



PROFESSIONAL LEVEL

WEDNESDAY 9 MARCH 2022

2.5 HOURS

BUSINESS STRATEGY AND TECHNOLOGY

This exam consists of **three** questions (100 marks).

Marks breakdown

Question 1	43 marks
Question 2	35 marks
Question 3	22 marks

Important Information:

1. Please read the instructions carefully before you begin your exam.

Starting and ending the exam

2. Click on the **right arrow** in the header to begin the exam. The exam timer will begin to count down.
3. When the exam timer reaches zero, the exam will end. To end the exam earlier, navigate to the last question and click the right arrow button. Click the **Submit** button to close the exam.

Encountering issues during the exam

4. If you encounter any issues during the delivery of the exam you should alert the invigilator (or online chat support if you are sitting remotely). Neither the invigilator nor the online chat support can advise you on how to use the software.

Preparing your answers

5. Respond directly to the exam question requirements. Do not include any content of a personal nature, this includes your name or any other identifying content.
6. **Only your answer in the word processing area will be marked.** You must copy over any data from the spreadsheet area to the word processing area for marking.
7. The examiner will take account of the way in which your answers are structured. You must make sure your answers and workings are clearly visible in the word processing area when you submit your exam. The examiner will **not** be able to expand rows or columns where content is not visible.

After the exam

8. If you are sitting in an exam centre and believe that your performance has been affected by any issues which occurred during the exam, you must inform your invigilator at

the time of occurrence and follow up with ICAEW directly after your exam. You will then need to submit a special consideration application to ICAEW if you wish us to consider such issues, as per our published policy. If you are sitting remotely please submit your special consideration application referring to anything of note which occurred and will have been recorded, for use as evidence to support your case.

9. A student survey is provided post-exam for feedback purposes.

Question 1

Doiry Ltd

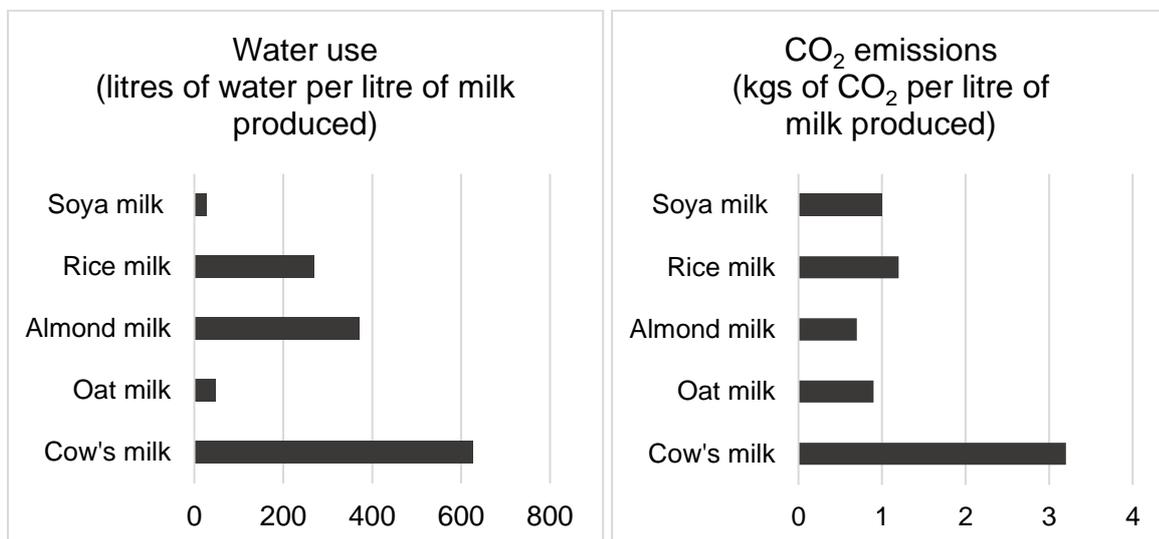
Doiry Ltd (Doiry) is an oat milk producer with its head office in the UK. Its operations are principally in Europe and America, and it has recently started operating in Asia. Oat milk is one of several types of plant-based milk. These milks have grown in popularity as an alternative to milk from animals, such as cow's milk which is widely consumed in Europe and North America.

Plant-based milk

During the 1990s and early 2000s, plant-based milk was available only in a few shops and hospitality venues (retailers) in Europe and North America. It was generally purchased by people who had milk allergies or followed a vegan diet. Since around 2010, due to concern about animal welfare and the environment, plant-based milks have become more popular. They are now available in many retailers as consumers are attracted by their sustainable image.

Different types of plant-based milk are derived from legumes, nuts or cereals, including oats, almonds, rice and soya. Each milk has a different taste and soya milk was the first plant-based milk to be widely sold. From 2018 large, well-known global food companies started to produce soya, almond and oat milk to meet growing consumer demand. Since larger food companies entered the market, the price to consumers of plant-based milks has fallen but these milks remain a premium product.

Each type of milk has a different environmental impact, according to figures from an alliance of plant-based milk producers:



In 2021, the plant-based milk market grew by 16% in Europe and 20% in North America.

Oat milk is made from oats and water and, like most plant-based milks, it can be made at home. However, most consumers who drink oat milk buy it from retailers. Oat milk can be fortified with all the vitamins that are naturally found in cow's milk and can act as a substitute wherever a consumer might normally use cow's milk. The sustainability of both the product and the method of production is a key factor for most consumers who choose oat milk.

In 2021, average prices paid by UK consumers were:

	UK consumer price per litre
Soya milk	£1.35
Rice milk	£1.80
Almond milk	£1.80
Oat milk	£1.50
Cow's milk	£0.85

Company background

Doiry was set up in 2015 by the current CEO, food technologist Maggie Bovin. She developed a new process, called Pressoat, for breaking down oats and extracting oat milk. Pressoat is quicker and cheaper than other processes, and retains more natural vitamins within the oat milk. Doiry patented Pressoat and it is the only company to use this process.

Doiry aims to minimise its environmental impact. The waste product from using Pressoat is sold as animal feed. Doiry set up local production facilities across each of its markets to minimise the carbon emissions of distribution and to provide local employment. Within each facility Doiry complies with local health and safety standards and pays a fair wage to its workers. Doiry sources oats, as far as possible, from local suppliers. Each litre of oat milk is packaged separately, but packaging is fully recyclable in most countries.

Most sales are to retailers, but Doiry also sells direct to consumers via its website.

Financial information for the year ended 31 December 2021 is in **Exhibits 1** and **2**.

Future strategy

Asia is predicted to be the largest area for potential sales growth of plant-based milk by 2025. Soya milk is well-established in Asia, but consumers are attracted to newer plant-based milks, such as oat milk. The average consumer price per litre of oat milk is much higher in Asian markets compared with Doiry's European and North American markets. Doiry set up a production facility in Japan in 2021, its first in the Asian market. The Japanese operation is currently loss-making but Doiry wants to expand further in Asia.

A large Chinese company, Yunnan Corp (Yunnan), wants to use the Doiry brand name and the Pressoat process under licence from Doiry.

Yunnan is a food production company which also owns large retail chains across China. Yunnan wants to scale up production of Doiry oat milk very quickly so it is available in retailers across China within six months. Doiry will receive both an annual fixed licence fee and a fee per litre of oat milk produced and sold. Yunnan's estimates for litres of oat milk to be sold, and its other assumptions for the agreement, are in **Exhibit 3**.

Yunnan does not operate outside China but plans to do so in the medium term. Yunnan's directors want to use the Doiry brand name under licence because of its strong global reputation for sustainable production. Yunnan is known in China only for mass production and retail of food products.

Requirements

1. Assess Doiry's environmental, social and economic sustainability. Set out additional information that would be useful in making this assessment. Ignore the proposed arrangement with Yunnan. **(11 marks)**
2. Using the data in Exhibits 1 and 2 and the other information provided, analyse the performance of Doiry in the year ended 31 December 2021 compared with the previous year. **(18 marks)**
3. Discuss whether Doiry should enter into the agreement with Yunnan. Provide supporting calculations using Exhibit 3. **(14 marks)**

Total: 43 marks

Exhibit 1: Doiry Ltd financial and non-financial information for the year ended 31 December

Financial information	2021	2020
	£'000	£'000
Revenue	32,865	24,486
Cost of sales	22,784	16,495
Gross profit	10,081	7,991
Operating expenses	5,873	4,672
Operating profit	4,208	3,319
Property, plant and equipment	39,489	30,517
Non-financial information	2021	2020
Litres of oat milk sold ('000s)	24,540	16,500
Number of production facilities	10	8
Number of employees	215	175

Exhibit 2: Doiry Ltd revenue and profit split by region

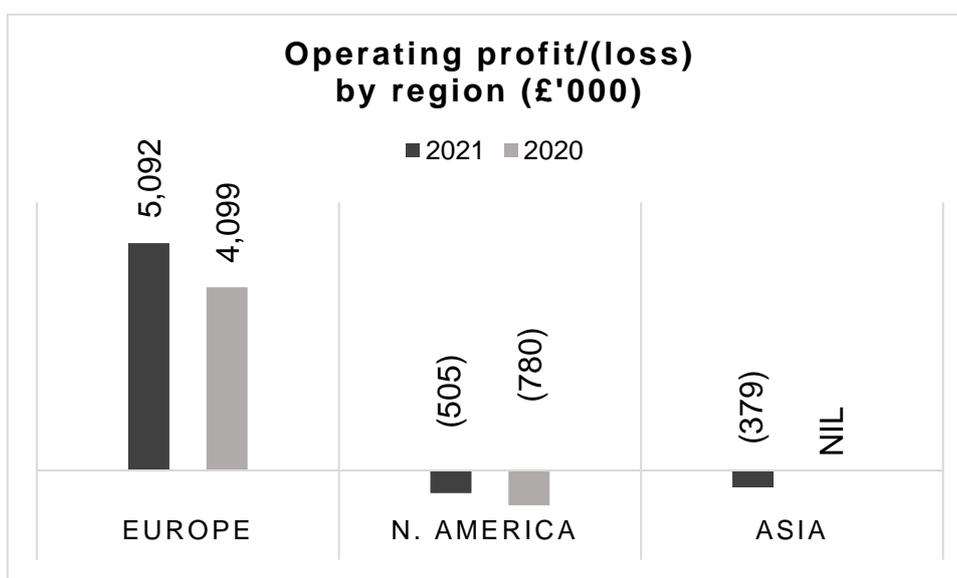
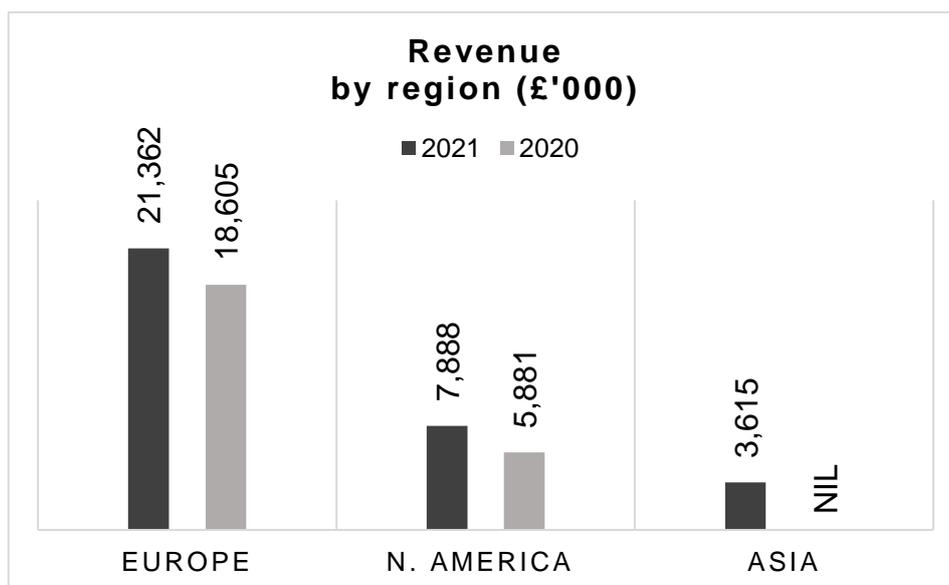


Exhibit 3: Proposed licensing agreement between Yunnan and Doiry

Assumptions:

Annual licence fee payable to Doiry (£'000)	250
Expected consumer price per litre in China (£)	3.00
Fee payable to Doiry per litre sold (£)	0.10
Duration of licence (years)	5
Estimated litres of oat milk produced over five years ('000s)	79,000

Key terms:

- Yunnan has exclusive rights to use the Pressoat process and Doiry brand name in China only.
- Yunnan makes all payments to Doiry in sterling (£).
- Either party can terminate the agreement at the end of five years.

Question 2

Xoug Ltd

Xoug Ltd (Xoug) was set up in 2021 by two brothers, Doug and Xand, who are both medical doctors. After treating many patients with insomnia (the inability to fall, or to stay, asleep), they developed a device, called the Coddle, to improve sleep. The brothers are well-known in the UK and appear on TV and radio to talk about rising levels of insomnia.

Xoug is seeking finance to launch the Coddle in the second half of 2022.

The sleep aid market

Insomnia affects a third of people in the UK. Its increase is due to an ageing population, more stressful lifestyles and the rise in screen technology such as tablets and smartphones. Sleep aids currently on the UK market take many different forms, including specialist pillows and mattresses, medication, weighted blankets, 'white noise' machines (which play a constant background noise) and apps on mobile devices.

The Coddle

The Coddle is a screen-free sleep aid which employs a mix of sound and light to help the user fall asleep. A built-in speaker plays the user's choice of calming sounds and a soothing light projects onto the ceiling to guide the user's breathing. This combination relaxes users and prepares them for sleep. Once started, the Coddle operates for 10-20 minutes before automatically switching off. The sounds are a mix of music, spoken word and other sounds such as birdsong.

The brothers developed and tested the Coddle in collaboration with a sleep clinic. Two years of research led to the mixing of light with a range of sounds. The brothers subsequently outsourced technical development of the Coddle device to a medical product design agency.

This is the first business venture for Doug and Xand. They are recruiting a finance director, and a sales director with pre-existing relationships with large retailers which are likely to stock the Coddle. It will be positioned as an upmarket product with a retail price to the consumer of £50.

The brothers will also sell the product via smaller retailers and directly to individual consumers via a company website. Some smaller retailers have already expressed interest in stocking the Coddle.

Competition

The Coddle will compete with a range of sleep aids but its direct competition will be other screen-free devices. Most screen-free sleep aid devices on the market deliver only sound, in the form of music, spoken word or 'white noise'. These devices typically have a retail price of between £20 and £60. Only one competitor, Lion Inc (Lion), offers a device which combines sounds with light in a similar way to the Coddle. Lion operates in North America only and received very favourable reviews when it launched at the end of 2021.

Business plan

The brothers applied to a bank for a loan of £400,000 to cover the final stage of product development, marketing for the launch and developing a website. The bank requires a business plan in support of the loan application, including: a profitability forecast with an assessment of the impact on profit of worst-case and best-case scenarios of sales volumes; an analysis of risk; and a marketing strategy. Assumptions used in the brothers' original forecast of sales in the first four years are included in the **Exhibit**, as well as changes in their sales volume assumptions for the worst-case and best-case scenarios.

Requirements

Prepare the following three sections of the business plan required by the bank:

1. Profitability:

- Calculate the yearly profits and the total profit for the first four years, based on the original forecast assumptions in the Exhibit.
- Discuss the original level of total profit and the impact on it of the worst-case and best-case scenarios. Show supporting calculations. **(12 marks)**

2. Risk:

- Prepare an analysis of risk and possible mitigants. Refer to your calculations in part 1 where appropriate. **(11 marks)**

3. Marketing:

- Prepare a marketing strategy which covers market segmentation, pricing and methods of promotion only. **(12 marks)**

Total: 35 marks

Exhibit: Assumptions for profitability forecasts

Original forecast assumptions:

Total sales volume assumptions per year (Coddles)			
Year 1	Year 2	Year 3	Year 4
4,500	9,000	18,000	36,000

Price assumptions per customer type:	Price per Coddle (£)	Expected percentage of total sales volume
Consumer	50	10%
Small retailer	33	30%
Large retailer	25	60%

Cost assumptions:	£	
Variable costs per Coddle	12	
Annual fixed costs	150,000	

Changes to sales volume assumptions for worst-case and best-case scenarios:

	Worst-case scenario	Best-case scenario
Change in sales volume versus original forecast	-30%	+20%

All other assumptions for the original forecast are unchanged.

Question 3

Pacaiste SA

Pacaiste SA (Pacaiste) is a European packaging manufacturer, focussing on large business customers who require tailored packaging solutions. Pacaiste has eight factories across mainland Europe and one in the UK, located next to its head office. The head office occupies three leased floors in a large office building.

Most employees in the head office are account managers. The account managers collaborate closely with customers, self-employed designers and teams in all nine factories to devise packaging solutions for each client's products. Since 2020, head office employees have worked either entirely remotely, from home, or via hybrid working, mixing at-home and in-office attendance. Most head office employees live within easy travelling distance of the building.

Board meeting

Pacaiste's policy of hybrid working began on a temporary basis in 2020. It is very popular with some account managers, who value its flexibility. Pacaiste also allows account managers to work flexible hours across the week. However, a small number of account managers still prefer to work at the head office, 9am to 5pm, Monday to Friday. The directors met to consider the hybrid working policy going forward.

The finance director said: 'Flexibility of both working location and hours for account managers saves costs as we have been able to reduce usage of our head office space. I think we should go further: relinquish the current lease entirely and acquire a new lease for one floor in a smaller building. On some days the head office is quite empty, so we need only about 10% of the current space.'

The sales director was concerned: 'There are problems with account managers not being located together in a single building. Customers have started to complain about service levels. Factory employees and account managers don't collaborate as before, so tasks are sometimes duplicated or missed. It is harder for senior managers to keep track of account managers and projects, for example one project for new recycled packaging is already six months behind schedule.'

The IT director offered a solution: 'Could we consider specialist collaboration software for virtual teams with members who are in different locations, including at home? I've tested software called Confedhub which helps virtual teams to collaborate better. It collates everything for one customer or project and allows everyone to see progress in real time. We can give access to the software, on a limited basis, to customers and self-employed designers as well as to Pacaiste employees.'

The HR director agreed: 'Confedhub allows senior managers to monitor teams better. If our teams are fully virtual, we can recruit account managers globally, which widens the potential talent pool for Pacaiste. Also, Confedhub incorporates virtual employee management tools with supervision features that allow us to monitor account managers working at home more closely (**Exhibit 1**).'

The IT director disagreed on the last point: 'I'm not sure about Confedhub's supervision features, I read some negative press about these (**Exhibit 2**).'

Requirements

1. Explain the factors to be considered by Pacaiste's directors when deciding whether to continue hybrid working by leasing a smaller head office space. **(12 marks)**
2. Discuss the ethical issues that the directors should consider when deciding whether to use the supervision features contained in Confedhub. Advise on the actions they should take if they decide to use these features. **(10 marks)**

Total: 22 marks

Exhibit 1: Extract from Confedhub marketing literature about its supervision features

The virtual employee management tool incorporates an AI-enabled webcam to allow supervision of employees while working at home on employer-owned equipment:

- It collects data on employee activity and highlights any issues to senior managers.
- Data collected includes: when employees log on and off; their geographic location; content and timing of emails, including key words; periods of inactivity above a set time limit; screen activity recording.
- An algorithm collates the data to produce a productivity score for each employee.
- Facial recognition software identifies whether an employee is actively performing appropriate tasks, is away from their screen or is at their screen but engaged in non-work-related activities eg, using their personal phone. This information is automatically shared with senior managers in real time.

Note: Information is collected only during prescribed working hours and only with the employee's express consent.

Exhibit 2: Extract from newspaper report about Confedhub's supervision features

UK unions have warned about the impact of virtual employee management tools on home-based employees' productivity and privacy.

B, a call centre employee working from home and monitored by Confedhub software, was provided with a laptop with a webcam by his employer for work-related video calls. B was unaware however that all his activities were recorded by the webcam whenever the laptop was running. One Friday evening B did not shut down the laptop fully. The Confedhub software recorded and analysed everything within view of the webcam 24 hours a day over the weekend, without B's prior consent. It also shared screenshots of sensitive personal information from B's laptop with his manager.