



Information Systems Analysis

SAMPLE TIME CONSTRAINED ASSESSMENT

Answer ALL questions.

Clearly cross out surplus answers.

Time: 4 hours

The maximum mark for this paper is 100.

Any reference material brought into the examination room must be handed to the invigilator before the start of the examination.

Case Study

Express Espresso operates a chain of ten coffee shops in the south of England which until coronavirus hit, primarily sold their speciality coffee (light-roast, medium-roast and high-roast) and bakery products to customers face-to-face. Since then, they have started selling their own bulk bags of coffee beans, which are sold in sizes 1 kg – 5 kg, to both existing and new customers. In addition to their shops, they also have a small warehouse and head office. Many of the administrative staff have started working from home at least partly during the week and so remote working software has recently been installed.

Bulk buy coffee is paid for at the time of purchase. An order receipt is generated hand-written on paper (if ordered in store), orders made online receive an automated receipt and orders over the phone, receive a receipt typed up on office software by one of the administrative staff. Paper orders created in store are stored in a folder (along with a copy of the till receipt), then are sent daily by the store manager directly to head office, where the administrative staff will record them and forward them onto the warehouse. Payment for face-to-face orders is processed on the till, phone orders via a virtual terminal and online orders use an external online payment system. Bulk bags are stored at a central warehouse and are shipped within 24 hours of receiving an order.

The information system processes and stores data on customer payments, cancellations and refunds, as well as payroll data and payments made to suppliers. Their current information system consists primarily of databases storing data on customers, orders and payments, staff and suppliers.

Staff employed by *Express Espresso* include: Managing Director, Shop Managers, Baristas, Human Resources staff, Marketing staff, Finance staff, Payroll staff and Administrative staff.

Problems experienced within the system include: written orders (in store) not always being completed correctly/fully by staff members and administrative staff finding the completion of receipts for phone orders time-consuming. Experienced baristas do not have an effective way of disseminating their knowledge. The Managing Director has also complained of a lack of information provided about sales in shops.

Express Espresso has been recently purchased by a new owner, who wants to focus on increasing the sales of bulk coffee, but has concerns over the system's capacity to deal with higher demand and would like to fix the current issues and create a more efficient system.

The new owner would like you to analyse *Express Espresso's* Information System and make recommendations for improvement.

Answer ALL questions

Marks

Question 1

- a) In your investigation, a clear understanding of the current working of the system will be needed to help make recommendations for improvements. 4

From the case study, identify TWO (2) types of Information System that are currently being used and explain what they are being used for:

- b) Identify TWO (2) new types of information system that could benefit the company. Explain why each would be useful. 4

Total 8 Marks**Question 2**

- a) Create a Level 1 Data Flow Diagram which shows the current Order System within a Coffee shop. 8

Total 8 Marks**Question 3**

- a) Object-Oriented IS Methodology could potentially be used to analyse the system and represent the items in the existing *Express Espresso* Information System. 5

Identify FIVE (5) real-life objects from the coffee-shop section of the business which could be *candidate classes*

- b) For THREE (3) of the candidate classes above, list their attributes 6

Total 11 Marks**Question 4**

- a) *Express Espresso* has had to adapt to significant challenges over the past year. 8

You are going to be investigating factors that could impact *Express Espresso* over the next few years. Using PEST analysis, identify likely factors for each category:

Marks
6

- b) Information will need to be gathered from senior and middle management, including the Managing Director, Shop Managers and Baristas, to carry out further PEST analysis.

Explain, with justification, which investigation method would be most suitable for each of these THREE types of employee.

Total 14 Marks

Question 5

- a) Currently, *Express Espresso* has employees working in different locations who have limited interaction with staff in other departments/locations. **3**

This makes it difficult to share knowledge across the company and has resulted in a lack of strong performance particularly in several of the coffee shops and in the warehouse as staff in these areas are not always kept informed of changes.

Explain THREE (3) ways in which the Information System could be improved to allow knowledge exchange within the company.

- b) Identifying threats via SWOT analysis will help understand the company and its needs further. Discuss the **internal** and **external** threats that *Express Espresso* faces. **6**

Total 9 Marks

Question 6

- a) The Coffee Order Input Form is shown below. This form would be completed by a barista when taking face-to-face orders, administrative staff (when taking orders over the phone) and customers (when placing online orders). 14

Evaluate the form and identify SEVEN (7) design problems.

For each issue explain how it could be improved.

You should take into consideration usability goals and the user experience.

Orders

The form contains the following elements:

- Name: [text input]
- Phone_Number: [text input]
- Email_Address: [text input]
- Quantity (in kg):
 - 1 kg
 - 3 kg
 - 5 kg
- Coffee type: [text input]
- Address: [text input]
- City: [text input]
- Postal code: [text input]
- [submit] [clear]
- Please complete this form

Total 14 Marks

Question 7

- a) You are considering whether to use the Soft Systems Methodology, combined Multiview approach or the SSADM approach for analysing *Express Espresso's* current system. 6

Discuss the suitability of using the Multiview Approach in this case.

- b) Draw a Rich Picture of *Express Espresso's* current system. 7

Total 13 Marks

Question 8

- a) A Stakeholder Analysis Matrix is a useful tool in requirements capture. **5**

Draw and label a stakeholder matrix for *Express Espresso*. Identify and position all the stakeholders in the matrix.

- b) The use of CATWOE helps to take users' considerations into account. One of the aspects it focuses on is the Environment. **6**

Discuss issues related to the Political, Ethical and Competitive factors found within the Environment aspect.

Total 11 Marks

Question 9

- a) An Enterprise Model can be either static or a dynamic form. **6**

Explain the difference between the model types and recommend the most suitable method to use for analysing *Express Espresso*. You should justify your answer.

Total 6 Marks

Question 10

- a) Evaluate how useful a People-Oriented IS Methodology such as RAD or JAD would be in analysing the existing system. **6**

Total 6 Marks

End of paper