***Chapter 8 Activity and case study solutions***

**Activity 8.1**

The following articles provide useful information for students to complete this activity:

* [***http://www.techrepublic.com/article/amazon-robots-and-the-near-future-rise-of-the-automated-warehouse/***](http://www.techrepublic.com/article/amazon-robots-and-the-near-future-rise-of-the-automated-warehouse/)
* [***https://www.technologyreview.com/s/538601/inside-amazons-warehouse-human-robot-symbiosis/***](https://www.technologyreview.com/s/538601/inside-amazons-warehouse-human-robot-symbiosis/)
* [***http://time.com/3605924/amazon-robots/***](http://time.com/3605924/amazon-robots/)
* [***http://www.bloomberg.com/news/articles/2016-06-29/how-amazon-triggered-a-robot-arms-race***](http://www.bloomberg.com/news/articles/2016-06-29/how-amazon-triggered-a-robot-arms-race)

Automating part of the production process has the following general advantages and disadvantages. Students should generate case study specific responses from their research and / or the articles above.

|  |  |
| --- | --- |
| Advantages (productivity benefits) | Disadvantages |
| * Increase the speed of the system. * Decrease the errors in the system. * Increase the quality of the system. * Decrease costs over the long term. | * Technology is costly to purchase and set-up. * Maintenance costs may be high. * Redundancies may be required which are costly in terms of payouts and staff morale. * Company may suffer reputational damage as a result of redundancies. |

**Activity 8.2**

Student answers will vary. Students should consult their school librarian, who can provide a list of online and print resources suitable for this task.

**Case study 8.1: The growth of online commerce**

1. Define:
   1. ecommerce: Electronic commerce (buying / selling via the internet)
   2. mcommerce: mobile commerce. Buying / selling via a mobile device. (A subset of ecommerce)
2. Mobile (m) commerce accounted for more than 30% globally of ecommerce transactions. Of this 33% was on fashion and luxury items and 27% on travel.
3. From 2013 to 2016 mobile commerce in Australia was expected to increase by 204% compared to 43% worldwide.
4. 59% of Australian smartphone users who engage in mobile commerce are 18 to 34 years old. 44% of online sales to Australians are 18 to 34 years old.

This group have grown up with the internet. They also have the highest ownership rate of mobile devices.

**Case study 8.2: ALDI and McDonald’s**

1. JIT aims to reduce costs minimisation of inventory.

* Small quantities of inputs, such as raw materials and component parts, are delivered more frequently with a view to meeting immediate requirements. Large stockpiles are therefore avoided.
* Inventory is replaced as it is used.
* Employee participation is required to identify wasteful work practices and eliminate these on a continuous basis.

This reduces storage and inventory costs such as wastage, loss and theft. Fewer staff and warehouse space is also required

1. ALDI stores only hold stock immediately required for sale. Consequently, less capital is tied up in idle stock not generating income. Warehousing costs are reduced as smaller areas are required to hold stock and fewer staff and equipment are needed to operate warehouses as a result. Products are delivered to ALDI in display ready cases. These can be placed on display immediately without the need for unpacking and stacking of shelves. This is both quick and efficient.
2. McDonald’s stores also employ a system of JIT inventory management. Staff do not commence cooking burgers until a customer has placed a specific order. There is also use of sophisticated technology in kitchens enabling the making of an order in shorter time. This has resulted in reduced wastage as fewer unsold items result and uncooked materials have a longer shelf life. Quality improvements have also been possible as customisation of burger to suit individual customers is possible.
3. Benefits: Reduced storage / inventory cost. Reduced wastage, theft and spoilage. Fewer staff required, therefore lower wages bills.
4. Disadvantages: Less margin for error r.e. supplies. Small delays can result in stock not being available for sale.
5. Student answers will vary. Students are required to create and identify mistakes in a paragraph about JIT.

**Activity 8.3**

Quality is defined as the degree of excellence in a good or service and its ability to satisfy the customer.

1. A hospital visit involving surgery:

* The patient meets the surgeon before the surgery.
* The surgeon fully explains the surgery beforehand.
* The surgeon outlines the risks and benefits associated with the surgery.
* There are no complications during or after the surgery.
* The surgeon debriefs the patient after the surgery.
* The patient has a quick recovery time.

1. Pushbike:

* The bike has gears.
* The bike is available in different colours and sizes.
* The bike is lightweight so can be lifted onto and off a bike rack easily.
* The seat height and handlebars can be adjusted for comfort.
* There are different seat options (hard, soft, racing) depending on requirements.
* The wheels are easy to remove if required.
* The tires are easy to access, change and pump up when required.
* The bike comes with a free bike pump and water bottle (and bottle holder).
* The bike shop offers free regular service of the bike.

1. A fried chicken meal

* Hot, crunchy, golden chicken served in bread.
* Fresh crispy lettuce and tomato.
* Fresh bread (not soggy) with mayonnaise
* Hot, crunchy French fries as an accompaniment
* Generous sized drink served as an accompaniment

1. A pair of sunglasses:

* Polarised lenses – provides UV protection.
* Sturdy frame – durable.
* Comes with a case and cleaning cloth.
* Different sizes and colours available.
* Fashionable (up-to-date) shaped frame.
* Free adjustments as required.
* Repairs available when required.

1. A kitchen renovation:

* Space for preparing meals.
* Storage space.
* A large, quietly operating dishwasher.
* A microwave.
* A Large oven with the latest technology.
* Stainless steel appliances.
* Marble or stone work surfaces.
* Tiled floors for easy cleaning.

1. A hair dryer:

* Sturdy, durable design.
* High heat and low heat options.
* High air pressure and low air pressure options.
* Free accessories.
* Manufacturer’s guarantee included.

1. A visit to a restaurant:

* Seated immediately (no waiting for a table).
* Water and drinks orders placed within a few minutes of seating.
* Polite, friendly and helpful staff.
* Fast service.
* A variety of food offered to cater for different tastes and preferences.
* Fresh, hot food.

**Activity 8.4**

The International Organisation for Standards website is located at:

<http://www.iso.org/iso/home.html>

The following sections of the website will provide students with the information they need to complete the questions:

* Standards - <http://www.iso.org/iso/home/standards.htm>
* ISO 9000 - Quality management - <http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm>

**Case Study 8.3: The Toyota culture of continuous change**

* + - 1. Toyota employs the total quality management process in their production line. The brightest employees head a team that are continuously working to improve their ‘step’ in the continuous process. Each team aims to improve the value of their ‘product’ for the consumer, whether an internal or external customer. The overall production process is constantly evolving for the better.
         1. Employee participation in decision-making: Employees are validated and encouraged by participating in decision-making processes. Each individual brings their own ideas which benefit the company.
         2. Work teams provide an environment for a collaborative effort, where collective problem-solving leads to more productive outcomes. Tasks within each team’s steps are resolved more quickly.
         3. Rewarding and encouraging employees leads to high job satisfaction, which improves the work ethic and commitment by employees

**Activity 8.5**

The Alto Hotel website is located at:

<http://www.altohotel.com.au/?gclid=CPmv84ndkc4CFU5bhgodq8IINw>

The following section of the website will provide students with the information they need to complete the questions:

* Hotel Melbourne Green Hotel Accommodation: <http://www.altohotel.com.au/green-hotel-accommodation-melbourne.php>

|  |  |  |  |
| --- | --- | --- | --- |
| Category of waste minimisation in operations systems | Specific activities at Alto Hotel re waste minimisation in operations | Explanation of potential cost and/or productivity savings resulting | Effects on levels of business competitiveness |
| Reduction of use of resources | All electricity is generated by renewable sources and is limited per guest per night.  All windows are also double-glazed | This allows the hotel to limit its costs on electricity and maintain its ‘green’ image.  Double-glazed windows allows for minimal use of heating and cooling as the thick glass keeps the heat or cold in | Australia’s first carbon-neutral hotel - first hotel in Australia to be awarded the coveted EarthCheck Gold Certification |
| Reuse of resources | All toiletries are dispensed from refillable pump-action dispensers to remove the need for disposable plastic bottles | Saves the hotel purchasing individual bottles of toiletries and can instead purchase goods in bulk | Awarded several other sustainability awards |
| Recycling of resources | Rain water is used for public toilet cisterns, gardening and cleaning duties | Saves the business costs in water usage | All of the above highlights how this hotel could be the choice for environmentally-conscious travellers/customers |

**Activity 8.6**

The global Toyota website is located at: <http://www.toyota-global.com>

[www.cambridge.edu.au/vcebusman34+33](http://www.cambridge.edu.au/vcebusman34+33)

The following section of the website (and associated subsections) will provide students with the information they need to complete the questions:

* Toyota Production System:  
  <http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/>

1. Toyota Production System.
2. The desired outcomes of TPS are:

* To provide the customer with the highest quality vehicles, at lowest possible cost, in a timely manner with the shortest possible lead times.
* To provide members with work satisfaction, job security and fair treatment.
* It gives the company flexibility to respond to the market, achieve profit through cost reduction activities and long-term prosperity.

1. These goals address CSR through:

* Product quality
* Fair employment conditions
* Prioritisation of customer service.

1. ‘Standardisation’ means the company’s push to ensure a consistent approach to quality. Toyota demands that all tasks, both human and mechanical, be very precisely defined and standardised to ensure maximum quality, eliminate waste and improve efficiency.
2. Kaizen is the name of the process where Toyota members seek to continually improve their standard processes and procedures in order to ensure maximum quality, improve efficiency and eliminate waste.
3. Employees would feel empowered because they are a crucial component of an efficient system of production.
4. Essentially, 'just in time' manufacturing consists of allowing the entire production process to be regulated by the natural laws of supply and demand. Customer demand stimulates production of a vehicle. In turn the production of the vehicle stimulates production and delivery of the necessary parts and so on. The result is that the right parts and materials are manufactured and provided in the exact amount needed - and when and where they are needed.
5. The linkage between customer demand and production is made by analysing ‘takt’ time; a device for measuring the pace of sales in the market in relation to the capacity of a manufacturing plant. For example, if a plant operates for 920 minutes per day and daily demand is for 400 vehicles, then takt time will be 2.3 minutes. If takt times are reduced more resources are allocated. Toyota never tries to accommodate changes in demand by making substantial changes in individuals' workloads.
6. To Toyota, a ‘kanban’ is a type of message. For example, in the assembly shop this message takes the form of a card attached to every component that is removed and returned when the component is used. The return of the kanban to its source stimulates the automatic re-ordering of the component in question. Paperwork is minimised. Efficiency is maximised. And the Members themselves are completely in charge.
7. At Toyota ‘jidoka’ means 'automation with a human touch'. The Toyota Production System has inherited the principle originated by Henry Ford of breaking down work into simple steps and distributing those steps amongst employees on the line. But employees in the Toyota system are in charge of their own jobs. Through their teams, they run their own worksites. They identify opportunities for making improvements and take the initiative in implementing those improvements in co-operation with management.
8. Suppliers who participate in the Toyota Production System enjoy the same benefits that Toyota does from the system. Just-in-time manufacturing can dissolve inventories at parts suppliers just as readily and effectively as it does at Toyota's assembly plants. Product quality improves, too. That's because the Toyota Production System includes measures for illuminating defects whenever and wherever they occur. Suppliers who adopt the Toyota Production System also report improvements in employee-management relations. That is mainly because the system provides for an expanded role for employees in designing and managing their own work. It brings together employees and management in the joint pursuit of improvements in productivity, quality, and working conditions.