



Friday 23 May 2014 – Morning

AS GCE

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

G041/01/IC

How Organisations Use ICT

INSERT

JUNE 2014

Duration: 1 hour 30 minutes



INFORMATION FOR CANDIDATES

- This document consists of **16** pages. Any blank pages are indicated.

INSTRUCTION TO EXAMS OFFICER/INVIGILATOR

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NOTICE TO CANDIDATES

The work you submit for these pre-release tasks must be your own.

- If you copy from someone else or allow another candidate to copy from you, or if you cheat in any other way, you may be **disqualified** from at least the subject concerned.
 - You must always keep your work secure and confidential whilst you are preparing it. **If it is stored on the computer network, keep your password secure. When printing work, collect all copies from the printer and destroy those you don't need.**
 - Any materials (eg books, information from the internet you have used to help complete this work) must be clearly acknowledged in the work itself.
-
- All work must be submitted to your teacher once completed. Ensure you include your name, candidate number and centre number on all pages and that each page is hole-punched in the top left hand corner.
 - **You must not submit any materials other than your response to the pre-release tasks.**
 - When you hand in your completed tasks, you will be required to sign that you have understood and followed the regulations.
 - Your work will be returned to you at the start of the exam, in the exam room. At the end of the exam you must attach **all** tasks to your question paper using a treasury tag.

ALWAYS REMEMBER

YOUR WORK MUST BE YOUR OWN

PRE-RELEASE TASKS – INSTRUCTIONS FOR CANDIDATES

Read the attached case study and these instructions carefully, then carry out the tasks detailed below.

There are two types of task. In Task 1 you will produce notes that will help you to answer questions in the examination for this unit. There are 30 marks available for Tasks 2 and 3.

You will need your completed tasks when you take the examination for this unit.

The work produced in response to the pre-release tasks must be submitted to your teacher when it is completed. The work must be presented as a hard copy.

It is not acceptable or advisable for you to copy large parts of material from other sources as the tasks require you to apply your knowledge to the case study. Any books, information leaflets or other material (eg videos, software packages or information from the internet) which you have used to help you complete this work must be clearly acknowledged in the work itself. To present material copied from books or other sources without acknowledgement will be regarded as deliberate deception.

You **must not** submit any material other than your response to the pre-release tasks.

The work must be collated so that it is presented in task order.

Each page of the work must be marked clearly with your name, Centre number and task number.

When you have completed the tasks you must sign and date a Candidate Authentication Statement. You must then ask your teacher to sign to confirm that the work is your own.

Task 1

Do your own research and make notes which:

- describe the job functions/departments in Progress Local Supermarkets (PLS)
- describe the roles of the personnel in PLS and how they interact in relation to the company's structure
- identify the different types of suppliers to PLS and describe how they interact with company personnel
- describe the main processes carried out by PLS, including the inputs, the processing, the calculations, and the outputs involved
- describe the ICT systems used in PLS
- evaluate the reasons for, and explain, the future improvements suggested by the directors of PLS, and evaluate the impacts of these improvements
- explain what PLS must do to comply with legislation relating to ICT and the impact this has on the company, its staff and customers.

Task 2

Organising monthly special offers is an important process in PLS.

Draw a diagram to explain how information moves, within PLS and with outsiders, during the process of organising special offers. The process starts when the decision has been made about what the special offers for the month will be. The process finishes the night before the special offers will start.

Your diagram should show:

- who sends the information
- who receives the information
- the types of information communicated
- the method by which it is communicated.

[15]

Task 3

The Sales and Marketing Director of PLS is considering replacing some of the checkouts in each supermarket with self-service checkouts.

Do some research and produce a word-processed report for the Sales and Marketing Director. Your report must evaluate the possible impacts on PLS, its staff and customers of replacing some checkouts in each supermarket with self-service checkouts.

Briefly evaluate the method(s) you used to complete this report.

The work you produce for Task 3 **must not** exceed 500 words, including the evaluation of the methods you used.

You **must** include a word count.

Marks will be awarded for the quality of written communication in your answer.

You **must** acknowledge all information sources you used. This is not included in the 500 words.

[15]

Progress Local Supermarkets (PLS) case study

Introduction

PLS is a company that owns a chain of small local supermarkets located in towns and large villages across the south of England. The company has a large warehouse and distribution centre next to the M3/M25 motorway junction. The company's head office is on a business park near Basingstoke. All goods sold by the company are delivered to the warehouse. The goods are then distributed to the individual supermarkets, as required, using the company's fleet of delivery lorries.

The supermarkets are open from 8.00 am to 10.00 pm every day except Sunday, when they are open from 10.00 am to 4.00 pm. Some activities, such as shelf filling and cleaning, are done when the supermarkets are closed. The warehouse and distribution centre is a 24/7 operation.

Goods supplied

The supermarkets stock a range of food and non-food items, including 'own brand' items, similar to those found in most supermarkets, but the size of the stores limits the variety available. All goods are pre-packaged. The range includes seasonal items. For example, in late spring they stock gardening supplies such as bedding plants and compost, and in summer they stock outdoor living items, such as disposable barbecues and plastic plates. Like most supermarkets, PLS tries to increase sales by advertising special offers such as 'buy one get one free' and 'three for the price of two' but its main selling point is that it is local to customers.

Staffing and job functions (see Appendix 1 – Organisational structure)

The company is run by a Managing Director assisted by three directors. These directors are Sales and Marketing, Office Services and Operations. Each of these directors is responsible for several departments or job functions within the company. For example, the Office Services Director is responsible for finance, administration, purchasing and human resources (HR). The Managing Director, the Sales and Marketing Director and the Office Services Director are based in the head office. The Operations Director is based at the warehouse and distribution centre.

Sales and marketing

The Sales and Marketing Director oversees both the sales and the marketing functions in the head office. There is a department, with a manager and assistants, for each function. The Sales and Marketing Director is also responsible for overseeing the supermarkets.

The sales department monitors the numbers of each item sold by each supermarket and compares them with target figures. If particular items are not selling as well in one supermarket as in others, the department will arrange for the Sales Manager to visit the store to find out why and decide what action needs to be taken.

The main responsibility of the marketing department is to advertise the company and try to increase its sales. The marketing department identifies products that need to be promoted, using sales analysis results and other information, such as competitors' prices and special offers. The marketing assistants create or update flyers and posters to advertise the latest offers and the Marketing Manager organises for these to be printed and distributed. Members of the department also produce scripts for radio advertisements. They arrange for these scripts to be recorded and broadcast on local commercial radio stations. All types of advertising include original material created by the marketing department and material from other sources, such as music tracks for the radio advertisements.

Each supermarket has a Store Manager who is responsible for its day-to-day running. The Store Manager reports to the Sales and Marketing Director. Within each supermarket there is a sales supervisor and a stock supervisor for each shift. They report to the Store Manager. Checkout operators report to the on-duty sales supervisor and shelf fillers report to the on-duty stock supervisor. The checkout operators' main role is to serve customers at one of the checkouts. The shelf fillers' role is to

ensure that the supermarket shelves are fully stocked. However, some shelf fillers are checkout trained, so that they can help to serve customers when the supermarket is busy. During quiet times, checkout operators may help to put stock on the supermarket shelves.

Office services

Staff in the finance department keep records of the income received from supermarket sales, payments made to suppliers and staff wages. The finance clerks arrange for payments to be made using an on-line banking facility.

Administration involves the day-to-day tasks done in an office, such as dealing with correspondence and ordering office supplies.

The purchasing department is responsible for ensuring that PLS has goods to sell. Purchasing clerks create purchase orders and send these to the relevant suppliers. When the goods have been delivered, the clerks reconcile the delivery notes with the relevant purchase orders to check that they match.

HR staff perform a range of activities relating to staff recruitment, welfare and training.

Operations

The Operations Director looks after the warehousing and distribution functions, which are based in the warehouse and distribution centre. Part of the Operations Director's role is to find suppliers to provide goods with the PLS own-brand packaging and labels. The Operations Director negotiates contracts with these suppliers.

There is a Warehouse Manager and a team of warehouse assistants. They receive and store goods delivered by suppliers. Each type of non-perishable item is stored in a specified location in the warehouse. Perishable goods, such as dairy products, are stored in specified locations in refrigerated rooms, and frozen foods are stored in large walk-in freezers. When orders are received from the supermarkets, warehouse assistants collect the non-perishable items required in metal cages. Perishable and frozen goods are collected separately in crates. The goods are loaded onto the designated lorry for delivery.

The role of the distribution department is to get the goods from the warehouse to each supermarket when the goods are needed and in optimum condition. A team of lorry drivers reports to the Distribution Manager. The Distribution Manager is responsible for deciding which lorry will be used to deliver to which supermarket(s) and scheduling when these should leave to reach the supermarket(s) at an appropriate time. Where supermarkets are close to one another, a lorry can make more than one delivery. The lorry drivers deliver the goods to the designated supermarket(s) and return with any waste, such as food that is past its sell-by date and empty cardboard boxes, for disposal.

ICT systems in the head office

All the computers in the head office are connected in a LAN with a single server. A router provides a broadband connection to the internet that can be used from all workstations. Each member of the head office staff has a workstation on their desk. There is at least one networked laser printer in each department. There is also an A3 colour laser printer attached to the Marketing Manager's workstation as a local printer. All the standard office software is stored on the server, as is photo-editing and publishing software for use by the marketing department. All data is stored on the server and can be accessed from all workstations, but the data can be accessed only by staff who are authorised to do so. For example, only HR staff can access personnel records.

ICT systems in the warehouse and distribution centre

The warehouse and distribution centre has a wireless LAN with broadband internet access from all workstations. There is a server with a wireless access point in the Warehouse Manager's office. The Warehouse Manager, the Operations Director and the Distribution Manager each has a workstation on their desk and a networked laser printer. Warehouse assistants use wireless portable data terminals

(PDT) to record all goods entering and leaving the warehouse. The warehouse stock database is stored on the server, along with specialist stock management software and scheduling software used by the Distribution Manager. Standard office software is also stored on the server.

ICT systems in the supermarkets

Operator:	Nathan	Logon date/time:	12-05-2013/09:45
Product Code			
Item Description		Unit Price	
PL Cheddar Cheese 500g		£3.99	
Goods Total			
Amount Tendered			
Change Due			
Now Print a Receipt			

1	2	3	4	5	6	7	8	9	0
---	---	---	---	---	---	---	---	---	---

Total	Cash	Card	Print Receipt
-------	------	------	---------------

Call Supervisor	Enter Supervisor Code	Log Off
-----------------	-----------------------	---------

Fig. 1

Each supermarket has up to six checkouts, depending on its size. Each checkout has an EFTPOS terminal with a touch screen (Fig. 1), barcode reader, customer display screen, and chip and pin card reader. These terminals are connected in a LAN with a server in the Store Manager's office. The Store Manager has a networked workstation and laser printer. A router provides broadband access to the internet, including a secure link to the banking system for electronic funds transfer. The supermarket's stock database is stored on the server, along with word processing and spreadsheet software. The server also holds some personnel data, including user IDs and security codes for checkout operators and sales supervisors.

Checkout procedures

When a checkout operator starts using a terminal, they must first use the touch screen to log on by entering their user id and security code. These details are checked with the data held on the server to ensure that only authorised staff can use the terminals. The system records the date and time when the checkout operator logged onto the terminal and identifies who is using it. Their name will be printed on the customer receipt. When the checkout operator stops using the terminal, they must press the log off button on the touch screen. The date and time they logged off is recorded.

A customer takes the goods they want to purchase to one of the checkouts. The checkout operator scans the barcode of each item. The product code is used to look up the description and price of the

item. These are displayed on the touch screen and the customer display screen. Only the most recently scanned item is displayed but the operator can scroll back to check previously scanned items.

When all items have been scanned, the checkout operator presses the total button on the touch screen. The system adds up all the item prices to give the total amount due from the customer. This is displayed on both screens. If the customer pays by cash, the checkout operator presses the cash button on the touch screen and then enters the amount tendered. The change due is calculated and displayed on the touch screen only and the cash drawer is opened. The checkout operator puts the cash tendered in the drawer and takes out the customer's change. They then press the print receipt button on the touch screen to print an itemised receipt (see Appendix 2). The change and receipt are handed to the customer.

If the customer wants to pay by card, the checkout operator presses the card button on the touch screen and asks the customer to put their card in the card reader. The terminal uses the secure connection to the banking system to check the card details and authorise the card before the customer is prompted to enter their PIN. If the PIN is correct, the transaction is recorded and the customer is prompted to remove their card. At this point, two card receipts are printed, one for the customer and one for the supermarket (see Appendix 3). As with cash payments, the cash drawer is opened and the supermarket card receipt is put in the cash drawer. The operator must press the print receipt button on the touch screen. The terminal then prints an itemised goods receipt (see Appendix 3) and this is handed to the customer with their copy of the card receipt.

Procedures for re-stocking supermarkets

As the barcode of each item is scanned, the product code is used to look up the item record in the stock database and the number_in_stock field is reduced by one. For non-perishable goods, there is a pre-set re-order level. The new value in the number_in_stock field is compared with this level. If the value is equal to the re-order level, the item will be added to a re-order list.

For perishable goods, the Store Manager prints out reports from the stock database at 4.00 pm each day. These show the items stocked in a section, for example dairy, and the current value of the number_in_stock field for each item. Shelf fillers check the sell-by date on each item. Items that are near their sell-by date are reduced in price to sell them quickly and those that have reached their sell-by date are removed from display. The number remaining is counted and written on the report. The completed reports are returned to the Store Manager, who also prints out the re-order list for non-perishable goods.

The Store Manager uses all of the information and their local knowledge to decide what they need to order for the following day. All goods are delivered in boxes. The Store Manager uses the month's spreadsheet order template to enter the number of boxes of each item required and emails the order to the Warehouse Manager before 8.00 pm.

In the warehouse, a copy of the order is sent to a warehouse assistant via their wireless PDT. The warehouse assistant picks the order, scans the barcodes and enters the number of boxes of each item removed. If there is not enough of an item to fill the order, the order details will be amended so that they show exactly what has been picked. The amended order details are sent back to the Warehouse Manager via the wireless PDT. The Warehouse Manager uses the amended order details to create a delivery table, which lists exactly what is included in the delivery. This is emailed to the Store Manager who uses it to update the supermarket's stock database.

The Distribution Manager accesses the delivery table via the LAN and allocates the delivery to a particular lorry. The Distribution Manager prints a delivery note and hands it to the lorry driver. The lorry is loaded and leaves the distribution centre in the early hours of the morning. The delivery is made before the supermarket opens if possible but this depends on how far the supermarket is from the distribution centre and how many deliveries the lorry is making.

When the delivery arrives at the supermarket, the lorry driver hands the delivery note to the stock supervisor, who checks the goods delivered against the delivery note. Any discrepancies are noted and the stock supervisor signs the delivery note before handing it to the Store Manager. Starting with the perishable goods, shelf fillers put the items on display in the supermarket as quickly as possible.

Periodically, shelf fillers carry out a manual check of the stocks of non-perishable goods on the supermarket shelves. They use reports printed from the stock database that are similar to those used daily for perishable goods. Any items nearing their 'best before' date are reduced in price for a quick sale, while those that have reached this date are removed from sale. The number remaining is checked with the number in stock on the report, which is amended if necessary. The Store Manager updates the stock database with the amended figures.

Procedures for re-stocking the warehouse

When warehouse assistants scan the barcodes of the items being removed from stock for a supermarket order, the product code is used to look up the record for that item in the warehouse stock database and the number of boxes removed is subtracted from the number_in_stock field. In the warehouse, perishable goods are not held long enough to reach their sell-by dates, so there are pre-set re-order levels for all goods stocked. When the value in the number_in_stock field is equal to or less than the re-order level, the item is added to a re-order log.

The Operations Director checks this log daily and uses it to decide what needs to be ordered. Details of the goods required are passed to the purchasing department where purchasing clerks create purchase orders, which are sent to the relevant suppliers. The Operations Director also decides what seasonal items will be stocked and the quantity of these that will be required. The Operations Director locates suppliers for these items and negotiates a price for the quantity required.

The goods arrive at the warehouse in bulk on pallets. Warehouse assistants use the wireless PDTs to scan the barcodes on the pallets. The number of boxes on each pallet is stored on the system, so each time a barcode is scanned, that number is added to the number_in_stock field for that item. The goods delivered are checked against the delivery note, which is then sent to purchasing.

Warehouse assistants then use fork-lift trucks to take each pallet to its designated storage area in the warehouse. Due to the number of products sold and the size of the warehouse, it can take a long time for new staff to learn the layout. Existing staff also have to keep track of changes in the products stocked. This can lead to goods being put in the wrong place and effectively lost.

Special Offers

The Sales and Marketing Director negotiates with the Operations Director to decide what special offers will be made available in the next month. They use stock information and information from both the sales and the marketing department to make their decision. The Sales and Marketing Director places details of the special offers on the head office server so that both the Sales Manager and the Marketing Manager can access the information via the LAN. The Sales Manager emails a file to each Store Manager that can be used to update the checkout system to action the special offers, along with the date the offers will start and end.

The Marketing Manager holds a department meeting to tell the marketing assistants what they need to include in posters, flyers and shelf-edge labels to advertise the offers. When the advertising materials are completed, the Marketing Manager accesses the publishable versions via the LAN and emails them to an external printing company. The printing company sends proof copies to the Marketing Manager by courier. The Marketing Manager checks the proof copies for errors before telephoning the printing company with instructions to start the print run. When all the materials have been printed, the printing company posts an agreed number to each Store Manager.

The night before the offers are due to start, the Store Manager uses the file received from the Sales Manager to update the checkout system. The shelf fillers apply the shelf-edge labels and put up posters

in the supermarket. Flyers are distributed door-to-door in the local area and a pile of flyers is placed on each checkout.

When a special offer item is scanned, a flag is set. If, for example, the offer is 'buy one get one free', the next time the same item is scanned, the normal price is displayed but the software recognises the offer and subtracts the price of one item from the total. This is shown as a saving on the itemised receipt. The flag is then removed. Other offers are dealt with in a similar way. For example, if items that are normally £4 each are on offer at three for £10, the normal price for three would be £12, so the saving is £2. In this case, the flag would include a counter, which would be incremented as each offer item is scanned. When the third offer item is scanned, £2 would be deducted from the total and indicated on the receipt.

Staff hours and payroll

All staff in head office work standard office hours and are paid an annual salary. Warehouse and distribution staff work eight hour shifts and are paid an hourly rate. Staff on the night shift are paid a higher rate than staff on the day shift.

Most of the staff in the supermarkets work part time and are paid an hourly rate. Most staff work the same hours and days each week. However, the Store Manager might ask them to work at different times to cover absences or when the supermarket is likely to be especially busy, such as before a Bank Holiday.

When a member of staff arrives for work at the supermarket they must sign in using a book that is kept in the staff room. They must write the date, their name, and the time that they arrive, in the columns provided. When they finish work they must sign out by writing their finish time against their name in the relevant column.

On the 21st of each month, the Store Manager goes through the signing-in book and calculates the number of hours each employee has worked that month. Sometimes they find that a member of staff has forgotten to sign out or has failed to write in the time that they signed in. If this happens, the Store Manager has to check the staffing schedule to see when they should have signed in and/or out and use those times. This then leads to disputes when they receive their payslip and find they have not been paid for that shift. A list that includes the employee ID and name of each staff member and the hours each has worked that month is emailed to the HR department in head office. An HR assistant enters the hours worked into the payroll system.

The payroll system calculates the monthly pay due for all staff. For salaried staff their employee ID is used to look up their annual salary, which is divided by 12 to give their gross monthly pay. For all hourly paid staff, their hourly rate is looked up using their employee ID. The hourly rate is multiplied by the number of hours they have worked that month to give their gross monthly pay. For salaried staff and hourly paid staff, tax and National Insurance (NI) are calculated. These are deducted from the gross monthly pay along with other deductions, such as pension contributions, to give the net monthly pay. Each employee's gross pay for the financial year to date is stored in their record, along with the total tax and NI paid and the totals of other deductions made.

A payslip is printed for each employee. This includes the company's name and head office address, the employee ID and NI number, their name and address, and the date they will be paid. The payslip also shows their gross pay, deductions and net pay for the current month and for the financial year to date. To maintain confidentiality, the payslips are printed using a special printer that automatically folds and seals them, so that only the employee's name and address is visible. The HR department distributes the payslips to the different locations to be handed to the employees. The finance department uses online banking to transfer the money due, so that it is in each employee's bank account by the 28th of each month.

Possible improvements

When the company first started it had only three supermarkets and a small warehouse. The Managing Director is aware that, as the company has grown, the systems used have not kept pace with the developments. Therefore, the company is not as efficient and cost effective as it could be.

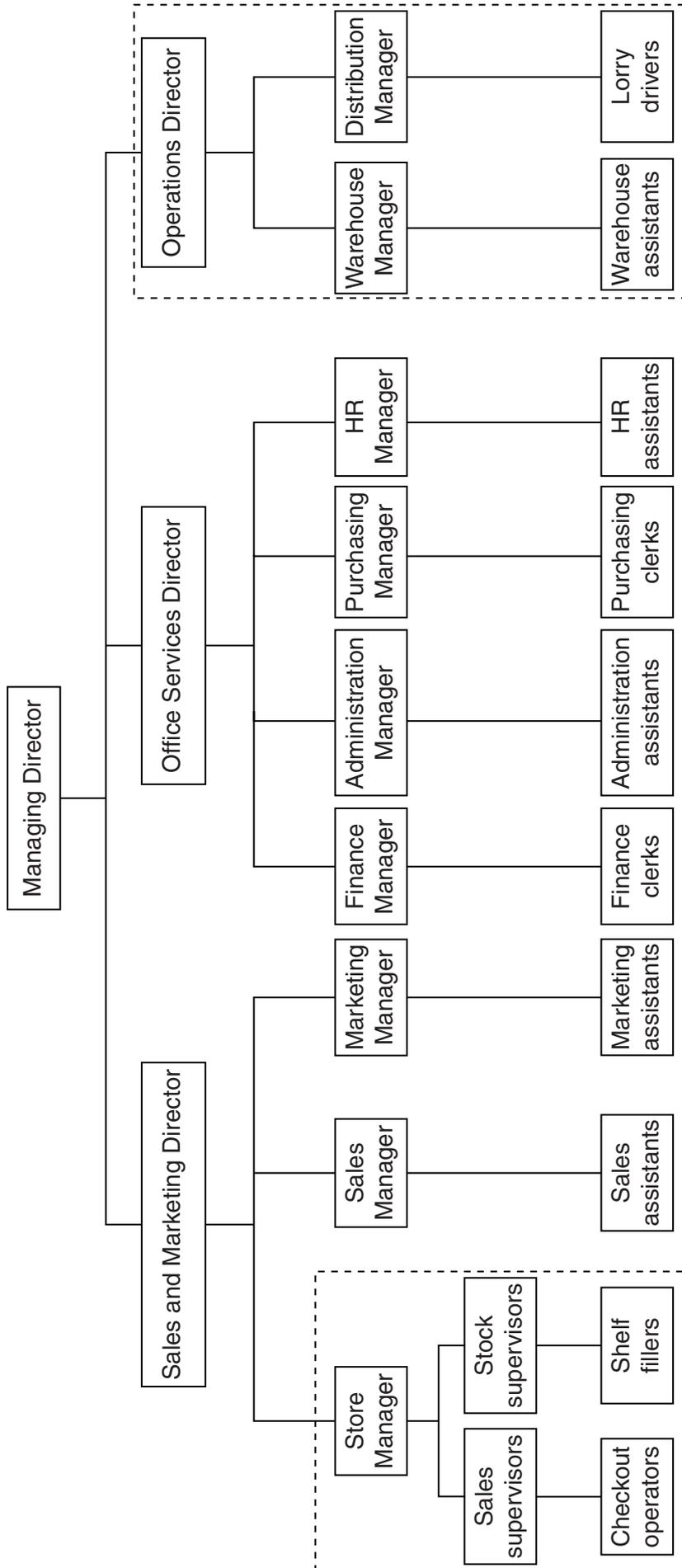
One aspect that needs to be improved is communication between the warehouse, head office and the supermarkets, so that the stock management system can be centralised. Most communication currently uses the internet. The Managing Director is concerned about the security and reliability of using this method, and about the system duplication it causes.

The Operations Director is concerned about staffing costs, and the 'lost' goods in the warehouse, and is considering the installation of an automated warehousing system, including automated ordering from suppliers.

Improvements are needed in the supermarkets. The Sales and Marketing Director is considering replacing some checkouts in each supermarket with self-service checkouts. There is also a need for a more reliable method of tracking the hours worked by each supermarket employee.

The Sales and Marketing Director would also like to introduce a customer loyalty scheme but is aware that there would be legal issues to consider.

Appendix 1 – Organisational structure



Appendix 2 – Receipt – cash

Itemised goods receipt – cash

Progress Local		
Progress House, Basingstoke RG23 0PL		
Registered Number 123X		
Store: Cobham Tel: 03624 123456		
VAT No: GB 123 98765		

<u>Qty</u>	<u>Item</u>	<u>Price</u>
1	PL BF STK MNCE	£4.00
1	WLKS CRISPS	£2.25
1	PL S/V VAN I/CRM	£1.00
1	PL BF STK MNCE	£4.00
1	PL PORK LOIN	£4.00
	Multi-save	£-2.00
1	PL TOMATO PUREE	£0.59
1	AMB LF RCE PUD	£0.99
1	NAP CHOPPED TOM	£1.49
1	NAP CHOPPED TOM	£1.49
	Multi-save	£-1.49
1	PL SMKD HDDK FLL	£2.90
TOTAL BEFORE SAVINGS		£22.71
YOUR SAVINGS TODAY		£3.49
BALANCE DUE		£19.22
CASH		£20.00
CHANGE DUE		£0.78

Op	Till	Store
0072	4	1243
Date	Time	
23/05/13	13:32:51	
You were served by Nathan		

Appendix 3 – Receipts – card

Itemised goods receipt – card

Progress Local				
Progress House, Basingstoke RG23 0PL Registered Number 123X				
Store: Cobham Tel: 03624 123456 VAT No: GB 123 98765				

Qty	Item	Price		
1	PL BF STK MNCE	£4.00		
1	WLKS CRISPS	£2.25		
1	PL S/V VAN I/CRM	£1.00		
1	PL BF STK MNCE	£4.00		
1	PL PORK LOIN	£4.00		
	Multi-save	£-2.00		
1	PL TOMATO PUREE	£0.59		
1	AMB LF RCE PUD	£0.99		
1	NAP CHOPPED TOM	£1.49		
1	NAP CHOPPED TOM	£1.49		
	Multi-save	£-1.49		
1	PL SMKD HDDK FLL	£2.90		
TOTAL BEFORE SAVINGS		£22.71		
YOUR SAVINGS TODAY		£3.49		
BALANCE DUE		£19.22		
CARD		£19.22		
VISA DEBIT *****3456				
VALID: 06/12 – 05/15				

Op	Till	Store	Date	Time
0072	4	1243	23/05/13	13:32:51
You were served by Nathan				

Card receipt

Progress Local				
Progress House, Basingstoke RG23 0PL Registered Number 123X				
Store: Cobham Tel: 03624 123456 VAT No: GB 123 98765				

VISA DEBIT *****3456				
VALID:	06/12 – 05/15			
MERCHANT:	9876543			
AUTH CODE:	023102			
START DATE:	06/12			
SALE	£19.22			
TOTAL	£19.22			
Your account will be debited with the above amount				
Cardholder PIN verified				

Op	Till	Store	Date	Time
0072	4	1243	23/05/13	13:32:51
You were served by Nathan				

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