournville, Birmingham. In your answer you should identify the inputs/ raw materials and the transformational resources used in the process. Categorise and describe the PROCESS used to make Easter eggs.

**Transformation process model - model that describes operations in terms of their input resources, transforming processes and outputs of goods and services.
Inputs: molten chocolate, packaging (foil, tray, carton).
Transformational resources used: Moulds, robotics, factory, machinery (line etc), knowledge, people, information systems.
The eggs are made in the following stages: (1) deposit molten chocolate into the (half) mould shell, (tip upside down to remove excess chocolate for recycling); (2) remove eggs from the mould; (3) (join halves) and wrap in foil; (4) place eggs and extras into tray, then carton.**

How Easter eggs are made by Kinnerton: using two moulds, chocolate is deposited into the inside and the two moulds are fixed together using magnets and then the mould and content are spun using machinery to achieve an even thickness of chocolate.

The key difference between Kinnerton and Cadbury's is that Kinnerton join the egg before the chocolate hardens i.e. At the beginning of the process, resulting in less waste.

Students should recognise that this is NOT a project or job shop process but a flow (continuous). The product is standard and produced in high volumes, made to stock, in a fixed processing sequence. Significant investment in the factory facilities and equipment is required and the movement of goods between process steps is automated. This is essentially a 24/7 continuous operation with limited human resource involvement. HR required skills are low.

2 **CAPACITY :**

Explain, with reference to the case, what is meant by capacity. Identify examples of short and long term capacity decisions at Kinnerton and Cadburys. Identify and discuss factors likely to influence capacity decisions.

The maximum level of value-added activity of which an operation, or process, or facility is capable over a period of time; e.g. the number of eggs that could be produced per week – capacity provides the ability to satisfy demand.

Examples of capacity decisions include (short term) number of temporary workers to employ, amount of overtime to schedule, (longer term) construction of new factories, investment in plant and machinery.

Factors likely to influence capacity decisions: (1) economies (a decrease in the per unit cost of production as a result of producing large numbers of the good) and diseconomies (a term used to describe the extra costs that are incurred in running an operation as it gets larger) of scale; (2) forecast demand; (3) inventory management – ease and cost of storage; (4) quality – shelf life; (5) availability of transforming resources and inputs.

3 **FLUCTUATIONS IN DEMAND :**

"Easter is probably the biggest seasonable output that [Kinnerton] have…[the company] make around 30-40 million eggs per year", says David Hume, Technical Manager, though production typically takes place approximately 6 weeks prior to consumption. Other challenges the industry must deal with include: half of all eggs are sold in the four days before Easter and Easter eggs typically have a 25 week shelf life - Chocolate is a very stable product in that the moisture content is effectively zero, so deterioration of chocolate occurs when the fat element oxidises. However, perishability or exposure to high temperatures is an issue. Discuss problems associated with over or under capacity and consider how Kinnerton might manage FLUCTUATIONS IN DEMAND? Additionally, discuss the problem of delivering seasonal products i.e. under utilisation of transforming resources out of season.

Problems include excess and opportunity costs.
Many organizations produce complementary goods that can be delivered using the organization's existing resources but whose seasonal demand patterns are out of phase with each other.

Kinnerton must decide whether or not to manage capacity decisions as discrete and incremental or continuous and steadily increasing/ decreasing problem.
(1) Safety capacity (reserve capacity); (2) one large capacity increase; (3) small capacity increases – add equipment, people (work force level) - Approximately 300 extra staff (agency/ temporary) are needed to cope with the Easter demand

Case study references

Cole, G A. and Kelly, P P. (2011) 'Management Theory and Practice', Ed. 7. Cengage EMEA.

Collier, D. and Evans, J. (2009) 'OM', Ed. 1. Cengage Learning.

Evans, J. and Collier, D. (2007) 'Operations Management Integrated Goods & Services Approach, International Edition', Ed. 2. South Western.

Kelly, P P. (2009) 'International Business and Management', Cengage Learning EMEA.