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Certified Professional Accountants

May and August 2023
Operational Case Study
2019 CGMA Professional Qualification
Full post exam support materials

Below are the full post-exam supporting materials for the Operational Case Study Exam. Use the links on this page to jump to the documents required.

Pre-seen material
May and August Operational Case Study pre-seen.

Examiner's report
The May and November 2023 examiner's report.

Exam variants
- Variant 1
- Variant 2
- Variant 3
- Variant 4
- Variant 5
- Variant 6

Suggested solutions
- Suggested solutions for variant 1
- Suggested solutions for variant 2
- Suggested solutions for variant 3
- Suggested solutions for variant 4
- Suggested solutions for variant 5
- Suggested solutions for variant 6

Marking Guidance
- Marking guidance for variant 1
- Marking guidance for variant 2
- Marking guidance for variant 3
- Marking guidance for variant 4
- Marking guidance for variant 5
- Marking guidance for variant 6

If you need any further information please contact us.

Operational Case Study Examination

May 2023 – August 2023

Pre-seen material

Contents

Your role

You are a Finance Officer working within the Finance Department of Tracs Europe. You are principally involved in the preparation of management accounting information and providing information to managers to assist with decision making. At times, you are also expected to assist with the preparation of the financial statements and answer queries regarding financial reporting and other financial matters.

Company background

Tracs Europe is a company that manufactures and sells tractors used for agricultural purposes. The company is based in Teeland, a country in Europe which has the T$ as its currency. Tractors are manufactured at the company's Production Facility in Teeland and sold throughout Europe.

Tracs Europe is a wholly-owned subsidiary of AgRi, a leading global manufacturer and seller of a range of agricultural equipment including tractors, combine harvesters, trailers and ploughs. AgRi is based in North America and was founded in 1860 by Charles Birdage. AgRi initially manufactured ploughs and other farm implements designed to be pulled by teams of horses or oxen. AgRi launched its first engine powered tractor in North America in 1920.

AgRi has numerous subsidiaries, some of which manufacture and sell finished products (tractors, combine harvesters, trailers and farming implements) and some of which make components and sub-assemblies such as tractor cabs. There are only two subsidiaries which manufacture and sell tractors: Tracs Europe, based in Teeland, serving the European sales market and Tracs America, based in North America, serving the sales markets in the Americas, Australia, New Zealand and parts of Asia. Tracs Europe was set up in 1960 as a result of the AgRi group expanding its operations into the European market.

Tracs Europe does not sell directly to the end-users of its tractors (who are mostly farmers). Sales are made to dealers throughout Europe, who then sell to the end-user. Tracs Europe has sales teams which develop and maintain relationships with a large network of dealers across Europe.

All of the tractors that Tracs Europe sells are large tractors for agricultural use. These are manufactured at the company's Production Facility, located in the west of Teeland. Manufacturing is largely an assembly process, starting with the engines which are built from scratch and ending with the final tractor assembly. Tracs Europe buys in raw materials, parts, components and sub-assemblies from a variety of suppliers (including other group companies).

For the year ended 31 December 2022, Tracs Europe:

- Manufactured and sold 31,150 tractors in Europe.
- Generated revenue of T$2,990 million.
- Made a gross margin of 25.9% and an operating margin of 8.7%.
- Had an average of 4,120 employees.

The tractor industry
The global market

The global tractor market was worth T$66 billion in 2022 and is expected to grow on average by 4.2% a year over the next 10 years. This market can be split into two types of tractor: agricultural tractors (which are typically large and designed for heavy duty agricultural work) and mini tractors used for landscaping and grass cutting purposes.

The growth in tractor sales is expected to be driven by increasing farm mechanisation and automation in some parts of the world (for example, South Asia). In other parts of the world (for example, Europe) there is increasing demand for smart tech and alternative power sources for tractors. In these markets there is also increasing demand for compact and mini tractors for landscaping and grass cutting.
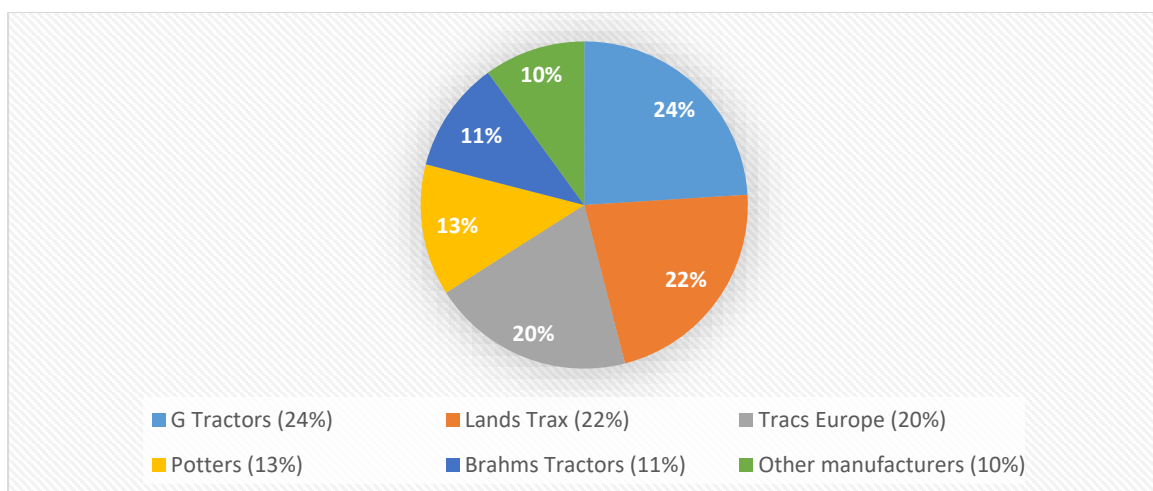
The global market for agricultural tractors is dominated by five large global specialist agricultural equipment companies which manufacture and sell the full range of agricultural equipment including tractors, combine harvesters, trailers and ploughs. Construction equipment global companies also manufacture and sell agricultural tractors, but for such businesses, this is often secondary to their main business of construction equipment.

Some, but not all, of the manufacturers of agricultural tractors also manufacture and sell compact and mini tractors. This market though is dominated by specialist small mechanical equipment manufacturers.

The power and specification of agricultural tractors sold varies considerably across the world, influenced by the nature of farming in each region. For example, the agricultural tractors sold in North America and Western Europe tend to be larger and have higher specifications than those sold in some parts of Asia.

The European market for agricultural tractors

In 2022, there were 155,000 agricultural tractors sold across Europe. Market share, based on sales volumes for 2022, was as follows:

G Tractors (24%) Lands Trax (22%) Tracs Europe (20%)
Potters (13%) Brahms Tractors (11%) Other manufacturers (10%)

Extracts from Tracs Europe website
Our tractor ranges

A++ Power

- Max power: between 360 to 420 hp (horsepower) depending on model
- Weight: between 12 to 13.5 tonnes depending on model

A+ Power

- Max power: between 240 to 300 hp (horsepower) depending on model
- Weight: between 9 to 11.5 tonnes depending on model

A Power

- Max power: between 120 to 180 hp (horsepower) depending on model
- Weight: between 5 and 6.5 tonnes depending on model

Our tractor models

We have three models in each of our ranges: Basic, Regular and Premium. As the names suggest:

- ❖ **Basic** is our starter model, with the lowest max power and the smallest size in each range. Practical, no frills but still comfortable and able to get the job done!
- ❖ **Regular** is our mid-range model in terms of max power and size. Cabs are air-conditioned with fully adjustable seating, easy to use driver controls and rear cameras.
- ❖ **Premium** is our top of the range model, with the highest power and largest size in each range. All models come with an air-conditioned cab, deluxe self-adjusting seating to give you the best ride even in the roughest terrain, ergonomically designed driver controls and cameras that cover all angles.

So, that's three different power ranges, each with models reflecting three different specifications, making a choice of nine different tractors. A model to suit every farming need!

The Directors of Tracs Europe

Managing Director: Tony Roberts

Tony has overall responsibility for Tracs Europe and is the key contact for group management. Tony has been Managing Director for 5 years, having previously been a Product Development Director for another AgRi subsidiary. Tony was instrumental in securing the move of AgRi's Tractor Product Development Centre to Europe.

Production Director: Jack Newman

Jack has responsibility for all aspects of the Production Facility and has been in post for 10 years, having worked his way up from junior production management. Jack is passionate about production quality and has instigated many initiatives to promote total quality management throughout the facility.

Product Development Director: Joe Steiner

Joe is a mechancial engineer with over 20 years of experience in the field of tractor design and development. He was appointed 6 months ago when the Tractor Product Development Department was moved to Tracs Europe. Joe is keen on embracing new technologies in engine design, including the use of non diesel fuels.

Sales & Distribution Director: Reena Blois

Reena has responsibility for all aspects of sales & distribution, including developing and maintaining relationships with Tracs Europe's large network of dealers and the distribution of tractors to dealers. Reena has been in post for 8 years and in that time has increased the dealer network by over 20%.

Human Resources Director: Gina Patel

Gina has responsibility for all HR issues relating to Tracs Europe's employees and is an expert in employment law. Gina has over 20 years experience in the field of HR and has been with Tracs Europe for 4 years. She believes that a high level of employee welfare is key to a successful company.

Finance Director: Karl Lomas

Karl has responsibility for all finance-related issues, including the provision of internal and external financial information and developing relationships with local finance providers. He has been a qualified accountant for 15 years and has been Finance Director for 2 years.
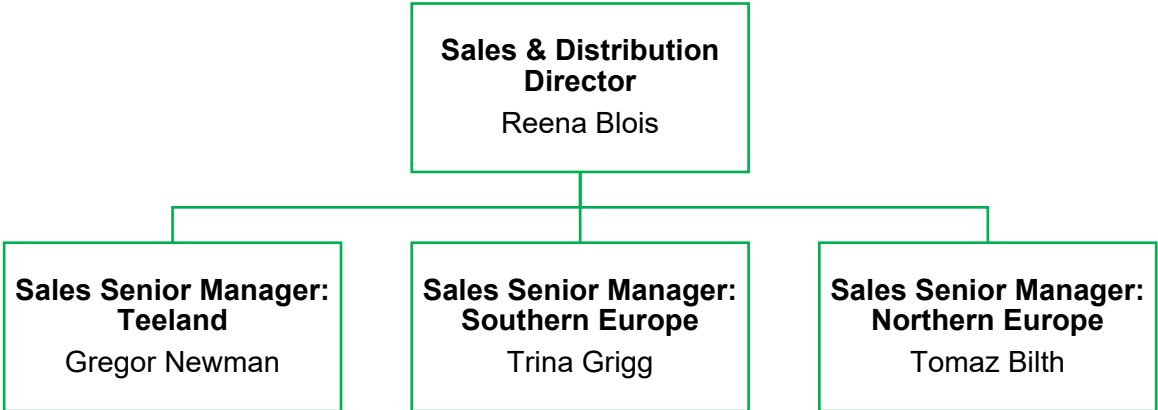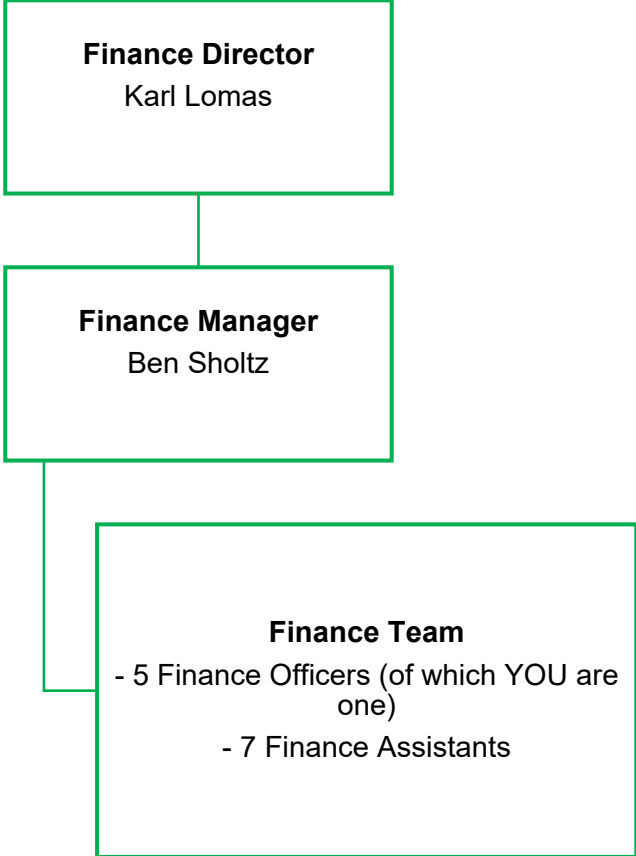
Information Technology Director: Priya Golt

Priya has responsibility for the smooth operation of all of Tracs Europe's IT systems and for maintainting the company website. Priya has been in post for 6 months and has many ideas about how the IT systems used by the company could be improved. She is keen that the company embraces more smart technology.

Key management teams in Tracs Europe

Sales:

```
                    ┌──────────────────────────┐
                    │  Sales & Distribution    │
                    │       Director           │
                    │      Reena Blois         │
                    └──────────────────────────┘
```

Sales Senior Manager: Teeland	Sales Senior Manager: Southern Europe	Sales Senior Manager: Northern Europe
Gregor Newman	Trina Grigg	Tomaz Bilth

Finance:

```
        ┌──────────────────────────┐
        │     Finance Director     │
        │       Karl Lomas         │
        └──────────────────────────┘
                    │
        ┌──────────────────────────┐
        │     Finance Manager      │
        │       Ben Sholtz         │
        └──────────────────────────┘
                    │
              ┌──────────────────────────┐
              │      Finance Team        │
              │ - 5 Finance Officers     │
              │   (of which YOU are one) │
              │ - 7 Finance Assistants   │
              └──────────────────────────┘
```

Production:

```
                      ┌─────────────────┐
                      │   Production    │
                      │    Director     │
                      │  Jack Newman    │
                      └────────┬────────┘
         ┌─────────────────────┼─────────────────────┐
┌────────┴────────┐   ┌────────┴────────┐   ┌────────┴────────┐
│ Procurement     │   │ Warehouse       │   │ Production      │
│ Senior Manager  │   │ Senior Manager  │   │ Senior Manager  │
│   Gill Bay      │   │   Tony Smith    │   │  Dave Pickett   │
└─────────────────┘   └─────────────────┘   └────────┬────────┘
                                                      │
                                            ┌─────────┴─────────┐
                                            │ Engine Assembly   │
                                            │     Manager       │
                                            │    Pat Bevan      │
                                            └───────────────────┘
                                            ┌───────────────────┐
                                            │ Chassis Assembly  │
                                            │     Manager       │
                                            │    Gaby Tonga     │
                                            └───────────────────┘
                                            ┌───────────────────┐
                                            │   Body Panel      │
                                            │   Production      │
                                            │    Manager        │
                                            │    Bryan Zola     │
                                            └───────────────────┘
                                            ┌───────────────────┐
                                            │  Main Assembly    │
                                            │     Manager       │
                                            │    Bill Gomez     │
                                            └───────────────────┘
                                            ┌───────────────────┐
                                            │ Testing Manager   │
                                            │    Rav Patel      │
                                            └───────────────────┘
```
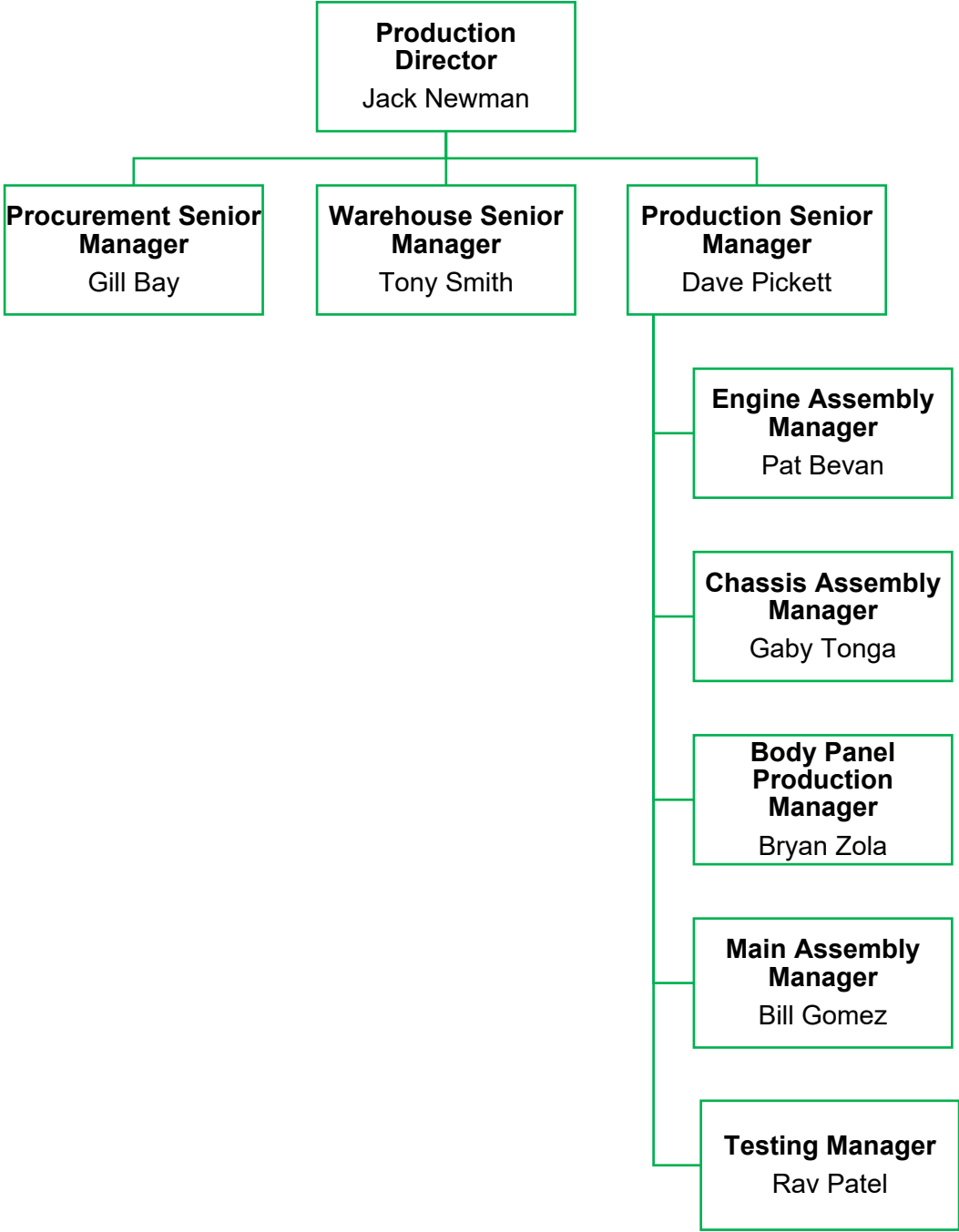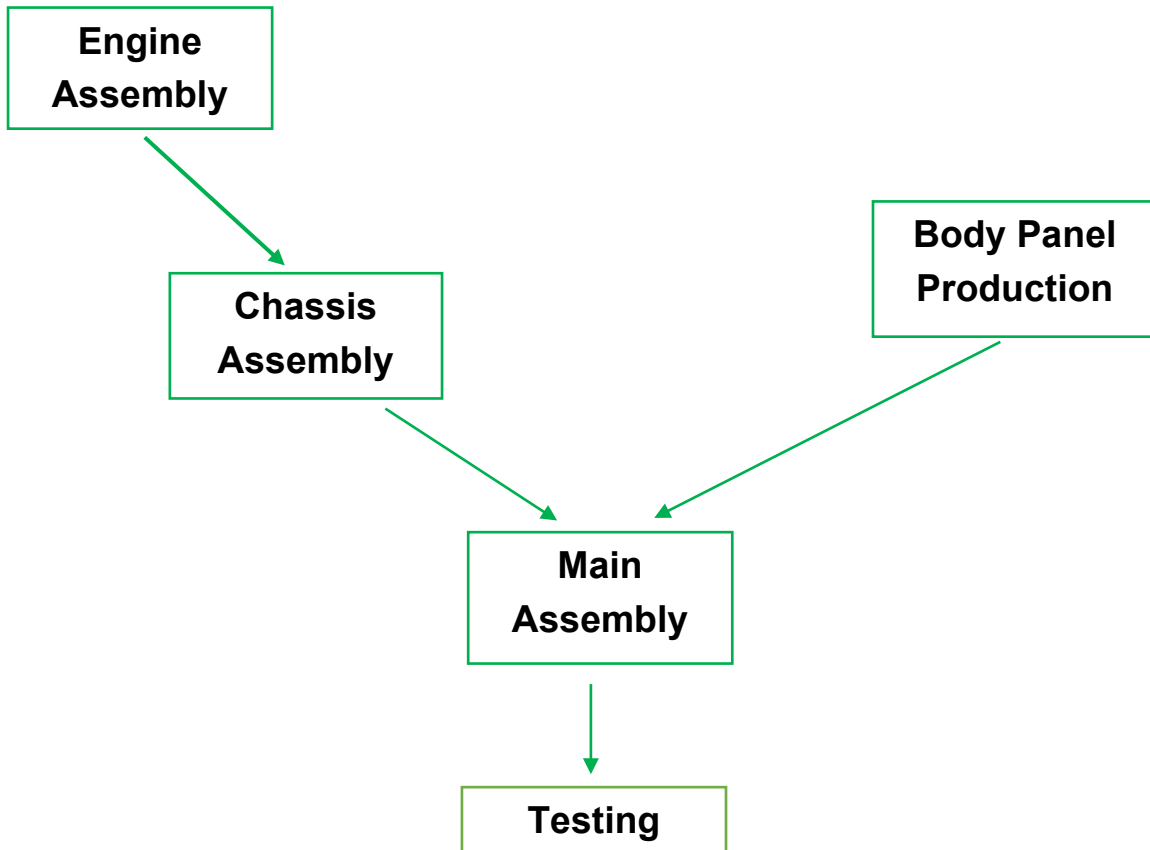
Overview of the manufacturing process

All the tractors sold by Tracs Europe are produced at the company's single Production Facility, located in the west of Teeland. There are five production departments and the flow of work between these departments is as follows:

```
┌─────────────┐
│   Engine    │
│  Assembly   │
└─────────────┘
        │
        ▼
┌─────────────┐                    ┌─────────────┐
│   Chassis   │                    │ Body Panel  │
│  Assembly   │                    │ Production  │
└─────────────┘                    └─────────────┘
        │                                 │
        ▼                                 ▼
              ┌─────────────┐
              │    Main     │
              │  Assembly   │
              └─────────────┘
                     │
                     ▼
              ┌─────────────┐
              │   Testing   │
              └─────────────┘
```

Engine Assembly Department:

In the Engine Assembly Department, engines are assembled from scratch using parts, components and sub-assemblies bought in from trusted suppliers. Each engine is assembled on a block so that it can be moved through the department.

There are five stages to the engine assembly process, each requiring different highly-skilled specialist mechanics to assemble and fit the parts, components and sub-assemblies as required for that stage of the process. Some stages require a single mechanic, while others require multiple mechanics.

As each stage is completed, the partly finished engine, mounted on its block, is moved to the next assembly area via an automated track system that runs through the department. When the engine assembly is complete, there is a quality control and testing check. The engine is then removed from the block and moved to the Chassis Assembly Department by a system of chains, pulleys and winches, where it is stored until it can be incorporated into a chassis.

Chassis Assembly Department:

The Chassis Assembly Department is where the chassis of the tractor is created. This starts with a chassis frame into which the engine, transmission and gears, rear and front axles, steering system and so on are built.

The chassis frame is made from sections of high-grade steel which are precision cut by a machine and welded together by robots. Before any elements are added, the chassis frame is dipped into a vat of cleaning chemicals and then manually sprayed with a single coat of paint. Chassis frame production is a mixture of mechanised and manual processes.

The rest of the chassis assembly process is largely manual. To the chassis frame, front and rear axles and the steering system are manually welded into place and then tested. The part-finished chassis then moves along a production line to another section of the department where the engine is carefully mounted onto the chassis and the transmission and gear system are built. A small inventory of completed chassis are kept in the department, ready to be moved to the Main Assembly Department when required.

Body Panel Production Department:

The Body Panel Production Department is where body panels for the tractor bodies are made. These body panels include front and back wheel arches and the casing around the engine at the front of the tractor.

To create the body panels, large steel sheets are fed into hydraulic presses which are programmed to create the relevant shape. Once created, the body panels are moved by machine to the painting area where they are first dipped in cleaning solution and then spray painted by robots. Each panel receives three coats of paint to ensure a high-quality finish.

This part of the production process is highly mechanised, following a significant investment in new equipment 2 years ago.

Main Assembly Department:

The Main Assembly Department is where tractors are put together on a large production line track that runs through the department. At the start of the production line, a completed tractor chassis delivered from the Chassis Assembly Department is loaded onto a block which can be manoeuvred up and down as required and will move along the production track.

To the chassis, a cab (which is bought in from another group company) is moved into position using digitally controlled lifting equipment and manually connected. All other parts, components and sub-assemblies are then added, including tyres, lights, front grills and body panels.
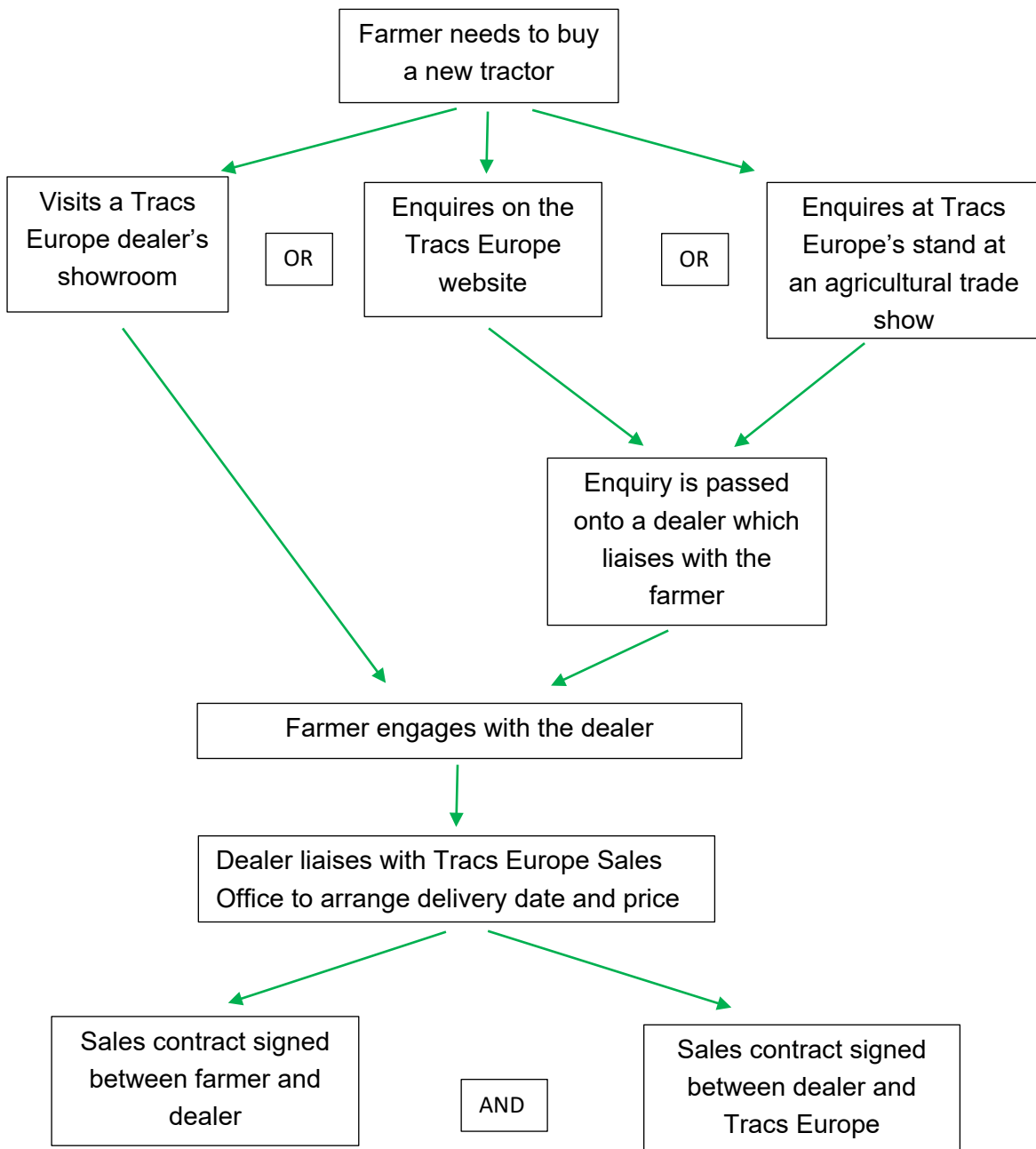
Testing Department:

All finished tractors are tested in the Testing Department before being certified as complete. Testing involves running the tractor on a specifically designed treadmill that simulates the tractor's working environment.

Other information about company operations
Sales:

All the tractors manufactured at the Tracs Europe Production Facility are sold to the end consumer in Europe through a European network of dealers. Currently, Tracs Europe does not sell any of the tractors that it manufactures outside of Europe.

All the tractors currently manufactured by Tracs Europe are for agricultural use. Therefore, almost all of Tracs Europe's end consumers are farmers. The sales enquiry and order processes are shown below:

```
                        ┌─────────────────────┐
                        │ Farmer needs to buy │
                        │    a new tractor     │
                        └─────────────────────┘
              ┌───────────────────┼───────────────────┐
              ▼                    ▼                    ▼
   ┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐
   │  Visits a Tracs  │  │  Enquires on the │  │  Enquires at Tracs │
   │  Europe dealer's │OR│   Tracs Europe   │OR│  Europe's stand at │
   │     showroom     │  │     website      │  │ an agricultural trade │
   │                  │  │                  │  │       show         │
   └──────────────────┘  └──────────────────┘  └──────────────────┘
              │                    │                    │
              │                    ▼                    │
              │          ┌──────────────────┐           │
              │          │ Enquiry is passed │◄─────────┘
              │          │ onto a dealer which│
              │          │ liaises with the   │
              │          │      farmer        │
              │          └──────────────────┘
              │                    │
              ▼                    ▼
        ┌─────────────────────────────────┐
        │  Farmer engages with the dealer  │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │ Dealer liaises with Tracs Europe Sales │
        │ Office to arrange delivery date and price │
        └─────────────────────────────────┘
              ┌───────────────┴───────────────┐
              ▼                                ▼
   ┌──────────────────┐            ┌──────────────────┐
   │ Sales contract   │            │ Sales contract   │
   │ signed between   │    AND     │ signed between   │
   │ farmer and dealer│            │ dealer and       │
   │                  │            │ Tracs Europe     │
   └──────────────────┘            └──────────────────┘
```

Tracs Europe has three regional sales offices (one each for Teeland, Southern Europe and Northern Europe). Each sales office is located within the relevant region and has a sales team headed by a Sales Senior Manager. Sales teams are set ambitious sales targets by the Sales & Distribution Director and earn commissions on top of their salaries based on achievement of these targets.

The sales teams are very knowledgeable about tractor specifications and performance and are responsible for:

- ❖ Signing up new dealers.
- ❖ Ongoing management of the relationship with dealers.
- ❖ Ensuring that dealers have sufficient promotional materials.
- ❖ Dealing with queries from dealers.
- ❖ Dealing with online and telephone queries about tractor specifications and so on from farmers.
- ❖ Interacting with dealers to arrange delivery times.
- ❖ Ensuring that tractors are distributed to dealers in accordance with agreed delivery times.

Each sales team is also responsible for setting up and staffing trade stands at agricultural shows across their regions, where demonstration tractors are displayed and potential customers can ask questions.

Tracs Europe's sales contracts are between the company and the dealer rather than the end customer. A sale is recorded by Tracs Europe when a tractor is delivered to the dealer (which is usually a day or two before the dealer delivers the tractor to the farmer).

Sales teams have the authority to negotiate discounts with dealers of up to 15% of the normal selling price of a tractor. Contracts with dealers specify that the price that the dealer charges to the end user (the farmer) should be the price agreed between the dealer and the Tracs Europe sales teams plus an agreed percentage to give the dealer a margin.

Most dealers are given a standard credit period of 30 days, although some of the larger dealers have negotiated longer payment periods. Relationships between dealers and the sales teams are generally very good, and most dealers pay within their agreed credit period.

Production Facility:

Tracs Europe operates from a single Production Facility, which is one of the largest production facilities in Europe. The site includes:

- ❖ The Tractor Product Development Centre, which was built 6 months ago. This is the tractor development centre for the AgRi group, with the function having been moved to Europe from America.
- ❖ Warehousing for the various raw materials, parts, components and sub-assemblies which are bought in.
- ❖ A huge assembly plant, which includes the Engine Assembly Department, the Body Panel Pressing Department, the Chassis Assembly Department and the Main Assembly Department.
- ❖ A testing facility where tractors are tested before despatch to dealers.
- ❖ Finished goods warehouses where tractors are stored prior to despatch.

Suppliers:

To ensure quality, Tracs Europe sources steel plate and paint from single suppliers. Both of these suppliers are large companies that service a lot of the vehicle manufacturers that operate in Teeland.

Tractor cabs are bought in already assembled from CaBs, a fellow subsidiary in the AgRi group. CaBs is based in Teeland and manufactures cab units for tractors and combine harvesters.

Parts, components and sub-assemblies are bought in from suppliers which are mainly located close to Tracs Europe's Production Facility. Many of the components and sub-assemblies are specific to Tracs Europe and are made by the suppliers using dies and tooling that have been approved for use by Tracs Europe.

Supplier bulk discount and payment terms vary. Where feasible, the company does seek to take advantage of bulk discounts. Payment terms range from 30 days to 60 days depending on the supplier.

Servicing and parts:

Tracs Europe does not provide servicing and repairs services for its tractors. Instead, this is provided by the dealers as part of their relationship with the customer.

Tracs Europe does though sell parts, components and sub-assemblies to dealers and to other agricultural equipment maintenance providers.

Product development:

Product development for all AgRi tractors is undertaken at the Tractor Product Development Centre, located in Teeland. Product development involves developing new tractor ranges and models as well as refining existing models. Within the development team, there are mechanical engineers and vehicle designers using computer-aided technology.

There are also mechanics and technicians that work on developing some of the parts, components and sub-assemblies that are incorporated into new or refined models. Within the Centre, there is a small foundry which allows parts and components to be cast from molten metal and workshops where trial parts, components and sub-assemblies are created. Once a part, component or sub-assembly is developed, the development team liaises closely with suppliers to ensure that the exact specifications can be achieved.

Employees

Tracs Europe had the following average number of employees during the year ended 31 December 2022:

	Number
Production	3,650
Sales	190
Administration	280
	4,120

Financial statements for the year ended 31 December 2022

Tracs Europe
Statement of profit or loss for the year ended 31 December 2022

	2022 T$ million	2021 T$ million
Revenue	2,990	2,795
Cost of sales	(2,216)	(2,076)
Gross profit	**774**	**719**
Selling, distribution and marketing costs	(304)	(299)
Administrative expenses	(210)	(206)
Operating profit	**260**	**214**
Finance costs	(31)	(37)
Profit before tax	**229**	**177**
Income tax expense	(70)	(56)
Profit for the year	**159**	**121**

Tracs Europe
Statement of financial position at 31 December 2022

	2022 T$ million	2022 T$ million	2021 T$ million	2021 T$ million
ASSETS				
Non-current assets				
Property, plant and equipment	946		974	
Right-of-use assets	290		320	
		1,236		1,294
Current assets				
Inventory	176		187	
Trade receivables	303		261	
Prepayments and other receivables	19		18	
Cash and cash equivalents	49		14	
		547		480
Total assets		**1,783**		**1,774**
EQUITY AND LIABILITIES				
Issued T$1 equity share capital*	1		1	
Retained earnings	202		163	
Total equity		203		164
Non-current liabilities				
Borrowings	800		800	
Lease liability	186		212	
		986		1,012
Current liabilities				
Trade payables	407		430	
Accruals and other payables	63		59	
Tax liability	70		56	
Lease liability	54		53	
		594		598
Total equity and liabilities		**1,783**		**1,774**

*Tracs Europe has 1 million $1 equity shares in issue which are all owned by AgRi.

Tracs Europe
Statement of cash flows for the year ended 31 December 2022

	2022 T$ million	2022 T$ million
Cash flows from operating activities		
Profit before tax		229
Adjustments		
Depreciation for property, plant and equipment	149	
Depreciation on right-of-use asset	30	
Finance costs	31	
		210
Movements in working capital		
Decrease in inventory	11	
Increase in trade and other receivables	(43)	
Decrease in trade and other payables	(19)	
		(51)
Cash generated from operations		**388**
Tax paid		(56)
Interest paid		(31)
Net cash inflow from operating activities		**301**
Cash flows from investing activities		
Purchase of property, plant and equipment	(121)	
Net cash outflow from investing activities		**(121)**
Cash flows from financing activities		
Dividend paid	(120)	
Repayment of lease principal	(25)	
Net cash outflow from financing activities		**(145)**
Net increase in cash and cash equivalents		**35**
Cash and cash equivalents at the start of the year		14
Cash and cash equivalents at the end of the year		**49**

Budget information for the year ending 31 December 2023

Budgeted gross profit

	A++ Power T$000	A+ Power T$000	A Power T$000	Parts T$000	Total T$000
Sales revenue	596,500	1,885,200	619,500	124,048	3,225,248
Cost of sales	(380,225)	(1,424,801)	(486,358)	(74,128)	(2,365,512)
Gross profit	**216,275**	**460,399**	**133,142**	**49,920**	**859,736**
Gross profit margin	**36.3%**	**24.4%**	**21.5%**	**40.2%**	**26.7%**

A++ Power range: sales revenue

	Model			
	Basic	**Regular**	**Premium**	
Total sales volumes (units)	1,200	2,300	600	
Net average selling price (T$)	100,000	155,000	200,000	
				Total
	T$000	**T$000**	**T$000**	**T$000**
Sales revenue	120,000	356,500	120,000	596,500

A++ Power range: cost of sales

	Model			
	Basic	**Regular**	**Premium**	
Total sales volumes (units)	1,200	2,300	600	
	T$	**T$**	**T$**	
Production cost per unit:				
Raw materials	47,595	65,760	85,926	
Direct labour	4,370	4,710	5,040	
Variable production overhead	4,679	5,275	6,007	
Fixed production overhead	14,092	21,099	24,029	
Total production cost per unit	**70,736**	**96,844**	**121,002**	
				Total
	T$000	**T$000**	**T$000**	**T$000**
Cost of sales	84,883	222,741	72,601	380,225

A+ Power range: sales revenue

	Model			
	Basic	**Regular**	**Premium**	
Total sales volumes (units)	6,400	9,100	4,100	
Net average selling price (T$)	73,000	95,000	135,000	
				Total
	T$000	**T$000**	**T$000**	**T$000**
Sales revenue	467,200	864,500	553,500	1,885,200

A+ Power range: cost of sales

	Model			
	Basic	**Regular**	**Premium**	
Total sales volumes (units)	6,400	9,100	4,100	
	T$	**T$**	**T$**	
Production cost per unit:				
Raw materials	34,234	45,351	64,468	
Direct labour	3,650	4,040	4,420	
Variable production overhead	4,007	4,679	5,335	
Fixed production overhead	16,028	18,711	21,341	
Total production cost per unit	**57,919**	**72,781**	**95,564**	
				Total
	T$000	**T$000**	**T$000**	**T$000**
Cost of sales	370,682	662,307	391,812	1,424,801

A Power range: sales revenue

	Model			
	Basic	**Regular**	**Premium**	
Total sales volumes (units)	1,100	3,900	4,200	
Net average selling price (T$)	45,000	60,000	80,000	
				Total
	T$000	**T$000**	**T$000**	**T$000**
Sales revenue	49,500	234,000	336,000	619,500

A Power range: cost of sales

	Model			
	Basic	**Regular**	**Premium**	
Total sales volumes (units)	1,100	3,900	4,200	
	T$	**T$**	**T$**	
Production cost per unit:				
Raw materials	19,850	27,913	34,975	
Direct labour	2,745	3,075	3,545	
Variable production overhead	3,099	3,130	4,432	
Fixed production overhead	12,397	14,498	17,728	
Total production cost per unit	**38,091**	**48,616**	**60,680**	
				Total
	T$000	**T$000**	**T$000**	**T$000**
Cost of sales	41,900	189,602	254,856	486,358

Example standard cost card

A+ Power: Regular model				
	Quantity / hours	Standard price / rate T$	Standard cost T$	Standard cost T$
Materials:				
Steel plate	11.0 metres²	85.00	935	
Cab			23,000	
Paint	13.0 litres	32.00	416	
Parts, components and sub-assemblies			21,000	
Total				**45,351**
Direct labour:				
Engine assembly	60.0 DLH	30.00	1,800	
Chassis assembly	40.0 DLH	25.00	1,000	
Body panel production	4.0 DLH	20.00	80	
Main assembly	44.0 DLH	25.00	1,100	
Testing	3.0 DLH	20.00	60	
Total				**4,040**
Variable production overheads:				
Engine assembly	60.0 DLH	16.86	1,012	
Chassis assembly	40.0 DLH	32.12	1,285	
Body panel production	4.5 MH	141.19	635	
Main assembly	44.0 DLH	37.58	1,654	
Testing	3.0 DLH	30.85	93	
Total				**4,679**
Fixed production overheads:				
Engine assembly	60.0 DLH	67.46	4,048	
Chassis assembly	40.0 DLH	128.46	5,138	
Body panel production	4.5 MH	564.77	2,541	
Main assembly	44.0 DLH	150.32	6,614	
Testing	3.0 DLH	123.39	370	
Total				**18,711**
Total production cost				**72,781**

*DLH is direct labour hours, and MH is machine hours.

Notes on standard costing and budget preparation

1. The company operates a standard absorption costing system.
2. Standards are reviewed and updated annually.
3. Normal raw material losses are included in the standard cost of each product.
4. All direct labour overtime premium is treated as variable production overhead. Idle time is not budgeted for.
5. Production overheads are allocated and apportioned to production cost centres and absorbed on either a direct labour hour or a machine hour basis. There are five production cost centres, and each has its own variable and fixed production overhead absorption rates.
6. Standard selling prices are after expected dealer discounts.
7. Budgets are prepared annually on an incremental basis. Operational managers have limited involvement in budget setting.

Articles
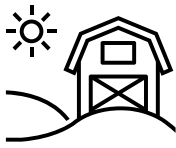
Review Paper

Tractor design: Is Fashion leading the way?

Dr. L Winter-Barker, K. Saws and B. Cookson

University of Zeeland, Department of Farming

Abstract

Whilst the mechanism of tractors in the requirement for sustainability is well known, less emphasis has been given to the resource implications of obsolescence and change. Here, consideration is given to the improvement of efficiency of resource usage in tractor design by looking at developments within the fashion industry. A phenomenological methodology is used to consider future design and development within four areas:

Upgrading to extend life, precycling, the right to repair and design for disassembly.

To improve the effective use of scarce resources in tractor design, this will include the idea of right to repair to extend the life of the tractor and may also lead eventually to partial upgrades as a means of extending useful life. It has become widespread that the use of recycled materials will be considered in production and design. However, this will also be extended. There will be a consideration of material used in production during the design phase to highlight the potential impacts in terms of life length and end of life management. In addition, this area will also expand to include potential differentiation to ensure mechanical operations are available at all price points and operationally are able to adapt to all working conditions to enable global increases of production to sustain increases in population expected up to the middle of the 21st Century. Design will become centred around disassembly.

Citation Indexes: 10

Lydia Hardy

Power up

Is red diesel at the end of the road?

Whilst the debate around the potential ban for rebated (red) diesel has quietened for now, the recent furore has alerted farmers to the potential future power requirements they may have and how diesel supply may be limited in the future. In addition, there are now large agricultural producers with strict climate change agendas looking for alternative forms of power as well as those who feel morally diesel is at the end of the road.

Various alternative technologies are being put forward by different tractor manufacturers. It should be noted that farms have recently been at the forefront of alternative power generation by developing wind, solar and anaerobic digesters as alternative means of power. So, it's not unexpected they will be looking at this for their tractors too.

This Photo by Unknown Author is licensed under CC BY-SA

How tractors looked in the past.

A new generation hydrogen tractor.

The first biomethane tractors have already been put in place and of course electric tractors are in development as well. Although the potential issue for these is the space for sufficient batteries.

Some manufacturers have also gone down the hydrogen route. This is partly as the level of by products is low, with only water being produced, as well as overcoming the space requirement of batteries.

However, there are still concerns in some areas about the space required for the electrolysis to produce the hydrogen, which may mean that it is only suitable for large scale operations. There is also concern about how such engines will cope with dusty field conditions and vibrations.

So, whilst alternatives are there for red diesel, transferring from such an established power method may prove less than easy.

Albert Pargeter

Tractor Factors 2022

The demand and supply factors affecting global tractor production

The global agricultural tractor market is estimated to reach T$81.4bn by 2027, a compound growth rate of 4.2% over the period.

Whilst historically tractors have been noted for their ability to deliver huge amounts of torque from their two-wheel drive, there is now a change being seen.

There are trends growing for compact tractors for smaller farms and technical developments such as the integration of telematics within the tractors themselves.

Moreover, there has been a trend for increasing mechanization in the last few years in world markets, as farm labourers migrate to cities leading to shortages of labour in rural areas.

Whilst existing labour movements remain in place in the EU, this is not the case for all countries in the area, with some discouraging the use of foreign labour.

 In addition, local unrest has also impacted on the ability of agricultural workers to move and shifting exchange rates has made potential gains from working abroad smaller.

There have also been production delays, with shutdowns in the Chinese market leading to shortages of semi-conductors. In addition, there have also been increases in steel and aluminium costs, all of which are expected to raise prices and slow market development in coming months.

Against that, some countries, such as the USA, have implemented legislation to encourage the purchase of precision agricultural machinery through discounted interest rate loans for instance. There is an increasing prevalence of robust crops, and therefore higher yields, in many areas such as the USA and South Asia.

These ideas, as well as the age of existing agricultural machinery, suggests that demand for new agriculture machines is expected to grow, especially where there is an improvement in productivity and sustainability.

There are expected to be moves to produce tractors which reduce the impact on soil and reduce human intervention and allow robots to take the place of traditional farming practices such as using organo-phosphates in weed control, which instead can be done by machine 24 hours a day.

Tax regime in Teeland

- The corporate income tax rate to be applied to taxable profits is 30%.
- Unless otherwise stated below, accounting rules on recognition and measurement are followed for tax purposes.
- The following expenses are not allowable for tax purposes:
  - accounting depreciation
  - amortisation
  - impairment charges
  - entertaining expenditure
  - donations to political parties
  - taxes paid to other public bodies.
- Tax depreciation allowances are available on all items of plant and equipment (including computer equipment) at a rate of 25% per year on a reducing balance basis. A full year's allowance is available in the year that the asset is acquired. Tax depreciation allowances are not available for property assets.
- Tax losses can be carried forward indefinitely to offset against future taxable profits from the same business.
- Sales tax is charged on all standard rated goods and services at a rate of 20%. Tax paid on inputs into a business can be netted off against the tax charged on outputs from that business. All businesses are required to pay over the net amount due on a monthly basis.

Tax regime in Teeland

Operational Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

If this is not your name, please let your administrator know.

Click **Next** to start the test.

This examination is structured as follows:

Section number	Time for section (minutes)	Number of tasks	Number of sub-task/s	% time to spend on each sub-task
1	45	1	3	(a) 36% (b) 36% (c) 28%
2	45	1	3	(a) 40% (b) 40% (c) 20%
3	45	1	3	(a) 32% (b) 36% (c) 32%
4	45	1	3	(a) 32% (b) 20% (c) 48%

Each section (task) has a number of sub-tasks. An indication of how much of the time available for the section that you should allocate to planning and writing your answer is shown against each sub-task in the text of the question (and summarised in the table above).

This information will be available for you to access during the examination by clicking on the Pre-seen button.

📝 Scratch Pad   📱 Calculator

[📖 Reference Materials]   [📖 Pre-seen]

Today is 1 June 2023. Tracs Europe has developed a tractor engine which runs on hydrogen. The new hydrogen engine incorporates three unique components, all manufactured internally by Tracs Europe: the Z1, A1 and R1. Before the engine goes into commercial production, management wants to set up a pilot production line to resolve any issues.

Ben Sholtz, Finance Manager, calls you into his office and says:

"One of our production lines needs to be modified for the hydrogen engine production pilot. This involves moving two existing machines (machine 1 and machine 2) from this production line to another production line. The machines will be moved by specialist engineers, Rho Machines (Rho). Rho made a site visit to examine the two machines and report on their remaining useful lives. I summarised extracts from their report (Table 1), which I will give you shortly.

Please prepare a briefing note for the Senior Management Team (SMT) which explains, based on the information in Table 1:

- How the changes in both the estimated useful life and the residual value of machine 1 and machine 2 will be reflected in our financial statements for the year ending 31 December 2023.

(sub-task (a) = 36%)

Currently, the three new components (Z1, A1 and R1) can only be produced internally by staff in our Tractor Product Development (TPD) Department, as our production staff have not yet been trained due to delays in scheduled training. Unfortunately, the TPD Department doesn't have enough staff time available to produce all the components needed for the pilot.

An external component manufacturer could produce the three components. The SMT asked me to recommend, from a financial perspective, the order in which the components should be bought in. My ranking is Z1, R1 and then A1 based on the information in Table 2, which I will give you shortly. I will need to explain why my recommendation is correct, even though it appears that, on a per unit basis, component R1 can be bought for the same price that we can make it.

Please also include in your briefing note to the SMT an explanation of:

- Why, based on the principles of short-term decision making and the information in Table 2, my ranking is correct. You should also include two other non-financial factors we should consider.

(sub-task (b) = 36%)

We usually finance working capital for projects using an overdraft, however, I am considering using factoring or invoice discounting instead. A factoring and invoice discounting company, Ongoing Sales Finance (OSF), has produced a summary of the services it offers (Table 3, which I shall give you shortly).

I would also like you to include in your briefing note, based on the information in Table 3, an explanation of:

- The financial and non-financial factors to be considered in deciding which of these three financing methods would be most suitable for the pilot project."

(sub-task (c) = 28%)

Ben hands you Table 1, 2 and 3, which can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae   Next →

Table 1: Extracts from report by Rho Machines

	Notes	Machine 1	Machine 2
Information provided by Tracs Europe:			
Cost at purchase	1	T$500,000	T$900,000
Estimated useful life at purchase (years)		10	15
Depreciation per year	2	T$50,000	T$60,000
Carrying amount on 31 December 2022		T$50,000	T$360,000
Information following site visit:			
Adjustment to original estimate of useful life based on purchase date (years)		plus 2	minus 5
Estimated residual value at end of useful life		T$0	T$20,000

Notes

1. Both machines were purchased and brought into use on 1 January 2014.
2. Depreciation is calculated on a straight-line basis.

Table 2: External provision of labour for components Z1, A1 and R1

	Z1 T$/unit	A1 T$/unit	R1 T$/unit
Internal production costs			
Variable	220	130	240
Fixed	240	220	640
Total	460	350	880
External purchase price	820	490	880
Extra cost to buy in per unit based on:			
Variable production cost	600	360	640
Total production cost	360	140	0
Extra cost to buy in per TPD staff hour	300	360	320

Notes

1. The Z1 has been patented as it will significantly improve our hydrogen engines' performance and give us a competitive advantage over other engine manufacturers.
2. The R1 and A1 are like components we use on other engines.
3. A TPD team member on average takes 2 hours to produce a Z1 component, 1 hour to produce an A1 and 2 hours to produce an R1.
4. The fixed costs are not specific to any of the components.

Table 3: Factoring and Invoice discounting proposal from OSF

	Note	Invoice Discounting	Factoring
Debt ownership		OSF	OSF
Without recourse		No	Yes
Annual interest cost	1	3%	4%
Annual Administration fees	1	T$30,000	T$100,000

Note

1. A comparable overdraft will have an annual fee of T$15,000 and an annual interest cost of 5%.

⏏ **Reference Materials**   ⏏ **Pre-seen**

Write the briefing note requested by Ben Sholtz in the box below.

🖊 Scratch Pad 📱 Calculator

📖 **Reference Materials**   📖 **Pre-seen**

It is now 5 June 2023. You receive the following email:

From: Karl Lomas, Finance Director
To: Finance Officer
Subject: Budgeting and accounts receivable recoverability

The Senior Management Team (SMT) is interested in understanding how beyond budgeting differs from our incremental budgeting system. At the same time, the SMT is keen to understand our delivery costs in more detail so I hired Markop Market Analysis (MMA) to carry out an industry-wide survey of delivery systems. I have attached extracts from their report in Table 1 (attached).

Please prepare a briefing note for the SMT which explains:

- The differences between incremental budgeting and beyond budgeting using the information in Table 1.

(sub-task (a) = 40%)

I feel that our budget setting and control of our delivery costs would be improved if we used big data analytics and would like to present this idea to the SMT.

Please also include in the briefing note to the SMT, an explanation of:

- How the budgeting for, and control of, our tractor delivery costs could be improved by using big data analytics.

(sub-task (b) = 40%)

The recent analysis of the accounts receivable (to assess their suitability for factoring and invoice discounting) raised some concerns about recoverability. To reduce the risk of non-payment, Ben Sholtz, Finance Manager, has produced a proposal for a new credit limit system (Table 2, attached). He was due to write a commentary on his proposal for the SMT meeting tomorrow but is busy with other work.

Please also include in the briefing note to the SMT, using the information in Table 2, an explanation of:

- How the new system could reduce the risks of non-payment of accounts receivable.

(sub-task (c) = 20%)

Karl Lomas
Finance Director
Tracs Europe

The attachments to the email can be found by clicking on the Reference Material button above.

❓ Tables and Formulae   Next ➔

Table 1: Report extract from MMA of industry-wide tractor delivery systems

A survey was sent to the Operations Directors of tractor manufacturers.

Questions:	Yes (Note 1)	Additional Information (Note 2)
Do you use KPIs in conjunction with budgeting for delivery costs?	76%	Customer satisfaction, innovation
Do you prepare budgets more than once a year?	50%	Examples of budget periods given were monthly, rolling and quarterly.
Can you see delivery methods changing in the future?	70%	Carbon offset, electric vehicles, infrastructure
Do you track deliveries in real time?	40%	Increasing use of vehicle tracking

Notes

1. The percentage shows the respondents who answered "Yes" to the question.
2. The survey asked respondents who answered "Yes" to give additional information and/or reasons for their answer.

Table 2: Proposed customer credit limit system for accounts receivable

Category (note 1)	Financial Status	Payments	Credit term (days)	Maximum credit (T$000)
1	strong	prompt	60	3,600
2	stable	prompt	45	2,000
3	weak	prompt	30	400
4	strong	late	50	1,200
5	stable	late	45	600
6	weak	late	0	0

Note
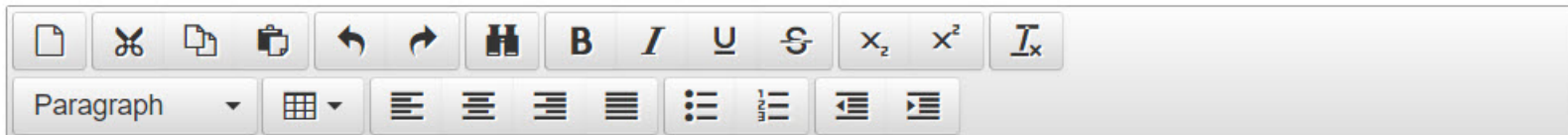
1. Categories will be reviewed every 6 months, and amendments made as required to reflect up to date risk levels.

📝 Scratch Pad 📇 Calculator

🪜 Reference Materials   🪜 Pre-seen

Write the briefing note requested by Karl Lomas in the box below.

| Paragraph ▾ | ⊞ ▾ |

⑦ Tables and Formulae   ← Previous   Next →

🔖 Scratch Pad   🖫 Calculator

📖 Reference Materials   📖 Pre-seen

Today is 10 August 2023. You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Performance measurement

I have calculated the direct labour variances for the hydrogen engine assembly line for July (Table 1 attached) and would like you to prepare a commentary for the next Senior Management Team (SMT) meeting.

Please prepare a report for the SMT which explains:

- What each of the variances in Table 1 means, giving possible reasons why the variances have occurred.
                                                                        (sub-task (a) = 32%)

The SMT also thinks it would be a good idea if we introduced a Key Performance Indicator (KPI) dashboard. They are particularly keen to include production machine utilisation and efficiency on the dashboard.

So please also include in your report to the SMT:

- Suggestions for two KPIs we can use to monitor machine utilisation and one KPI we can use to monitor machine efficiency. For each KPI, please explain how it would be measured and why it would be appropriate.
                                                                        (sub-task (b) = 36%)

You may also have heard that Sarah Smith, one of the holding company's (AgRi's) non-executive directors, is to visit the site to see the new pilot production line. As a subsidiary, Tracs Europe would not normally have contact with AgRi non-executive directors and some of the SMT are unsure of a non-executive director's role. I have included extracts from Ms Smith's biography on the AgRi website (Extract 1) for you to use in your report.

Please also include in your report to the SMT an explanation of:

- The role of a non-executive director, including the reasons why they need to be independent. Please refer to Ms. Smith's biography to illustrate your explanation.
                                                                        (sub-task (c) = 32%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachments to the email can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae   Next ➔

Table 1: Direct labour variances: engine assembly for July 2023

	T$
Efficiency	21,600 F
Idle time	6,000 A
Rate	23,400 A
Total	**7,800 A**

Notes

1. Training of engine assembly staff was delayed by 3 weeks, meaning that research engineers had to operate the engine assembly machines unexpectedly.
2. Actual production in July was 52 engines compared to budgeted production of 62.
3. There was a 3-day power cut to the factory in July.

Extract 1: Extract from Ms Sarah Smith's biography on AgRi website

"Being part of a team of 6 non-executive directors (NEDs) working with AgRi is a truly fulfilling experience. Each of the NEDs has a different background and experience which makes working together so effective. My 30 years' experience gained in my previous role, as a partner at the third largest global accountancy practice, has been particularly useful since I started working with AgRi. I have particularly drawn on my experience of the external audit of public limited companies and then later in raising venture capital.

A lot of my time as a NED can involve using skills and knowledge from my previous role to support directors in making strategic decisions. I am lucky enough to be able to visit parts of the group to expand my knowledge about the agricultural machinery industry. I also speak to shareholders on a regular basis."

🔖 Scratch Pad ☐ Calculator

📋 **Reference Materials**　　📋 **Pre-seen**

It is now September 2023. Ben Sholtz, Finance Manager, calls you into his office and says:

"The Senior Management Team (SMT) wants to set a selling price for our new hydrogen engine tractor and suggest that cost plus pricing should be used. I have produced costing information (Table 1) which I will give you shortly, which shows the different cost bases we could use. Additionally, the sales team have surveyed our existing customers to gain their views on how we compare with our two major competitors. The results are in Table 2, which I will also give you shortly.

Please prepare a briefing note for the SMT using the information in Tables 1 and 2 which explains:

- The issues we should consider from a cost perspective when using cost plus pricing.

(sub-task (a) = 32%)

- Three factors, other than cost, that will affect the price we are able to charge.

(sub-task (b) = 20%)

We have also been approached by a TV production company which is about to make a celebrity reality farming series. They want us to produce customised tractors for the celebrities in the show and have made us an offer. Reena Blois, Sales & Distribution Director, is overseeing this, and she has asked if we would clarify whether the costs in Table 3, which I will give you shortly, should form part of her decision as to whether to accept the offer.

Please include in your briefing note an explanation of:

- Whether each of the costs in Table 3 is relevant, or not, to the decision regarding the acceptance of the offer from the TV Production Company."

(sub-task (c) = 48%)

Ben then gives you Tables 1, 2 and 3, which can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae　　　　　　　　　　　　　　　　　　Next ➜

Table 1 & 2 | Table 3

Table 1: Cost Information for hydrogen engine tractor

	Production cost	Total cost	Marginal cost
Notes	1	2	3
Cost	T$80,000	T$100,000	T$50,000

Notes

1. Production cost includes all production costs.
2. Total cost includes all production and non-production costs.
3. Marginal cost includes production and non-production variable costs.

Table 2: Results of tractors market survey conducted by the sales team

Characteristic (Note 1)	Tracs Europe	Competitor A	Competitor B
Value for money	1	3	2
Environmental impact	2	3	1
Running costs	1	3	2
Desirability	3	1	2

Note

1. Each characteristic was ranked from best (ranked 1) to worst (ranked 3).

Table 3: Extract of costs for TV production company contract

Cost T$	Notes
60,000	Total cost of customised paint work to portray each celebrity. This cost is made up of: 1. T$17,500 for paint, which will only be purchased once the offer is accepted. Any excess paint cannot be used in ongoing production, as it does not reflect Tracs Europe branding. 2. T$19,000. There is no spare capacity in the Spray-Painting Department and external paint sprayers cannot be hired in the time. This amount covers the labour cost for 200 hours of painting and the lost contribution from other work which would have been done in this time. 3. T$2,500. Each paint sprayer will be paid a T$500 bonus if the contract goes ahead. 4. T$21,000 for overheads. There are unutilized machine hours available in that period.
20,000	This is the estimated cost for liaison with TV production staff. It is not yet clear if existing staff will have time to complete this role as part of their normal duties, or if we will have to recruit additional temporary administration staff to take on these duties.
50,000	Cost already paid for bespoke paint designs produced by external graphic artists. These were used during our negotiations with the TV company.

Scratch Pad   Calculator

Reference Materials   Pre-seen

Write the briefing note requested by Ben Sholtz in the box below.

Paragraph

Thank you for completing the Operational Case Study Exam.

Before you leave, don't forget to collect your printed confirmation of attendance.

Please click the End Exam (E) button before leaving the testing room quietly.

→] End Exam

Operational Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

If this is not your name, please let your administrator know.

Click **Next** to start the test.

This examination is structured as follows:

Section number	Time for section (minutes)	Number of tasks	Number of sub-task/s	% time to spend on each sub-task
1	45	1	3	(a) 40% (b) 20% (c) 40%
2	45	1	3	(a) 48% (b) 32% (c) 20%
3	45	1	3	(a) 48% (b) 28% (c) 24%
4	45	1	3	(a) 28% (b) 36% (c) 36%

Each section (task) has a number of sub-tasks. An indication of how much of the time available for the section that you should allocate to planning and writing your answer is shown against each sub-task in the text of the question (and summarised in the table above).

This information will be available for you to access during the examination by clicking on the Pre-seen button.

📝 Scratch Pad ⬜ Calculator

📖 Reference Materials   📖 Pre-seen

Today is 1 June 2023. Tracs Europe's Product Development Team is developing a remote drive tractor. Remote drive tractors have additional mechanical components (such as cameras and sensors) to allow remote operation. Tractors are operated via an app which is downloaded to the operator's smartphone or device.

Ben Sholtz, Finance Manager, calls you into his office and says:

"The tractor industry is moving towards more remote control of tractors, and we are developing our own remote drive tractor. As part of this project, we are considering setting up our own software development team. Initially, the team would only be developing the app for the remote drive tractor. For context, I have included an extract from the Remote Drive Tractor Development Plan in Schedule 1, which I will give you shortly. The Senior Management Team (SMT) wants to understand how costing a digital product, such as the app for the remote drive tractor, is different to costing the physical tractor.

Please prepare a briefing note for the SMT which explains:

- How costing the remote drive tractor app is different to costing the additional components of the remote drive tractor itself, using the information in Schedule 1.

(sub-task (a) = 40%)

- The difficulties of budgeting for, and controlling the costs of, the proposed software development team in the first year.

(sub-task (b) = 20%)

We were going to fund the additional working capital requirement for the remote drive tractor project from some of the T$1.5 million proceeds of the sale of an unused warehouse. However, the warehouse sale has been delayed by approximately 2 months. The SMT don't want to delay the project until the sale completes so it is considering how to fund the working capital for the period. Teeland Bank has offered us either an overdraft or a short-term loan. Alternatively, the SMT is thinking about delaying paying trade payables to one of our major suppliers (Supplier A) to meet the cash shortfall. I have summarised the terms for all three alternatives (Tables 1 and 2, which I will give you shortly), and I would like you to produce a commentary on the information for the next SMT meeting.

Please include in your briefing note an explanation of:

- The factors to consider when deciding which of the three methods of providing the short-term finance is most suitable, using the information in Tables 1 and 2."

(sub-task (c) = 40%)

Ben then gives you Schedule 1, Table 1 and Table 2, which can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae   Next ➡

Schedule 1: Extract from remote drive tractor development plan

Remote control tractors have two parts:

- an app downloaded onto the farmers smartphone or device which allows the farmer to control the tractors movements;
- a remote drive mechanism which is embedded, during manufacture, into a tractor from our range which carries out the instructions received from the app.

The app will ultimately allow the farmer to remotely instruct the tractor to till, sow and weed specific crops, all very different tasks. It will also notify the farmer about obstructions on the tractors planned route so that remedial action can be taken. Additionally, it will notify the farmer of the percentage of work completed as well as other control information, such as remaining fuel levels.

Not all tasks will be available in phase 1 of the project, with some more complex tasks such as weeding being developed for later upgrades.

Schedule 1 | Table 1 & 2

Table 1: Terms offered by Bank of Teeland

Details	Overdraft	Bank loan
Maximum term (months)	4	36
Minimum term (months)	1	12
Arrangement fee (T$)	8,000	15,000
Annual interest (%)	12.84	5.36

Table 2: Supplier A payment details

Details	Supplier A
Average payable days outstanding	44
Payment terms	1% discount for payment in 45 days

Scratch Pad Calculator

Reference Materials   **Pre-seen**

Write the briefing note requested by Ben Sholtz in the box below.

📝 Scratch Pad   ⬛ Calculator

[📑 Reference Materials]   [📑 Pre-seen]

It is now September 2023 and the initial development of the app has been completed. Tracs Europe is considering setting up a larger IT team to continue development and maintenance of software and apps for Tracs Europe.

You receive the following email:

From: Karl Lomas, Finance Director
To: Finance Officer
Subject: IT Specialists employment costs and overdraft interest payable

We want to forecast the annual salaries of the employees we will need in the specialist IT Department that we are thinking about setting up. Mari Smit, Human Resources Manager, has found data detailing the annual salary of specialist IT employees between 2003 and 2023, which I analysed (using linear regression) to produce a trend in Table 1 which I have attached.

The SMT believes this analysis can be used to forecast IT specialist salaries and may be useful for planning purposes. SMT has asked me to comment on it at the next meeting.

Please prepare a briefing note for the SMT which explains:

- What my analysis, shown in Table 1, means and what it indicates about the usefulness of the data for our planning purposes.

(sub-task (a) = 48%)

I think that we should use big data to determine the salaries we will have to pay IT specialists, so I would like to discuss this idea at the same meeting.

Please also include in your briefing note an explanation of:

- The benefits and limitations of using big data in planning IT specialist salaries.

(sub-task (b) = 32%)

We decided to use an overdraft to fund the remote drive tractor project's working capital requirement. I have summarised the interest paid for August in Table 2, attached to this email. We normally use the indirect method to calculate cashflow from operating activities, but the SMT would like to investigate how the calculation would change if we moved to the direct method.

Using the information in Table 2, please include in the briefing note to the SMT, an explanation of:

- The difference between how cashflow from operating activities is calculated using both the direct and indirect method in IAS 7: Statement of Cash Flows, including how the overdraft interest would be recorded in the financial statements using each method.

(sub-task (c) = 20%)

Karl Lomas
Finance Director
Tracs Europe

The attachments to the email can be found by clicking on the Reference Material Button above.

⑦ Tables and Formulae

Next ➔

Table 1: IT specialist's salaries

	Analysis
Trend line	Y = 30,000 + 4,605X
Correlation Coefficient	0.3
Co-efficient of determination	0.09

Key:

X= the year number (where X = 1 is 2003)

Y= annual salary in T$

Table 2: Interest payable for August 2023

Date	Description	T$	Date	Description	T$
21.08	Bank	112,356	01.08	Balance b/d	1,156,344
31.08	Balance c/d	1,123,798	31.08	Profit or loss	79,810
		1,236,154			**1,236,154**

🖎 Scratch Pad ⬚ Calculator

🗂 Reference Materials   🗂 Pre-seen

Write the briefing note requested by Karl Lomas in the box below.

✎ Scratch Pad   ☐ Calculator

[Reference Material]   [Pre-seen]

Today is 12 November 2023. The Senior Management Team (SMT) is keen to put performance measures in place to allow us to measure the success of the remote drive tractor project.

You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Performance measurement

The SMT wants to put KPIs in place to measure both the app's performance and customers' engagement with the app during the customer testing phase. The SMT has defined performance and engagement as follows:

App performance: the app's technical performance.
App engagement: how users interact with the app and if they like it.

Please write a report to the SMT with suggestions for:

- Two KPIs that measure app performance and two KPIs that measure app engagement. For each KPI, explain how it would be measured and why it would be appropriate.

(sub-task (a) = 48%)

I have calculated labour variances for October relating to the team building the remote steering mechanisms. These are to be integrated into the remote drive tractors which are shortly being safety tested before production begins. This information is in Table 1 (attached). I would like you to write the commentary for the variances.

Please include in your report to the SMT an explanation of:

- What each of the variances in Table 1 means, giving reasons why the variances may have occurred.

(sub-task (b) = 28%)

- How the variance analysis could have been modified to give more relevant information for the month.

(sub-task (c) = 24%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

Table 1: Direct Labour variances: development team - remote steering mechanism October 2023

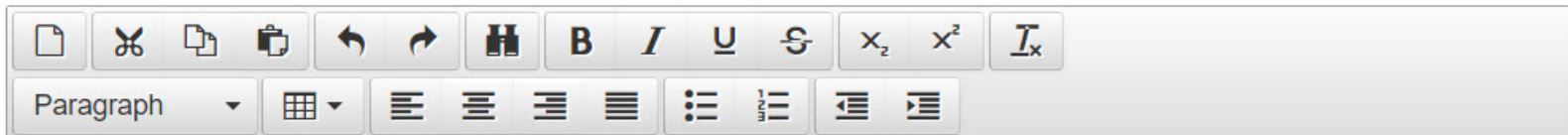| Variance	T$
Efficiency	18,900 F
Idle time	2,700 A
Rate	13,050 A
Total variance	**3,150 F**

Notes

1. During October, an unconnected project (Project B) was suspended. Production supervisors from Project B were moved to the remote steering mechanism project. Supervisors were classed as direct labour when they were used to produce remote steering mechanisms.
2. 45 hours of idle time was recorded when a delivery of components was delayed.

Scratch Pad   Calculator

Reference Material   Pre-seen

Write the report requested by Ben Sholtz in the box below.

Paragraph

Tables and Formulae   Previous   Next →

🔖 Scratch Pad 🖨 Calculator

📒 Reference Material   📒 Pre-seen

Write the report requested by Ben Sholtz in the box below.

📝 Scratch Pad ▯ Calculator

📑 Reference Materials   📑 Pre-seen

It is now December 2023. Ben Sholtz, Finance Manager, calls you into his office and says:

"Included in inventory are three prototype tractors that were part of our pilot production scheme for remote drive tractors. Unlike inventory from our main production runs, they should not be valued at standard cost. Because these tractors are not new, we need to determine the appropriate amounts at which to include them in our financial statements. I have produced information about the total costs incurred and estimated selling prices of the tractors in Table 1, which I will give you shortly.

Please prepare a briefing note for the SMT which explains:

- The amount at which each tractor will be included in our financial statements for the year ending 31 December 2023.

(sub-task (a) = 28%)

Reena Blois, Sales & Marketing Director, thinks that sending a fleet of remote drive tractors to trade shows as demonstration vehicles would generate extra profits. This demonstration fleet would be replaced each year. We need to determine, from a financial perspective, the optimum size of the demonstration fleet. Reena gave me estimates of the likely size of the audience at each of the shows and the probability of those sizes occurring. I then worked with Reena to produce Table 2 (which I will also give you), which shows the additional profit generated by each possible combination of audience and demonstration fleet size.

I need to present this proposal to the SMT. I know from previous experience the risk profile of three members of the team. Member 1 is a risk seeker, whilst member 2 is risk neutral and member 3 is risk averse.

Please include in your briefing note an explanation of:

- Which size of demonstration fleet each of the three members of the SMT would choose. Please also explain, with reasons, why it will be hard to reach agreement between them.

(sub-task (b) = 36%)

You should also know that admission to the shows is by ticket only, with ticket sales closing one week before each show. We have been approached by the ticketing agency for the shows who have offered to tell us, for a fee, the number of tickets they have sold. The information in Table 2 does not include the effects of using the ticketing agency.

- The limitations of the information and analysis in Table 2 and the factors we should consider when evaluating whether we should pay the fee to the ticket agency to gain information about the number of tickets sold. "

(sub-task (c) = 36%)

Ben then gives you Table 1 and Table 2, which can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae

Next →

Table 1: Costs incurred and selling prices of prototype remote drive tractors

Production Cost	Detail of inventory
Tractor 1	
T$89,231	This cost includes all production costs to complete the tractor. This version can only be sold for T$20,000 for scrap, as it did not meet required safety checks.
Tractor 2	
T$90,016	This cost includes T$9,354 of labour cost, which was only incurred due to machine breakdown during production. This prototype has passed its safety test and can be sold for T$90,000.
Tractor 3	
T$92,335	The cost of this tractor includes T$2,019 of additional materials because it was upgraded to include leather seats and bespoke paint work. This tractor can be sold for T$96,020.

Note

1. Selling and distribution costs are estimated at being T$1,020 per tractor.

Table 2: Payoff table showing estimated additional profit earned by demonstration fleet attendance at trade shows

Size of audience	Probability	Size of demonstration fleet			
		10	15	20	25
		T$	T$	T$	T$
Small	0.10	125,000	25,000	(85,000)	(185,000)
Medium	0.50	125,000	187,500	77,500	(22,500)
Large	0.33	125,000	187,500	240,000	140,000
Very large	0.07	125,000	187,500	240,000	302,500
Expected value		125,000	171,250	126,250	37,625
Standard deviation		0	48,750	104,051	123,018
Coefficient of variation (%)		0	28.47	82.42	326.96

Notes

1. Without the information from the ticket agency, we would send our chosen size of demonstration fleet, in its entirety, to each show.
2. The existing sales and transport teams would be large enough to service small or medium audience demand at shows. If large or very large audiences are expected, additional temporary sales staff would need to be hired in advance. All staff costs have been included in the figures in the table.

Scratch Pad | Calculator

Reference Materials | Pre-seen

Write the briefing note requested by Ben Sholtz in the box below.

Thank you for completing the Operational Case Study Exam.

Before you leave, don't forget to collect your printed confirmation of attendance.

Please click the End Exam (E) button before leaving the testing room quietly.

Operational Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

If this is not your name, please let your administrator know.

Click **Next** to start the test.

This examination is structured as follows:

Section number	Time for section (minutes)	Number of tasks	Number of sub-task/s	% time to spend on each sub-task
1	45	1	2	(a) 56% (b) 44%
2	45	1	3	(a) 28% (b) 28% (c) 44%
3	45	1	3	(a) 32% (b) 20% (c) 48%
4	45	1	3	(a) 32% (b) 28% (c) 40%

Each section (task) has a number of sub-tasks. An indication of how much of the time available for the section that you should allocate to planning and writing your answer is shown against each sub-task in the text of the question (and summarised in the table above).

This information will be available for you to access during the examination by clicking on the Pre-seen button.

🖺 Scratch Pad   🖥 Calculator

🖾 Reference Material   **🖾 Pre-seen**

Today is 1 June 2023. Tracs Europe is looking to export its existing tractor range into a new market in Cetland. In the new market, tractors will be sold to both distributors and direct to farmers. A new Senior Sales Manager has been recruited to manage a new Cetland focussed sales team.

Ben Sholtz, Finance Manager, calls you into his office and says:

"As you may have heard, we have recruited a new Senior Sales Manager (SSM), Donna Marsh, from one of our competitors. She will be based at our Head Office, here in Teeland, but will manage the sales team set up to concentrate on the Cetland market. Donna is currently producing the sales budget for the first year of sales in Cetland for her new team, which is made up of existing Tracs Europe salespeople. In Donna's previous role, the primary use of budgets was to set targets for her team to achieve. Reena Blois, Sales & Distribution Director, is keen to use the new venture to trial participative budgeting and has provided us with details of Donna's current team members (Table 1, which I will give you shortly). She has asked us to prepare some information to make sure Donna understands the wider aspects of budgeting and the behavioural aspects of budgetary control in relation to her team.

Please prepare a briefing note for Donna Marsh, SSM, which explains:

- How the different purposes of budgeting may be positively or negatively affected by allowing the sales team to participate in budget setting.

(sub-task (a) = 56%)

- The ethical aspects of budgetary control which Donna Marsh should consider when setting and reviewing the budgets of individuals in her team."

(sub-task (b) = 44%)

Ben hands you Table 1, which can be found by clicking on the Reference Material button above.

Table 1: Extracts of new Cetland sales team information

	Lionel Gray	Calli Whent
Employed by Tracs Europe	2001	2015
Previous year's sales as a % of target	120	80
Work location (Note 2)	Teeland	Cetland
Customer base	Large corporate	Small/medium
Customer discount (Note 1)	5%	1%
Annual expenses budget	T$10,000	T$5,000
Annual personal training allowance	T$2,000	T$3,000

Notes

1. This is the maximum percentage discount that the salesperson is authorised to give to a customer to secure a sale.
2. Lionel Gray will travel to meet major end customers (both farmers and dealers) in Cetland as needed. All travel will be booked through Tracs Europe's Travel Department and deducted from the employees' expenses budgets. Calli Whent is based in Cetland and will work from home.
3. Individual bonuses are based on the number of tractors sold by a team member.

Close

📝 Scratch Pad 🖥 Calculator

🔖 Reference Material   🔖 Pre-seen

Write the briefing note requested by Ben Sholtz in the box below.

✎ Scratch Pad 📱 Calculator

📖 Reference Materials   📖 Pre-seen

It is 2 June 2023. Tony Roberts, Managing Director, and Reena Blois, Sales & Distribution Director, are now considering whether to have a physical presence in Cetland and set up the new sales operation as a branch or as a subsidiary. Reena Blois is also looking to produce forecast sales and cost information for the new operation.

You receive the following email:

From: Karl Lomas, Finance Director
To: Finance Officer
Subject: Expansion into Cetland market

Reena Blois is discussing with Tony Roberts whether to set up the new operation in Cetland as a branch or as a subsidiary of Tracs Europe, which would be incorporated in Cetland. I would like you to prepare a briefing note to support these discussions. This is a complex area, but I have summarised the taxation rules for Cetland and Teeland in Table 1, which is attached, which should help you.

Please prepare a briefing note for Reena Blois which explains:

- The issues around legal status and taxation we should consider when setting up the new Cetland operation as either a branch or a subsidiary of Tracs Europe.

(sub-task (a) = 28%)

We are looking to lease a transporter so we can deliver tractors from the docks to distributors or direct to customers. Reena would like to know how the lease liability and the right-of-use asset should be initially recorded. She has included some information (in Table 2 attached), which shows details of the lease being considered.

Please include in your briefing note to Reena Blois an explanation of:

- How the lease liability and right-of-use asset for the transporter lease should be measured initially in our financial statements .

(sub-task (b) = 28%)

Reena is also considering three different marketing mixes for Cetland. She is uncertain about how the economy will change in Cetland and the effect this will have on market conditions for potential buyers of tractors. To help her decide which marketing mix to choose (A, B or C), I have produced a payoff table and a regret matrix (Tables 3 and 4, attached) based on the contribution for each combination of marketing mix and potential market conditions.

Please also include in your briefing note an explanation of:

- How the maximin, maximax and minimax regret decision criteria would be used to select the marketing mix. Please state the other factors we should consider before we decide which marketing mix to choose.

(sub-task (c) = 44%)

Karl Lomas
Finance Director
Tracs Europe

The attachments to the email can be found by clicking on the Reference Material button above.

❓ Tables and Formulae

Next →

Table 1: Summary of tax regimes in Cetland and Teeland

	Notes	Cetland	Teeland
Corporate income tax rates	1	27%	30%

Note

1. Cetland and Teeland have signed a double taxation treaty, which gives relief using tax credits.

Table 2: Details of lease for transporter

Lease payment per year	Note 1	T$45,526
Lease period	Note 3	3 years
Owner at end of lease period	Note 4	Lessor

Notes

1. Lease payments would be made annually in advance, with the first payment being due on 1 September 2023, the day the transporter is delivered.
2. The agent who arranged the lease will receive a T$2,000 payment on the date the order for the new transporter is made.
3. The interest rate implicit in the lease is 12.3%.
4. There is an option to purchase the transporter for a sum of T$23,125 at the end of the lease. This is unlikely to be taken up. If the option to purchase is not taken up, the leasing company will collect and inspect the transporter at the end of the lease period at a cost of T$3,500 to the lessee.

Table 3: Forecast net contribution from tractor sales in Cetland

Market conditions	Marketing mix (T$000)		
	A	B	C
1	13,314	23,224	15,139
2	16,657	32,514	26,588
3	11,982	9,289	39,464

Table 4: Regret matrix

Market conditions	Forecast regret (T$000)		
	A	B	C
1	9,910	0	8,085
2	15,857	0	5,926
3	27,482	30,175	0

Scratch Pad   Calculator

Reference Materials   Pre-seen

Write the briefing note requested by Karl Lomas in the box below.

🖊 Scratch Pad ⏲ Calculator

📕 Reference Material 📕 Pre-seen

Today is 12 October 2023. Cetland sales have not reached budgeted levels.

You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Tracs Europe's monthly sales, ABC and Cetland's KPIs

The Senior Management Team (SMT) recently met to review September's sales figures. Sales were lower than expected overall, particularly in Cetland. Jack Newman, Production Director, suggested that we should report the figures to AgRi using marginal costing so that the profit would look bigger than if we used absorption costing as we usually do. As you know that statement is incorrect, but the SMT have asked for an explanation. So, in Table 1 (attached), I have shown the standard costs for our A++ tractor range. The other ranges followed a similar pattern over the month. I would like to use these figures to explain why Jack Newman's statement is incorrect while explaining marginal and absorption costing.

Please prepare a report to the SMT which explains:

- The differences in how profit is calculated using both marginal and absorption costing based on Table 1, and the impact of the different methods on profit in the short and long term.

(sub-task (a) = 32%)

Given that I will be discussing costing methods at the SMT meeting, I would like to take that opportunity to suggest we consider using activity-based costing (ABC) rather than our current method of absorption costing, as I think it would help with better decision-making.

Please include in your report an explanation of:

- Why our current system of absorption costing may be of little use for short-term decision making and why ABC could help us to make better short-term decisions.

(sub-task (b) = 20%)

At the meeting, the SMT then focussed on sales in Cetland. Given that this is a new market and a new team, the SMT wants to use KPIs to monitor the performance of each member of the sales team.

Please also include in your report to the SMT:

- Suggestions for four KPIs which could be used to monitor the performance of each member of the sales team. For each KPI, explain how it would be measured and why it would be appropriate.

(sub-task (c) = 48%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae

Next ➔

Reference Material

Table 1: Standard production costs for the A++ Power range

	Model		
	Basic	Regular	Premium
Production cost per unit:	T$	T$	T$
Variable	56,644	75,745	96,973
Fixed	14,092	21,099	24,029
Total	**70,736**	**96,844**	**121,002**

Notes

1. The actual fixed production overheads for September were 5% higher than budgeted.
2. Actual production was lower than budgeted but, because of the low sales, inventory of all three models in the range increased.

Close

Scratch Pad Calculator

Reference Material   Pre-seen

Write the report requested by Ben Sholtz in the box below.

🖎 Scratch Pad   🗍 Calculator

▲

[📄 Reference Materials]   [📄 Pre-seen]

It is now December 2023. Donna Marsh, the Sales Senior Manager (SSM) in charge of the Cetland sales team, has resigned and left the company with immediate effect.

Ben Sholtz, Finance Manager, calls you into his office and says:

"The Senior Management Team (SMT) continues to monitor the sales in Cetland. So, I have produced information which analyses for the A++ Power ranges for November (Table 1), which I will give you shortly.

Following the resignation of Donna Marsh, we have reviewed the accounts receivable balances for Cetland and found a lot of outstanding accounts receivable. In the future, each member of the sales team will be responsible for collecting any monies owed from customers. As they have never done this before, the SMT would like to give them some guidance outlining various ways they can look to recover outstanding accounts receivable amounts.

Please prepare a briefing note for the SMT which explains:

- What the variances, in Table 1, tell us about sales in Cetland, giving possible reasons why the sales variances have occurred.

(sub-task (a) = 32%)

- Three different techniques which the Cetland sales team could use to collect outstanding accounts receivable and the factors to consider when using each of these.

(sub-task (b) = 28%)

Also following Donna Marsh's resignation, Reena Blois, Sales & Distribution Director, is considering how best to provide SSM cover for the Cetland team until a new permanent SSM can be recruited, which we expect to take up to a year. We have three options. We can use a recruitment agency to search for a temporary SSM. The agency will charge us a fee of T$5,000 and guarantee the successful appointee a salary of T$75,000. Internally, we can either pay the Teeland SSM overtime and travel expenses to manage both the Teeland and Cetland sales teams or we can leave the Cetland team with no manager while we recruit.

This information has been summarised into a decision tree (Table 2), which I will also give you shortly and is to be discussed by the SMT. You can assume the SMT is risk neutral.

Please also include in your briefing note an explanation of:

- How the decision tree should be interpreted. Please also explain three issues that are not covered by a financial appraisal of the situation."
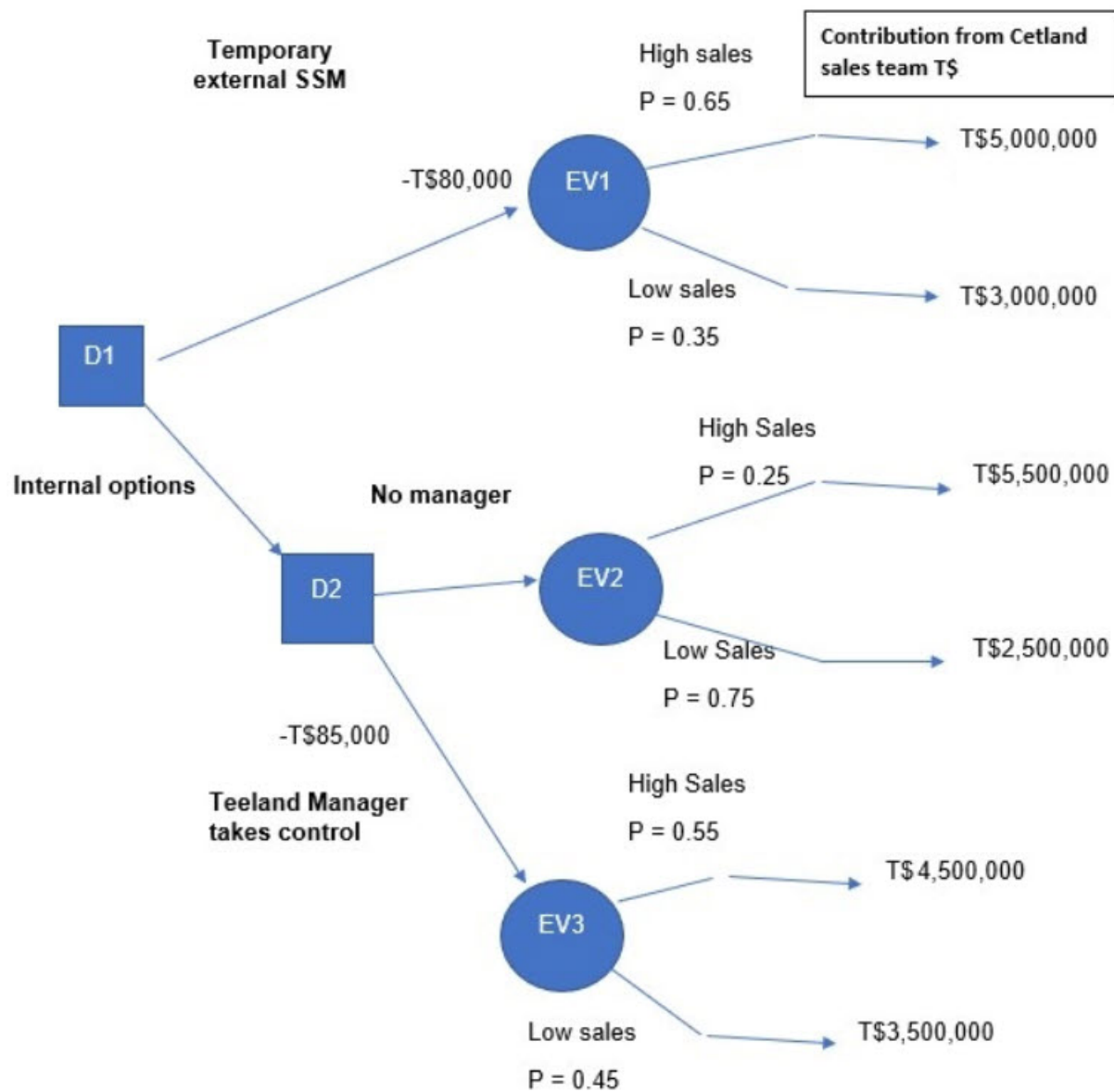
(sub-task (c) = 40%)

Ben then gives you Table 1 and Table 2, which can be found by clicking on the Reference Material button above.

▼

⑦ Tables and Formulae   Next →

Table 1: Sales variances for A++ Power tractors for Cetland sales team for November 2023

A++ Power Range	Price	Profit Variances	
	Price	Volume	Mix
	T$	T$	T$
Basic	24,000A	58,529F	94,217F
Regular	0	242,317A	106,383A
Premium	96,000A	157,995A	109,826A
Total	**120,000A**	**341,783A**	**121,992A**

Notes

1. Following the disappointing sales in earlier months, the Cetland sales team was authorised to give discretionary additional discounts on the selling price if customers completed their purchases in November. These discounts were only for tractors in the A++ range, and the discounts were not included in the original budgets.
2. The government of Cetland introduced new safety checks on all imported agricultural machinery. These checks take approximately 2 weeks to complete once the tractors arrive in Cetland. Sales invoices are raised on the day the tractor is delivered to the client.
3. The Basic model tractor was used as part of a celebrity reality farming tv show in Cetland which had very high viewing figures on Cetland Television.
4. Variances were calculated using the individual units method.

Close

Table 2: Decision tree for interim cover for Senior Sales Manager for Cetland

Temporary external SSM

High sales
P = 0.65

Contribution from Cetland sales team T$

-T$80,000 → EV1 → T$5,000,000

Low sales
P = 0.35 → T$3,000,000

D1

Internal options

No manager

High Sales
P = 0.25 → T$5,500,000

D2 → EV2

Low Sales
P = 0.75 → T$2,500,000

-T$85,000

Teeland Manager takes control

High Sales
P = 0.55 → T$4,500,000

EV3

Low sales
P = 0.45 → T$3,500,000

Expected Values

EV1 = T$4,300,000
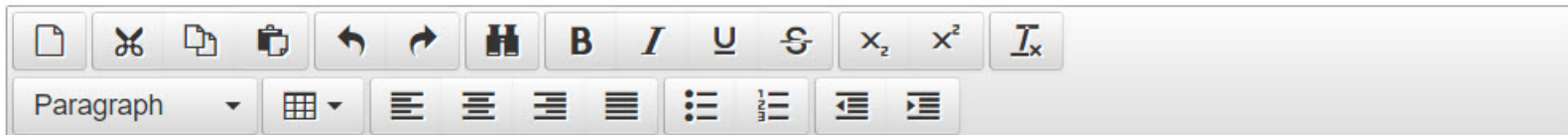
EV2 = T$3,250,000

EV3 = T$4,050,000

📝 Scratch Pad ⬚ Calculator

📘 Reference Materials   📘 Pre-seen

Write the briefing note requested by Ben Sholtz in the box below.

Thank you for completing the Operational Case Study Exam.

Before you leave, don't forget to collect your printed confirmation of attendance.

Please click the End Exam (E) button before leaving the testing room quietly.

→] End Exam

Operational Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

If this is not your name, please let your administrator know.

Click **Next** to start the test.

This examination is structured as follows:

Section number	Time for section (minutes)	Number of tasks	Number of sub-task/s	% time to spend on each sub-task
1	45	1	4	(a) 20% (b) 24% (c) 24% (d) 32%
2	45	1	3	(a) 28% (b) 32% (c) 40%
3	45	1	2	(a) 76% (b) 24%
4	45	1	3	(a) 32% (b) 32% (c) 36%

Each section (task) has a number of sub-tasks. An indication of how much of the time available for the section that you should allocate to planning and writing your answer is shown against each sub-task in the text of the question (and summarised in the table above).

This information will be available for you to access during the examination by clicking on the Pre-seen button.

🖎 Scratch Pad   ⬜ Calculator

📖 Reference Material   📖 Pre-seen

Today is 1 June 2023. A new electrically powered mini-tractor, E-Trac, has been developed by the Product Development Department. E-Trac is significantly smaller and less powerful than Tracs Europe's current tractor ranges but can be used for landscaping, grass cutting and light agricultural activities. It will be assembled by Tracs Europe in a new Production Facility located 10 kilometres from the main facility. E-Trac will be sold throughout Europe and will be available from 1 October 2023.

Ben Sholtz, Finance Manager says the following to you:

"The Senior Management Team (SMT) wants a sales forecast for E-Trac. The first electrically powered mini-tractors were launched to the market at the end of 2021, although diesel powered mini-tractors have been available for many years. It has been suggested that we conduct time series analysis on sales data for the total of both electrically and diesel powered mini-tractors to determine a forecast. Chart 1 (which I'll send you shortly) shows quarterly sales of mini-tractors in Europe since January 2019.

Please prepare a briefing paper for the SMT which explains:

- What Chart 1 shows us.

(sub-task (a) = 20%)

- How to determine a trend line and seasonal variations from the data on which Chart 1 has been constructed, including any difficulties associated with using this data.

(sub-task (b) = 24%)

- The validity of a forecast of sales volumes for E-Trac from October 2023 onwards based on this trend line and seasonal variations.

(sub-task (c) = 24%)

We will be selling E-Trac through our existing dealer network and to retailers of landscaping and grass cutting equipment. We have never sold to retailers before, and we expect to sell to between 25 and 40 such retailers of varying sizes.

Please include in your briefing paper to the SMT an explanation of:

- The impact on the management of our receivables by our sales and credit control teams of selling to these retailers and how we could mitigate any potential additional risks that may arise."

(sub-task (d) = 32%)

Ben sends you Chart 1, which can be found by clicking on the Reference Material button above.

Chart 1: Actual sales of mini-tractors in Europe and centred 4-point moving average

Chart showing actual sales of mini-tractors and centred 4-point moving average. Y-axis: Sales of mini-tracrors (0 to 45000). X-axis: Period number (1 to 16).

Legend: Actual sales; Centred 4-point moving average
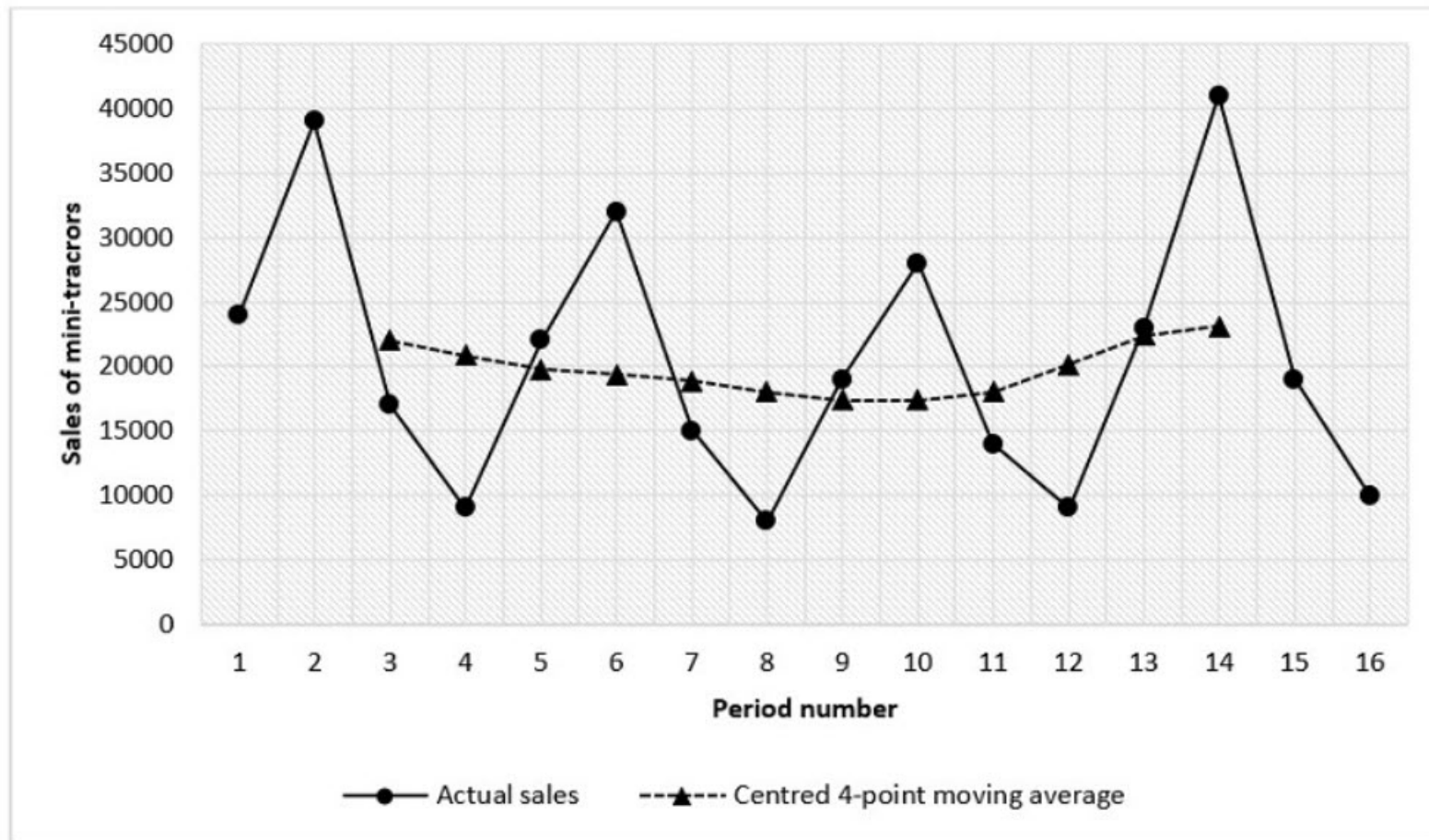
Note

- Period 1 is January to March 2019, and period 16 is October to December 2022.

🖊 Scratch Pad   ☐ Calculator

📖 Reference Material   📖 Pre-seen

Write the briefing paper requested by Ben Sholtz in the box below.

📐 **Reference Material**   📐 **Pre-seen**

It is now July 2023. You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: E-Trac Production Facility: costing approach and leasing of equipment

Our E-Trac range will include three models, and each unit of an individual model will be identical. The direct costs of the E-Trac range will be a higher proportion of total production cost compared to our agricultural tractors. This is because all parts and components (including engines and body panels) will be bought in, rather than made in-house. Each E-Trac model will require a similar number of parts and components per tractor, but will take a different amount of time to assemble.

E-Trac will be assembled on a single assembly line in the new production facility. There will be a number of separate processes undertaken as the partially built units move along the line. Most of these processes will be fully automated with robots, but some will be manual. Each E-Trac model goes through the same production processes. Production will be scheduled so that only one type of E-Trac model will be produced each day. At the start of each day, the assembly line will be set up for that day's production. Set up will involve reprogramming robots for the model being assembled and ensuring that the correct parts and components are available for that model.

At a recent Senior Management Team (SMT) meeting, it was suggested that facility-wide rates based on robot hours would be used to absorb variable and fixed production overheads. It was also suggested that, as an alternative, the new facility could be used as a pilot for the introduction of activity based costing (ABC).

Please prepare a report to the SMT which explains:

- The suitability of using the new E-Trac Production Facility as a pilot for an ABC approach.

(sub-task (a) = 28%)

The new E-Trac production line will be highly automated, and its systems can be linked to the inventory, purchasing and sales systems for E-Trac. A query has been raised as to whether it would be beneficial to use a digital costing system.

Please include in your report an explanation of:

- The benefits for the E-Trac Production Facility of using a digital costing system.

(sub-task (b) = 32%)

The SMT is in the process of deciding whether to lease some of the equipment for the new E-Trac Production Facility or to buy it outright. Details of both options are included in Table 1 and Table 2 (attached).

Please include in your report an explanation of:

- How the right-of-use asset would be initially recorded and subsequently measured in the financial statements for the year ending 31 December 2023 if the equipment was leased. Please also explain how the treatment of the asset would differ if the equipment was purchased outright.

(sub-task (c) = 40%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

Table 1: Lease of equipment

Lease commencement and first payment due	1 August 2023
Annual lease payments in initial lease term	T$100,000
Number of annual lease payments in initial lease term	5
Lease arrangement fee	T$8,000
Useful life of the equipment	9 years
Ownership of the equipment at the end of the lease term	Lessor
Date equipment available for use	1 October 2023

Note

- The initial lease term is non-cancellable. At the end of this initial lease term, there is an option to extend the lease by a further 4 years. Annual lease payments in the lease extension period would be T$20,000 a year, payable on 1 August each year. It is expected that this option would not be taken and instead the equipment returned to the lessor after the initial lease term.

Table 2: Outright purchase of equipment

Date of purchase	1 August 2023
Purchase price	T$450,000
Delivery costs	T$4,000
Installation costs	T$15,000
Useful life of equipment	9 years
Date equipment available for use	1 October 2023

Note

- It is expected that the equipment would be used for 5 years and then sold at an anticipated residual value of T$150,000.

📝 Scratch Pad ▭ Calculator

📖 Reference Material   📖 Pre-seen

Write the report requested by Ben Sholtz in the box below.

📝 Scratch Pad   ⬜ Calculator

📖 Reference Material   📖 Pre-seen

It is now early January 2024. The E-Trac range went into production on 1 October 2023. You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Performance of the E-Trac Production Facility

The Senior Management Team (SMT) has requested a report on the performance of the E-Trac Production Facility for its first 3 months of operation. Attached are some of the variances (Table 1) and some of the Key Performance Indicator (KPI) measures for the period (Table 2). I have been told that:

- There were initial issues with the way in which some of the robots on the assembly line were set up, which meant some parts were damaged. As a result, in November, the line was shut down for a short period so that the robots could be recalibrated. These robots and the assembly line now work at a slightly slower rate than standard.
- At the end of October, a car assembly plant located a few miles from our facility significantly increased the hourly rate paid to its employees. As a result, in November, some of our direct employees left to work there and we had to recruit new employees.
- Many of the components for E-Trac are from suppliers new to Tracs Europe. There were delays receiving some components. This meant that there were bottlenecks in production at times through the period. To catch up, unscheduled overtime was worked by both direct and indirect employees.
- There were quality issues with the initial suppliers of seat units and control panel components which meant that these suppliers were replaced during November. Seat units and control panel components are manually fitted, and the units and components from the new suppliers are easier to fit.

Production-related KPIs are currently being reported to managers on a monthly basis, as shown in Table 2. It has been suggested that it might be beneficial to introduce a real-time KPI dashboard.

Please prepare a report for the SMT which explains:

- What each of the variances shown in Table 1 means and possible reasons for their occurrence, based on the information above and the KPI information in Table 2.

(sub-task (a) = 76%)

- The benefits to the managers of the E-Trac Production Facility of introducing a real-time KPI dashboard.

(sub-task (b) = 24%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

❓ Tables and Formulae   Next →

Table 1: Variances for the E-Trac Production Facility for October - December 2023

Variance	T$	
Raw materials price	576,929	Favourable
Raw materials usage	446,121	Adverse
Direct labour rate	240,000	Adverse
Direct labour idle time	125,000	Adverse
Direct labour efficiency	138,226	Adverse
Variable overhead expenditure	164,160	Adverse
Variable overhead efficiency	77,961	Adverse

Notes

- Raw materials are parts and components.
- Idle time is not budgeted for.
- The SMT decided not to use activity based costing.
- Variable overheads are absorbed on the basis of robot hours.

Table 2: KPIs for the E-Trac Production Facility for October - December 2023

KPI	Target		October	November	December
% parts and components delivered on time from suppliers	99.0%		99.4%	97.4%	98.8%
% scrapped parts and components due to production issues	0.2%		2.1%	0.9%	0.4%
% robot idle time	0.5%		0.7%	1.1%	0.4%

Scratch Pad   Calculator

Reference Material   Pre-seen

Write the report requested by Ben Sholtz in the box below.

📖 Reference Material   📖 Pre-seen

It is now February 2024. On 1 February, there was a storm in Teeland. Ben Sholtz, Finance Manager, calls you and says:

"Due to a lightning strike in the recent storm, there was a fire at the premises of one of our suppliers. This supplier supplies two parts (KLP and GPX) which are used in our E-Trac models, ET5+ and ET6+. This supplier uses bespoke tooling to manufacture the parts and has told us that it will be a month before they will be able to supply us again. Gill Bay, Procurement Senior Manager, has told me we have parts KLP and GPX in inventory, although this may not be sufficient to enable production of enough ET5+ and ET6+ to satisfy next month's orders. I have drawn up a linear programming graph and have identified the optimal production plan (Graph 1, which I will send you shortly).

Gill has been in touch with a supplier that would be able to supply GPX next month. That supplier would charge a flat fee of T$20,000 to cover the bespoke tooling needed to make GPX and then an additional T$134 per unit (the same price per unit that we currently pay). At present, there is no alternative supplier for the KLP.

Please write a briefing paper for the Senior Management Team (SMT) which explains:

- How to determine, based on Graph 1, how many GPXs we might consider ordering from the alternative supplier and how we would decide whether this would be worthwhile.

(sub-task (a) = 32%)

We also suffered some damage because of the storm. Part of our roof fell into the facility and two pieces of equipment have been damaged (details of which are included in Table 1, which I will send you shortly).

Please include in your briefing paper an explanation of:

- How to account for both pieces of damaged equipment identified in Table 1. Please also explain whether any adjustments will affect our financial statements for the year ending 31 December 2023 or 31 December 2024, given that the 2023 financial statements have not yet been finalised.

(sub-task (b) = 32%)

Now that E-Trac has been on the market for a few months, it has been decided to undertake a new promotional campaign for the range. The SMT is considering one of three different 3-month promotional campaigns. Each potential campaign is expected to have a different impact on additional sales volume depending on the state of the market. I have drawn up a payoff table (Table 2) and regret matrix (Table 3) and will send these to you shortly.

Please include in your briefing paper an explanation of:

- The maximax, maximin and minimax regret decision criteria and how we should use each of these to decide which promotional campaign to choose. Please identify the campaign that would be chosen under each criterion."

(sub-task (c) = 36%)

Ben sends you Graph 1 and Tables 1, 2 and 3, and these can be found by clicking on the Reference Material button above.

Graph 1: Linear programming graph
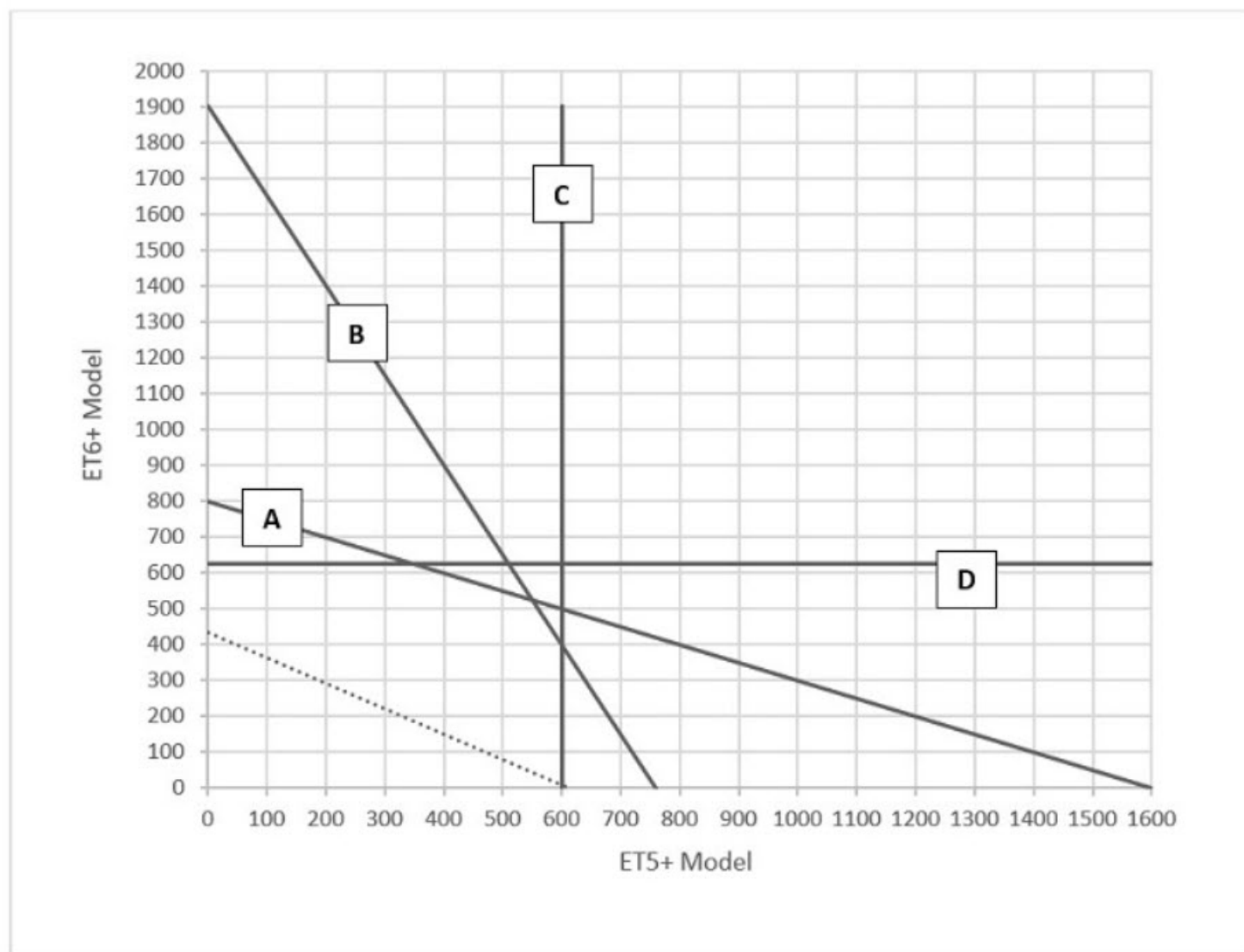
Key to the graph:

- Lines A and B are the constraint lines for part KLP and part GPX respectively for the month.

Table 1: Damaged equipment

Asset code	Carrying amount at 31 December 2023	Other information
ETF823	T$321,800	• This asset can be repaired at a cost of T$51,500, and these repairs will restore the asset back to its condition immediately before the damage occurred.
ETF915	T$123,500	• This asset could be repaired, but for a significant cost and without any certainty that it would still operate as intended. The asset could be put into storage and used for spare parts. We expect that this would save us T$20,000 against future spare part costs. Alternatively, the asset could be sold for scrap at T$45,000.

Table 2: Payoff table of additional profit/(loss) from promotional campaigns

State of market	Campaign 1 T$000	Campaign 2 T$000	Campaign 3 T$000
Poor	548	(618)	329
Moderate	91	462	502
Strong	(365)	950	676

Table 3: Regret matrix

State of market	Campaign 1 T$000	Campaign 2 T$000	Campaign 3 T$000
Poor	0	1,166	219
Moderate	411	40	0
Strong	1,315	0	274

🖎 Scratch Pad ⬚ Calculator

📖 Reference Material   📖 Pre-seen

Write the briefing paper requested by Ben Sholtz in the box below.

Thank you for completing the Operational Case Study Exam.

Before you leave, don't forget to collect your printed confirmation of attendance.

Please click the End Exam (E) button before leaving the testing room quietly.

Operational Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

If this is not your name, please let your administrator know.

Click **Next** to start the test.

This examination is structured as follows:

Section number	Time for section (minutes)	Number of tasks	Number of sub-task/s	% time to spend on each sub-task
1	45	1	3	(a) 44% (b) 28% (c) 28%
2	45	1	2	(a) 64% (b) 36%
3	45	1	3	(a) 28% (b) 32% (c) 40%
4	45	1	3	(a) 36% (b) 40% (c) 24%

Each section (task) has a number of sub-tasks. An indication of how much of the time available for the section that you should allocate to planning and writing your answer is shown against each sub-task in the text of the question (and summarised in the table above).

This information will be available for you to access during the examination by clicking on the Pre-seen button.

📝 Scratch Pad 📱 Calculator

📖 Reference Material   📖 Pre-seen

Today is 1 June 2023. The Production Facility is extremely busy due to higher than anticipated sales orders. You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Production overhead variances, responsibility accounting and rolling budgets

I need your assistance with preparing the performance report for the Main Assembly Department for May 2023. Attached in Table 1 are the variable and fixed production overhead variances for the department.

During May, the following happened:

- Actual production of tractors was higher than budgeted and significant unplanned overtime was worked. Overtime premium is charged to variable overhead.
- The electricity supplier was changed, resulting in a reduction in power costs across the facility.
- At the start of the month, 100 of our direct Main Assembly production workers left to work at a vehicle assembly plant that recently opened nearby. Jack Newman, Production Director, took the decision to recruit 200 direct production employees in the department, to replace these workers and also to increase production capacity. He also decided to employ additional production supervisors and hire additional equipment.
- There were issues with some of the lifting equipment used in the department, resulting from failure of the Maintenance Department to complete routine servicing. This resulted in the equipment being repaired by external engineers that had to be bought in at additional cost. It also meant that some processes had to be slowed down because the lifting equipment wasn't operating optimally.

Please prepare a report to the Senior Management Team (SMT) which explains:

- What each of the variances in Table 1 means and possible reasons for their occurrence.

(sub-task (a) = 44%)

Currently, production managers are held responsible for all the production variances of their department. Tony Roberts, Managing Director, has expressed concern whether this is appropriate. He has also expressed concern about the impact of the unexpected expenditures on the company's liquidity position. Currently, our cash budget (showing expected receipts, payments and predicted cash balance) is prepared at the start of each year. Our actual cash balance at the moment is significantly different to that shown in the budget for this point of the year. Tony has suggested that the business should consider a rolling budget approach for our cash budget.

Please include in your report to the SMT an explanation of:

- Whether it is appropriate to hold Bill Gomez, Main Assembly Manager, responsible for the fixed production overhead variances of the Main Assembly Department in May.

(sub-task (b) = 28%)

- The potential benefits and drawbacks of adopting a rolling budgets approach for our cash budget.

(sub-task (c) = 28%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

⊙ Tables and Formulae   Next →

Reference Material

Table 1: Production overhead variances for the Main Assembly Department for May 2023

	Variable overhead T$	Fixed overhead T$
Expenditure	22,716 F	900,667 A
Efficiency	80,032 A	320,092 A
Capacity	Not applicable	1,314,855 F

Note

- Overheads for the Main Assembly Department are absorbed on the basis of direct labour hours.

Close

📝 Scratch Pad ▢ Calculator

📖 Reference Material   📖 Pre-seen

Write the report requested by Ben Sholtz in the box below.

Scratch Pad   Calculator

Reference Material   Pre-seen

A week later, you receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Activity based costing and key performance indicators

The production variances for May were discussed at last week's Senior Management Team (SMT) meeting. At the meeting, a query was raised about the basis for absorbing overheads. There was a very brief discussion about using activity based costing rather than our current approach, and the SMT has asked for more information about this. Attached in Schedule 1 is some information about the Body Panel Department.

Please prepare a briefing paper for the SMT which explains:

- How an ABC approach would differ to our current costing approach for the Body Panel Production Department.

(sub-task (a) = 64%)

It was decided at the meeting to outsource maintenance and repairs of the robots used in the Body Panel Production Department. A suitable service provider is being sought, and the SMT has asked for suggestions of key performance indicators (KPIs) which could be used to monitor the performance of the service provider chosen.

Please include in your briefing paper:

- Suggestions of three KPIs that are appropriate to monitor the performance of this service provider. Please explain how each KPI would be measured and justify why it would be appropriate.

(sub-task (b) = 36%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae   Next ➔

Schedule 1: Information about the production processes in the Body Panel Production Department

Steel sheets are moved by forklift truck at the start of each batch of production into the department from the main warehouse. A single forklift journey carries enough steel sheets for that batch of production.

↓

Steel sheets are fed by hand into the hydraulic presses, which have to be programmed to create the relevant body panel shape at the start of each batch. Only one body panel can be pressed at a time on a single press.

↓

Each body panel is removed from the press by hand and attached to a robot arm at the start of the automated cleaning and painting line. Each robot arm handles one body panel.

↓

Each panel is dipped into a vat of cleaning solution and then passes through a drying machine.

↓

After drying, the panels are moved by the robotic arm to the painting area where they receive three coats of paint in the appropriate colour from robot paint sprayers. The robot paint sprayer has to be cleaned and loaded before each batch with the appropriate type and colour of paint for the body panel.

Notes

- The department is managed by Bryan Zola, Body Panel Production Manager.
- Each panel type is produced in batches of between 50 to 100 individual body panels at a time. An individual body panel requires the same amount of time in the pressing machine, irrespective of the type of panel.
- The hydraulic presses and robots are powered by electricity.

📝 Scratch Pad ☐ Calculator

📖 Reference Material   📖 Pre-seen

Write the briefing paper requested by Ben Sholtz in the box below.

Scratch Pad ⊟ Calculator

📖 Reference Material   📖 Pre-seen

It is now the middle of October 2023. A few months ago, the Senior Management Team (SMT) decided to expand production capacity across the Production Facility. As a result of this decision, outsourcing of the maintenance of robots was delayed until new equipment was installed. Ben Sholtz, Finance Manager, calls you and says:

"To increase capacity in the Main Assembly Department, we are in the process of installing automated robotic equipment. This equipment was purchased for T$1,500,000 on 1 October and is in the process of being installed at a cost of T$125,000. Installation will be completed by 31 October, and the equipment will then be tested before it can be used. This will be completed by 1 December and cost T$18,000. It will cost us T$12,000 to train our employees to use the equipment. The equipment will have a useful life of 12 years, although the robot arms, which are a significant part of the equipment, will need to be replaced every 4 years.

Please prepare a briefing paper for the SMT which explains:

- How the expenditure associated with the new equipment will be initially recorded in our financial statements. Please also explain how the equipment asset will be depreciated in our financial statements for the year ending 31 December 2023.

(sub-task (a) = 28%)

The SMT now needs to decide which maintenance service provider to contract with for the provision of maintenance and repairs on all robotic equipment across the Production Facility. The contract will be for a period of 12 months and two service providers are being considered: Robotics+ and Prestige Engineers. I have drawn up a decision tree (Schedule 1, which I'll send you shortly) to help decide which contract to choose.

Please include in your briefing paper an explanation of:

- The decision tree and how it can be used to decide which contract to choose, assuming we take a risk neutral approach.

(sub-task (b) = 32%)

Before making a final decision about whether to use Robotics+ or Prestige Engineers, the SMT wants to consider wider issues, including each service provider's financial stability based on how it manages its working capital. Table 1 (which I will send you shortly) includes some financial information for both service providers.

Please explain in your briefing paper:

- For both Robotics+ and Prestige Engineers, what the information contained in Table 1 indicates about its approach to working capital management, with reference to each element of the working capital cycle for each service provider."

(sub-task (c) = 40%)

Ben sends you Schedule 1 and Table 1, which can be found by clicking on the Reference Material button above.

⑦ Tables and Formulae

Next ▶

Schedule 1: Decision Tree

Variable cost of the contract

Robotics+

Contract 1: No fixed fee

Maximum production (p=0.8)

High level of problems (p=0.5) — T$210,000

Low level of problems (p=0.5) — T$192,500

Minimum production (p=0.2)

High level of problems (p=0.3) — T$190,000

Low level of problems (p=0.7) — T$172,500

Contract 2: Fixed fee of T$200,000 — T$0

Prestige Engineers: Fixed fee of T$60,000

Maximum production (p=0.8)

High level of problems (p=0.5) — T$180,000

Low level of problems (p=0.5) — T$75,000

Minimum production (p=0.2)

High level of problems (p=0.3) — T$180,000

Low level of problems (p=0.7) — T$75,000

Workings

	T$
T$210,000 x 0.5 + T$192,500 x 0.5 =	201,250
T$190,000 x 0.3 + T$172,500 x 0.7 =	177,750
T$201,250 x 0.8 + T$177,750 x 0.2 =	196,550
T$180,000 x 0.5 + T$75,000 x 0.5 =	127,500
T$180,000 x 0.3 + T$75,000 x 0.7 =	106,500
T$127,500 x 0.8 + T$106,500 x 0.2 =	123,300

Table 1: Information about Robotics+ and Prestige Engineers

	Robotics+	Prestige Engineers	Industry average
Inventory days	8 days	3 days	5 days
Receivable days	51 days	27 days	37 days
Payable days	26 days	68 days	34 days
Revenue	T$20 million	T$210 million	T$100 million
Change in revenue from prior year	+15%	+4%	+4%
Cash balance	T$0.5 million	T$3 million	T$1.7 million
Average number of customers	4	19	10

Note

- The information is based on financial statements for the year ended 31 March 2023.

📝 Scratch Pad 🖩 Calculator

📖 Reference Material   📖 Pre-seen

Write the briefing paper requested by Ben Sholtz in the box below.

📝 Scratch Pad ⬛ Calculator

📖 Reference Material   📖 Pre-seen

It is now November 2023, and the budget for the year ending 31 December 2024 has just been finalised. Ben Sholtz, Finance Manager, calls you and says:

"As a result of the recent investment in new equipment in the Production Facility, we have identified assets which will be sold. One such asset is a piece of testing equipment used in the Engine Assembly Department. This testing equipment is currently in use but will cease to be used on 30 November. It will need to be reconditioned before it is put up for sale, which will cost T$10,000. This will be completed during December, after which we plan to immediately market the reconditioned testing equipment for sale at a price of T$150,000. There is a limited market for this type of equipment, and so we have engaged the services of a specialist equipment dealer to find a buyer. This service will cost T$12,000, and the dealer is confident of being able to sell the equipment within 9 months at the price we want. The carrying amount for this testing equipment was T$230,000 at 1 November 2023, and monthly depreciation is T$15,000.

Please prepare a briefing paper for the SMT which explains, with appropriate justification:

- How the testing equipment will be reflected in our financial statements for the year ending 31 December 2023.

(sub-task (a) = 36%)

There has been some discussion within the Senior Management Team (SMT) about promotional spend and pricing policy for the A++ Power range for the year ending 31 December 2024. The original budget for the range has already been drawn up, but it has now been suggested that there be an additional promotion campaign and changes to the way that the range is priced. A colleague has drawn up Chart 1, a multi-product profit-volume chart (which I'll send you shortly), which compares the original budget with the proposed budget which reflects these suggestions.

Please include in your briefing paper an explanation of:

- What Chart 1 indicates about the original budget for the A++ Power range of tractors for the year ending 31 December 2024. Please also provide an explanation of the impacts that the proposed changes will have on the budget as illustrated by the chart.

(sub-task (b) = 40%)

Given the competitiveness of our market, it has been suggested by group management that we consider beyond budgeting.

Please include in the briefing paper to the SMT an explanation of:

- Three benefits to our business of using a beyond budgeting approach."

(sub-task (c) = 24%)

Ben sends you Chart 1, which can be found by clicking on the Reference Material button above.

❓ Tables and Formulae

Next ➔

Chart 1: Multi-product profit-volume chart for A++ Power range
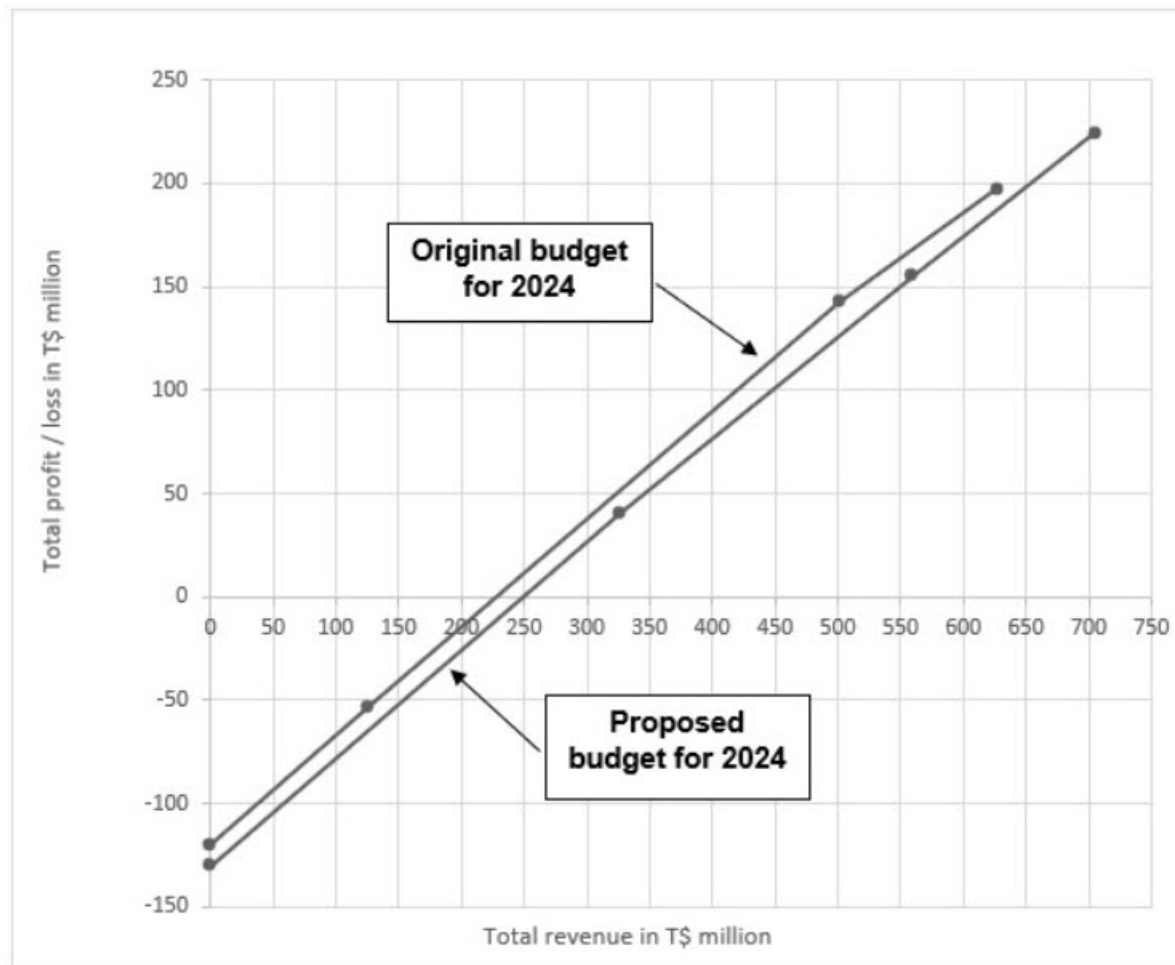
Other information

- The contribution to sales ratios used in the above chart are as follows:

	Original budget for 2024	Proposed budget for 2024
Basic	0.44	0.47
Regular	0.52	0.52
Premium	0.53	0.49
Weighted average	**0.51**	**0.50**

- The fixed cost reflected in the chart includes the range's share of production, selling and distribution costs.
- Variable cost per unit remains unchanged in the proposed budget for 2024.

Scratch Pad Calculator

Reference Material   Pre-seen

Write the briefing paper requested by Ben Sholtz in the box below.

Paragraph

Thank you for completing the Operational Case Study Exam.

Before you leave, don't forget to collect your printed confirmation of attendance.

Please click the End Exam (E) button before leaving the testing room quietly.

Operational Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

If this is not your name, please let your administrator know.

Click **Next** to start the test.

This examination is structured as follows:

Section number	Time for section (minutes)	Number of tasks	Number of sub-task/s	% time to spend on each sub-task
1	45	1	2	(a) 52% (b) 48%
2	45	1	3	(a) 40% (b) 36% (c) 24%
3	45	1	3	(a) 36% (b) 16% (c) 48%
4	45	1	3	(a) 36% (b) 40% (c) 24%

Each section (task) has a number of sub-tasks. An indication of how much of the time available for the section that you should allocate to planning and writing your answer is shown against each sub-task in the text of the question (and summarised in the table above).

This information will be available for you to access during the examination by clicking on the Pre-seen button.

📖 Reference Material   📖 Pre-seen

Today is 1 June 2023. You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: TractorPal app and 'Tractor Festival'

All our Premium tractor models will soon be equipped with smart tech which can connect to an app downloaded to the farmer's smart device, allowing them to track information about their tractor. The app, to be known as TractorPal, will also allow farmers to access instructional videos in which engineers will demonstrate various maintenance procedures. These videos will be produced in-house by our sales teams, and the video library will be expanded regularly.

The app itself has been developed by an external app developer which will be responsible for fixing bugs and providing updates in the future. The administration and technical support of the app will be conducted in-house within our IT Department, which will need to employ extra resources. The app will be available to download on multiple platforms, and each platform provider will charge us a fee per download. The Senior Management Team (SMT) is keen to determine the price per download that we should charge the farmer, and it has been suggested by Reena Blois, Sales & Distribution Director, that this should be based on the full cost per download.

Please prepare a report to the SMT which explains:

- How to determine the full cost per download of the TractorPal app and the difficulties of doing so.

(sub-task (a) = 52%)

Reena and her team are planning a 'Tractor Festival' to be held in August. This event will include a display of our tractors past and present and is a chance for us to promote TractorPal. However, we have only sold 50% of the available tickets, and Table 1 (attached) shows that at this level of sales, the event will make a loss. Karl Lomas, Finance Director, would like the SMT, at its meeting next week, to decide whether to go ahead with the 'Tractor Festival' event using a relevant costing approach.

Please include in your report to the SMT an explanation of:

- How relevant costing should be applied to each item in Table 1, stating any further information you would need to determine and quantify the relevant costs and revenues of this decision.

(sub-task (b) = 48%)

Ben Sholtz
Finance Manager
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

Table 1: Anticipated loss for the 'Tractor Festival' event

	Notes	T$
Receipts from tickets sold to date	1	125,000
Hire of venue	2	(74,000)
Employee costs	3	(28,000)
Promotional items	4	(15,200)
Vintage tractor transport costs	5	(19,800)
Other costs	6	(15,000)
Loss		**(27,000)**

Notes

1. There will be capacity for 10,000 people to attend the event. Tickets are priced at T$25 per attendee and so far, 5,000 tickets have been sold and paid for. If the event does not go ahead, tickets already paid for will be refunded in full.

2. A fee of T$74,000 has been agreed for hire of the venue, and we have signed a hire agreement. No monies have yet been paid, although a deposit of 20% is due to be paid next week.

3. The plan is to use our own employees at the event. This will include some of our direct production workers (who will act as stewards) and our sales teams. T$28,000 represents the cost of the time utilised, based on standard direct labour rates and salaries. Direct production workers are contracted to work 40 hours a week. As a result of the event, additional overtime will be paid in the Production Facility. We will pay each production worker at the event a T$100 bonus. Our sales teams are all salaried.

4. We already have promotional items in inventory, which we use regularly as promotional gifts for our dealers, which originally cost T$15,200.

5. The vintage models of tractor that will be on display will be shipped from our parent company in the USA at a cost of T$19,800. These vintage tractors, if not at our event, will be hired out to another event in the USA for a net income of T$7,000.

6. T$15,000 includes the cost of the event insurance that will be required, travel expenses already incurred and other expenses yet to be paid.

📝 Scratch Pad   ⬚ Calculator

📖 Reference Material   📖 Pre-seen

Write the report requested by Ben Sholtz in the box below.

📝 Scratch Pad   🖩 Calculator

📑 Reference Material   📑 Pre-seen

It is now July 2023. The new modified A++ Power Premium model, capable of connecting with the TractorPal app, will start to be sold on 1 October 2023. Other Premium models with the capability to connect with the app will be available from January 2024. You receive the following email:

From: Karl Lomas, Finance Director
To: Finance Officer
Subject: Sensitivity analysis, key performance indicators (KPIs) and tax issue

We have revised the budget for our A++ Power Premium model for the last quarter of 2023, as shown in Table 1 (attached). There is some uncertainty over sales price and marketing costs. This is because the level of discount available to our dealers and how much we'll spend on marketing are still being debated. One of your colleagues has calculated the sensitivity of profit to independent changes in the budgeted items as shown in Table 2 (attached).

Please prepare a briefing paper for the Senior Management Team (SMT) which explains:

- The sensitivity information shown in Table 2 and why the level of sensitivity differs. Please also explain the benefits and limitations of this analysis.

(sub-task (a) = 40%)

Reena Blois, Sales & Distribution Director, has been working closely with the AgRi Marketing Department and an external marketing consultancy to develop a digital marketing strategy for the modified Premium models. This will include the use of social media and email digital marketing techniques. All posts and emails will include embedded links to the websites of Tracs Europe approved dealers and to a Tracs Europe enquiry communication channel.

Please include in your briefing paper suggestions of:

- Three KPIs that could be included on a digital marketing dashboard, explaining how each would be measured and why each would be appropriate.

(sub-task (b) = 36%)

AgRi has paid the external marketing consultancy cost of T$150,000, although this will be recharged to us. One of the AgRi managers has suggested that a 100% mark-up is added to the cost so that we are charged T$300,000. The reason for this suggestion is that the tax rate in Teeland is higher than the tax rate in AgRi's country of incorporation, and the AgRi manager sees this as a way of reducing the overall tax liability of the group. Teeland and the country of AgRi's incorporation have regulations that state that transfer prices between group companies operating in different countries should be on an arm's length basis for tax purposes.

Please include in your briefing paper an explanation of:

- The adjustments that would need to be made to ensure compliance with transfer pricing regulations if AgRi applied the 100% mark-up when charging us. Also, please explain whether, if the transfer pricing regulations were not applied, this would be an example of tax evasion or tax avoidance.

(sub-task (c) = 24%)

Karl Lomas
Finance Director
Tracs Europe

The attachment to the email can be found by clicking on the Reference Material button above.

Reference Material

Table 1: Revised budget for A++ Power Premium model for the period 1 October 2023 to 31 December 2023

	T$000
Revenue*	33,250
Variable costs	(17,325)
Contribution	**15,925**
Share of fixed production costs	(3,700)
Marketing costs	(4,500)
Profit	**7,725**

*Budgeted sales volume is 175 tractors.

Table 2: Sensitivities

Budgeted item	Sensitivity
Selling price	23.2%
Sales volume	48.5%
Variable cost per unit	44.6%
Fixed production costs	208.8%
Marketing costs	171.7%

✎ Scratch Pad ☐ Calculator

📖 Reference Material   📖 Pre-seen

Write the briefing paper requested by Karl Lomas in the box below.

🖎 Scratch Pad 🗍 Calculator

📖 Reference Material   📖 Pre-seen

It is now October 2023, and the budget for the year ending 31 December 2024 is being prepared. Ben Sholtz, Finance Manager, calls you and says:

"The Senior Management Team (SMT) is considering using zero based budgeting (ZBB) for some of the support activities, including the budgets for our sales offices. Each sales office is responsible for developing and maintaining relationships with dealers, dealing with sales queries and promoting our brand at agricultural shows. Promoting our brand at agricultural shows involves a number of different cost items which are listed on Schedule 1, which I shall give you shortly.

Please prepare a briefing paper for the SMT which explains:

- The ZBB process and how this would be applied to create a budget for agricultural shows for one of our sales offices for the year ending 31 December 2024.

(sub-task (a) = 36%)

- The challenges of using a ZBB approach to determine this budget.

(sub-task (b) = 16%)

I have been asked by the SMT to review the latest inventory figures for our three sales offices. Inventory includes brochures and promotional gifts such as small-scale models of our tractors, mugs and pens. Table 1 (which I'll give you shortly) gives us information about the inventory of each sales office.

Please include in your briefing paper an explanation of:

- The inventory ordering approaches of the sales offices and the financial implications of the approach taken by the Teeland office compared to the European offices. Please also explain whether the EOQ model might be suitable as a method of managing the procurement of promotional items."

(sub-task (c) = 48%)

Ben Scholtz sends you Schedule 1 and Table 1, which can be found by clicking on the Reference Material Button above.

⑦ Tables and Formulae   Next →

Schedule 1 | Table 1

Schedule 1: Cost items for agricultural shows

Agricultural shows involve the following cost items:

- Trade stand fees payable to show organisers
- Staff salaries for attendance at and preparation for shows
- Travel and subsistence costs including transportation of tractors
- Promotional gifts

Table 1: Inventory of sales offices

Sales office	Annual cost of inventory items used T$000	Average inventory value T$000	Average inventory days	Take advantage of bulk discounts
Teeland	850	82	35	No
Northern Europe	520	178	125	Yes
Southern Europe	540	192	130	Yes

Note

- All inventory items are ordered from a single supplier based in Teeland.

Scratch Pad Calculator

Reference Material   Pre-seen

Write the briefing paper requested by Ben Sholtz in the box below.

Paragraph

📝 Scratch Pad   🖩 Calculator

▤ Reference Material   ▤ Pre-seen

It is now November 2023. You receive the following email:

From: Ben Sholtz, Finance Manager
To: Finance Officer
Subject: Sales variances, leases and marketing campaign decision

The Senior Management Team (SMT) is meeting to review the sales performance of our A++ range for October 2023 after the launch of the new modified Premium model with TractorPal connection. Attached in Table 1 are the sales variances.

Please prepare a report to the SMT which explains:

- What the sales variances in Table 1 mean and possible reasons why they have arisen.

(sub-task (a) = 36%)

The laptops of our sales managers are being upgraded on a rolling programme, and we have decided to lease the laptops rather than purchase them. Table 2 (attached) gives details for the lease of the first laptop.

Please include in your report to the SMT an explanation of:

- The two alternative ways in which the lease for this laptop could be reflected in our financial statements for the year ending 31 December 2023.

(sub-task (b) = 40%)

As noted under Table 1 attached, farmers in Teeland are eligible for grants towards equipment purchases. It is expected that such grants will soon be available in other European countries and so we are going to undertake a new promotional campaign across Europe. Three options are being considered, each with a different cost and focus. Table 3 and Table 4 (attached) include a payoff table of the additional profit earned for each campaign under different market reactions and statistical measures based on these estimates. An external marketing consultancy has offered to provide perfect information about how the market will react at a cost of T$110,000. I have calculated that the value of perfect information, before taking this cost into account, is T$122,000. The SMT need to decide whether to buy the perfect information: some members of the SMT have a risk neutral attitude to decision making whilst others are risk averse.

Please include in your report an explanation of:

- How having a risk neutral and a risk averse attitude would impact on the SMT's willingness to pay for the perfect information, based on the information in Tables 3 and 4.

(sub-task (c) = 24%)

Ben Sholtz
Finance Director
Tracs Europe

The attachments to the email can be found by clicking on the Reference Material button above.

Table 1: Sales variances for A++ Power range for October 2023

Variance	Basic T$000	Regular T$000	Premium T$000	Total T$000
Sales price	218 A	210 F	754 A	762 A
Sales mix profit	539 F	89 F	185 F	813 F
Sales quantity profit				210 F

Notes

- The sales mix and quantity profit variances are calculated using the weighted average method. The standard weighted average profit per tractor is T$52,536. The individual profits per model are T$29,264 for Basic, T$58,156 for Regular and T$77,500 for the Premium model.

- The budget was revised to reflect the new sales expectations regarding the modified Premium model that was launched on 1 October 2023.

- Budgeted selling prices reflect the average price after expected discounts to dealers. The sales managers have discretion to negotiate alternative discount arrangements with dealers within 5% parameter of the expected level of discount.

- During October, the following occurred:

  - The sales managers were given the authority to offer additional discounts (on top of the 5% explained above) for the new modified Premium model.

  - At the start of the month, to support the agricultural industry, the Teeland government announced that all farmers in the country would be eligible for a grant towards any equipment purchases.

Close

Table 1 | Table 2 | Tables 3 & 4

Table 2: Information about the lease

Underlying asset	Laptop
Useful life of underlying asset	5 years
Commencement date of lease	1 October 2023
First lease payment	30 September 2024
Annual lease payment	T$750
Lease term	2 years
Interest rate implicit in the lease	8%
Ownership at the end of the lease term	Lessor

Table 3: Additional profit/(loss) after campaign costs from promotional campaigns

Expected market reaction	Probability	Campaign 1 T$000	Campaign 2 T$000	Campaign 3 T$000
Very good	0.4	1,050	2,100	1,620
Good	0.4	730	900	870
Poor	0.2	410	(200)	0

Table 4: Statistical information based on Table 3

	Campaign 1	Campaign 2	Campaign 3
Expected value (T$000)	794	1,160	996
Co-efficient of variation	0.30	0.75	0.60

Close

📝 Scratch Pad 🖥 Calculator

📖 Reference Material   📖 Pre-seen

Write the report requested by Ben Sholtz in the box below.

Thank you for completing the Operational Case Study Exam.

Before you leave, don't forget to collect your printed confirmation of attendance.

Please click the End Exam (E) button before leaving the testing room quietly.

OPERATIONAL CASE STUDY

MAY & AUGUST 2023

EXAM ANSWERS

Variant 1

SECTION 1

Changes in estimated useful life and residual value for PPE

The EUL is the period over which machines 1 and 2 are expected to be available for use in the production line. Any change in the length of their useful life would result in adjustments to the depreciation charge for current and future periods. No changes will be made to past accounting periods, as this is a change of an accounting estimate.

Table 1 shows us when the two machines were purchased in 2014, useful life was estimated at 10 years for machine 1 and 15 years for machine 2. The annual depreciation charge was then calculated using the straight-line method which equally apportions the cost of each machine over its useful life. For machine 1, we can see the charge to the profit or loss account was T$50,000 a year and for machine 2, T$60,000.

Following Rho Machines' visit, the specialist engineers have updated the useful life of both machines from the estimate when purchased. They have stated machine 1's estimated useful life has extended by 2 years to 12 years and machine 2's estimated life has fallen by 5 years to 10 years. As experts in their field, it is appropriate to use the new information to update the financial statements. This means that there will be a revised depreciation charge in the financial statements going forward.

The new depreciation charge will be calculated by dividing the carrying amount of the machine at the date of the visit, by the remaining number of years of useful estimated life. So, for machine 1, the carrying amount will be divided by 3, pro-rated to reflect the number of months after the change in useful life. For machine 2, depreciation will be calculated as the carrying amount at the date of the change, less the new residual value of T$20,000, divided by the remaining life.

This means the annual depreciation charge will reduce from T$50,000 for machine 1 because of the increase in useful life. Whilst for machine 2, the depreciation charge will increase as its estimated useful life has reduced from 15 to 10 years.

Residual value

The residual value is the estimated amount we would receive on selling machines 1 and 2 at the end of their useful life. There has been no change to the residual value of machine 1, which was estimated at $0 when it was purchased and is still $0 under the revised valuation. The residual value of machine 2 has changed, and this will be reflected in the new depreciation charge.

Make or buy new components Z1, A1 and R1

Ranking of external purchase of components

Due to a delayed training schedule, only the Tractor Product Development (TPD) Department can produce the three new components (Z1, A1, R1) needed for the hydrogen engine. The department does not have enough working hours to produce all the required components. As a scarce resource, it is therefore important we use the department's time as efficiently as possible to minimise the extra cost of purchasing from the external supplier.

To decide which components we should buy in (and which would then be produced in-house), we need to use the principals of short-term decision making to minimise the extra cost of buying per labour hour, given that the labour hours of the TPD department are the scarce resource. The extra cost should be calculated by comparing the relevant in-house cost with the external purchase price. This is a short-term problem, and the fixed production costs are not specific to any of the components, therefore the relevant in-house cost is the variable production cost of each component. This is one reason why R1 should not be the first in the ranking to be bought-in: it has a high level of fixed costs, and they are irrelevant for this decision.

Comparing the relevant in-house cost to the external purchase price shows that the extra costs of buying per unit of Z1, A1, and R1 are T$600, T$360 and T$640, respectively. But these figures do not consider the time needed. Therefore, we calculate the extra cost of buying-in per labour hour and compare those and rank to minimise. Therefore, Z1, with an extra cost per labour hour of T$300, is the component that from a financial perspective should be bought in first. We would buy-in enough components to allow staff to make the other components we need. If we need to buy-in other components, the next one to be bought in would be R1 because T$320 is lower than T$360.

Two other factors to consider

However, there are sometimes non-financial factors to be considered in such decisions. For example, whilst we hold a patent for the Z1, we may not wish to give out specifications to an external company, as this may allow for reverse engineering

of a product which gives us a competitive advantage. Also, if we are hoping to patent either A1 or R1, again, we may not wish external companies to have access to these components if they are integral to our new engine and give us an advantage. Although it is noted these are like ones we already use.

We should also consider why the training of staff has not been completed and if it might be possible to complete the training before we need to use the external suppliers, especially on the R1 and A1 components which are similar to those we already have. It is likely that training which takes place at short notice will incur an additional cost. Whilst additional costs for training will increase production costs, this amount may be less than the purchase cost of components and may also protect product specifications.

The financial and non-financial factors to be considered in deciding the most suitable finance method for the pilot project.

Financial factors

Whilst an overdraft has a pre-agreed limit for a set period with a bank, the amount of available funds raised using invoice discounting or factoring can increase as the level of sales rises. This can be useful as sales rise.

The annual overdraft fees (T$15,000) are lower than the fees for either invoice discounting (T$30,000) or factoring (T$100,000). Discounting fees are usually lower than the factoring fees as, with invoice discounting, most sales administration will be done in house but, with factoring, it will be done by OFS. However, there will be a cost saving from using factoring, as we won't need sales processing or credit control functions. This may mean that, unless staff can be redeployed, there may have to be redundancies.

The interest cost for the overdraft (5%) is higher than both the invoice discounting and factoring cost at 3% and 4%, respectively. As such, the value and duration of borrowing will determine which is the most cost effective.

The cost of irrecoverable debts will be removed with the factoring option, as OSF are offering a without recourse facility. This will not be the case for invoice discounting or overdraft where we will continue to collect our own debt.

There is also the fact that using factoring or invoice discounting would result in a one-off cash boost compared to using an overdraft, as money would be released on raising the sales invoice.

Other factors

At least initially, staff time may have to be used to resolve queries, as customers pay OST rather than us. Invoice discounting may minimise this as it is confidential. There would still be an increased administrative burden on staff, as they will need to provide sales information to OFS so funds can be drawn down.

SECTION 2

<u>Incremental budgeting versus beyond budgeting</u>

Our incremental approach to budgeting produces a new budget each year using the previous year's budget and adding on a small percentage to allow for inflation and other cost increases. Where a company is facing a stable operating environment, using incremental budgeting can be a simple and quick way to produce budgets. In such areas, this may make it the most efficient way to plan.

However, incremental budgeting does not look to develop areas or remove waste or inefficiency. Cost figures alone are unable to help us assess how efficient and effective our tractor deliveries are compared to competitor organisations. In fact, it may be that by just increasing costs, we are building inefficiency into the system.

Beyond budgeting tries to resolve the weaknesses and limitations of traditional budgeting approaches so we can be better prepared for changes in operating environments and external factors such as competition from other companies. There are some common features used in beyond budgeting.

As noted in the survey, 50% of firms surveyed produce budgets monthly or on a rolling basis rather than an annual basis. By introducing more up-to-date figures into our budgets, this should ensure we are using up-to-date figures rather than obsolete ones. This should then result in more relevant controls, meaning we can allocate resources more efficiently. It should also allow us to adjust for environmental changes which may include additional delivery costs moving forwards such as carbon offset or the use of electric vehicles.

A wider range of measures are also considered and here we can see that 76% of our competitors already use such wider measures including non-financial measures such as customer satisfaction for instance.

Rather than using internal benchmarks of a maximum percentage of delivery cost to sales, for example, to set a budget, budget targets are set with reference to competitors. So, for instance, if our competitors can deliver a tractor in 24 hours, but we take 48 hours, then our target should be to improve our delivery process to allow a delivery time which is at least as good as our competitor.

Incremental budgeting is backward looking, for instance, considering what delivery costs were last year and adding on a percentage to the cost. Rather than looking historically, beyond budgeting looks to the future and how delivery may change. For example, with the introduction of electric delivery vehicles and what that will mean for costs.

This future proofing of costs also extends to innovation which was noted as a KPI by our competitors, and this is in direct contrast to incremental budgeting which looks to continue with existing methods of delivery.

There is also a move for budgets to be set at local level, rather than centrally, which is traditionally the case for incremental budgets. This allows local managers, who best understand the environment, for instance, the surrounding infrastructure such as electric charging points which may be required to allow for the development of electric delivery vehicles in the future. The identification of such items will ensure relevant costs are budgeted in advance and make control more effective.

The use of big data analytics for budgeting

Budgeted delivery costs are made up of two pieces of information, the number of deliveries expected to be made and the expected cost of each delivery. The number of deliveries or volume of deliveries expected to be made flows from the sales forecast. However, the sales forecast itself can often be flawed due to subjectivity and uncertainty. The estimated cost of individual deliveries may also be flawed and not use appropriate drivers for example being based on the number of deliveries rather than kilometres travelled for instance. Using big data business analytics can reduce uncertainty and widen informational sources, improving both the quality and quantity of data received in relation to delivery costs for both control and budgeting.

Budgeting

By including real time data in respect of speed and braking performance for example, this will allow more accuracy in reporting, as this will reflect up to date conditions. This will affect both the individual costs of each delivery and the volume of deliveries expected.

The individual costs of delivery such as kilometres driven and number of deliveries per journey can be recorded and relayed back to the organisation using GPS data for instance. These would be recorded in real time. So not only would it be possible to update budgets based on real time data, but such data would be available more quickly. It will also allow consideration of beyond budgeting techniques.

This would also be the case with the volume of expected sales which then affects the number of deliveries required. This can also be updated in real time, which can speed up reporting and increase accuracy. However, it can also widen information included to generate the volume of sales to include items such as clicks on a website, which in turn can be used to analyse future conversion to sales.

Big data business analytics can also fill in gaps where data has historically been missing to increase the level of detail, by using technology such as telematics in the low loader cabs, to monitor speed, direction, braking, drive train performance and other mechanical aspects. This can help reduce many types of ancillary costs. For instance, it can reduce transporter insurance costs as well as help optimise tractor transporter maintenance schedules.

Control

One of the main benefits of big data analytics is the benefit of receiving information in real time rather than having to wait for it to be relayed and reported onto management. This means that management and operational decisions can be more quickly identified and appropriate action taken. It will also widen the sources and scope of information to include items which relate solely to Tracs Europe.

This can also help in cost control. For instance, in relation to environmental change, there is the possibility of reducing idling time to reduce the amount of fuel used by the tractor transporter. This will reduce operating cost. However, it will also have the added bonus of increasing the perception of sustainability of the Tracs Europe business.

There is also the potential to include data which was previously seen as unquantifiable to aid control. For instance, the ability to track customer interactions surrounding the delivery process, for example, customer satisfaction may improve relationship management which can lead to more repeat business for us and increased customer loyalty to the Tracs brand.

All the above increases the insight available to employees involved in the delivery process, enabling them to make better operational decisions and helping us to become more proactive to change around strategic implementation and development. Allowing us to react more quickly than rivals in the market by tracking consumer trends.

New credit limit system

We are looking at two aspects when designing a new credit limit system:

1. The customers payment record, whether they pay in line with their credit terms (prompt payers) or exceed their payment terms (late payers).
2. The customers financial strength, obtained from the most recent annual financial statements, press reports or credit scores.

Under the new process, credit periods and limits will be made bespoke to customer groups to reflect the risk profile of those customers.

The strongest and most prompt payers (category 1) will enjoy the most favourable terms, as they pose the least risk to us. This means they will have the longest credit period at 60 days and the higher maximum credit at T$3.6 million. However, both the credit period and maximum amount of credit will reduce in the lower categories down to category 3, which will have a maximum of 30 days credit and total amount of T$400,000 to reflect the increased risk to us.

For those who are late payers (categories 4-6), their credit terms will be reduced compared to categories 1-3 and range from 50 to 0 days depending on their financial strength. In addition, maximum credit amounts will also be reduced to reflect weaker financial statements and, for the weakest category (category 6), it is proposed no credit will be offered.

When combined with ongoing monitoring of accounts, this system should ensure that the risk associated with the amount outstanding is matched to a customer's financial strength and their historical payment record with us, so reducing the potential for non-payment.

However, it may be more logical for staff to organise the list in descending credit value rather than separating customers based on whether payments are on time or late payments and size.

SECTION 3

<u>Engine Assembly variances</u>

Direct labour total variance

The direct labour total cost variance shows the impact of any overall change in the amount spent on labour used in hydrogen engine assembly. This is calculated as the difference between the standard cost and the actual direct labour cost for the actual number of hydrogen engines produced in May. As this is T$7,800 adverse, we can see that the overall cost was higher than expected for the 52 engines assembled.

Direct labour efficiency

Direct labour efficiency examines whether more or less labour hours than the standard expected per unit were used. This is made up of two parts: the efficiency variance itself and the idle time variance.

Idle time variance

This is recorded when no work is being completed and is adverse as it is effectively time wasted. Here, we can see that time was lost due to a power cut in the factory, leading to an adverse variance of T$6,000.

Efficiency variance

Here, there is a favourable variance of T$21,600, which shows that at standard rate we used less hours than expected to produce the 52 engines. As we have had an idle period, this has been used in the calculation of the efficiency variance and has been deducted from the actual hours so that the numbers better reflect actual hours worked. As the research engineers are more experienced, it is likely they could produce a unit in less than the standard time, meaning overall less hours were used and a favourable variance produced.

Direct labour rate variance

The direct labour rate variance compares the standard and actual rate per hour multiplied by the actual number of hours paid. In July, we can see that the rate variance was T$23,400 adverse, showing that the rate we paid for each hour of labour was higher than the standard. This can be explained by the delay in assembly staff being trained to use the new machines. Research engineers, who are likely to be paid more per hour, were used to complete production, leading to an adverse variance.

KPIs

Production machine utilisation

Unscheduled maintenance
This totals the amount of time when the machines were not available due to unexpected maintenance being carried out. It can be calculated as time where the machine was unavailable due to unscheduled maintenance divided by total machine time available for the period. It can be reported as a percentage. Tracking unscheduled maintenance time will show how maintenance has impacted on the utilisation of the machines.

Capacity utilisation
This compares budgeted machine time for a period with actual machine time. Here, actual machine utilisation is divided by total available capacity and reported as a percentage. The higher the figure, the better. Tracking this figure will show how effectively we are maximising the use of available machine capacity and reflects on planning and budgeting.

Efficiency

Throughput
This measures a machines efficiency over a period. It is calculated by dividing the actual machine hours for actual output divided by standard machine hours for actual output, expressed as a percentage. The higher the percentage, the better the throughput. Tracking this measure allows us to highlight any issues of downtime in machines and ensures machine operatives are working at their most efficient.

The role of a non-executive Director (NED) and the need for independence

One of the key roles and responsibilities of directors for listed companies, like AgRi, is to appoint NEDs, like Ms. Smith. As you can see from the extracts of Ms. Smith's biography on the AgRi website, she is part of a team of 6 NEDs who sit on the main Board of AgRi. In many corporate governance codes, NEDs are expected to form 50% of the directors on the Board, excluding the chair. This is to ensure a balance of power with executives.

As Ms. Smith points out in her biography, her role is to be independent, and this means independence not only of executive directors but also of any unions represented in the organisation and middle management. In fact, this is her primary fiduciary duty. By being independent, Ms. Smith ensures a detached and objective view of executive directors' decisions which can help reduce accusations of self interest in the behaviour of executives.

She can also provide expertise within the field of finance and corporate governance through her previous role as an audit partner in a global accountancy practice. This will also help her to communicate effectively as well as being a voice for shareholders

on the Board. It is this experience which strengthens the corporate governance within the group in the eyes of stakeholders.

Ms. Smith did not have previous experience within the farm machinery industry, which may lead to some suggesting she will not have a high level of technical knowledge or awareness of strategic issues within the industry. However, she has been an accountant in practice for 30 years, which means that she will have technical knowledge of running businesses in general, as well as knowledge of legal and other regulatory requirements. This lack of connection to the industry may also make it easier for her to demonstrate her independence, as historical connections to an industry in which a person operated before becoming a NED can be perceived as a lack of independence. In fact, an effective board often has a mix of practice and talents from many areas.

SECTION 4

Cost plus pricing

Cost plus pricing determines selling price based on a cost base, plus a mark-up expressed as a percentage of the cost base. Cost plus pricing requires two decisions. The first decision determines the products selling price based on what the market will bear, considering financial and non-financial factors. The second relates to the mark-up percentage used.

Cost bases

There are two costs bases: full cost and marginal cost. We are considering two full cost plus bases: production cost and total cost +. Production cost includes fixed and variable production costs, including overheads, whilst total cost + includes those costs plus other non-production related costs such as administration and selling costs, leading to a higher figure of T$100,000 compared to T$80,000. In contrast, we are looking at one marginal cost base. This only includes variable costs, and Table 1 shows a value of T$50,000, the smallest proportion of total cost.

Mark-up percentages

The mark-up percentage will differ depending on the cost base used. Marginal costing will have the highest mark-up percentage, as the percentage has to cover profit and fixed costs. The lowest percentage will be when using total cost +, as variable and fixed costs for both production and non-production areas are already included before the mark-up percentage is added. Once the percentages have been calculated, cost plus pricing is easy to calculate.

Allocation of overheads

For production cost and total cost bases, there will be challenges associated with overhead allocation to the hydrogen engine project. This is important as it can mean the selling price calculated can vary markedly, which may lead to over or under-pricing. In turn, this may lead to us losing tractor sales to competitors, making sales at a lower margin or, in some cases, making a loss.

Such issues may arise as it can be difficult to trace costs accurately to the final product and even when identified apportionments may not be accurate. The higher the starting base (total cost plus), the less uncertainty there will be about having to ensure that our costs are covered by the mark-up, assuming that we have confidence in methods of allocating, apportioning and absorbing costs.

Marginal versus full cost

Where only a small percentage of actual costs are covered, for example, marginal cost +, this can mean in times of increasing prices, the percentage mark-up does not cover costs increases where there are steep rises, for example, energy. As such, marginal cost is usually used as a short-term decision-making tool rather than as a long-term one.

Return on capital required

As a subsidiary of AgRi, we have group financial targets to meet. These are likely to include return on capital employed requirements. Therefore, it is important when determining a percentage mark-up that we ensure we are meeting those requirements, if not in the short term, then in the longer term.

Non-financial factors affecting the price we are able to charge.

Given that cost is fixed, to change the price, we need to change the mark-up. However, this is a chicken and egg situation and, consequently, we need to consider the factors which will affect the price.

Customers perception

Product price is dependent on customer demand which in turn is based on their perception of the products value. Value relates not only to value for money but also to desirability and, whilst we are ranked 1st among our competitors in respect of value for money, we ranked last for desirability.

Competition

The tractor market has a high number of manufacturers making tractors, which may have some differences but are essentially substitutes for one another. Whilst theoretically a higher number of substitutes should potentially lead to a lower mark-up percentage as customer can easily move to a competitor, we are rated top by customers for both value for money and running costs. If this information was received before the hydrogen engine tractor was launched, then this will also help with customer perception of our environment impact, which may also help main prices in the market.

Organisation objectives

Despite this potential for charging a premium, it may be that, as a new product, we wish to increase market awareness of the benefits of the hydrogen engine and due to this, we may wish to have a lower mark-up to encourage sales, at least in the short term till demand is established. This may also fit in with our objectives of being highly ranked for value for money as the information shows.

Relevant costs of accepting offer from TV production company

Relevant costs are those which will differ depending on the decision taken. To be relevant, costs must be in the future, affect cashflow rather than just be accounting entries and be incremental or different depending on whether the contract offered by the TV production company is accepted or normal production completed.

Relevant costs

The bespoke paint (T$17,500) is relevant for the contract and should be included in the costing as it has not yet been incurred, so is a future cost. It is specific to the contract as it cannot be used in on other tractors, and it represents an actual cashflow.

The T$19,000 cost of the paint sprayers is relevant as there is no spare capacity in the department, therefore other work will be delayed and the contribution lost. The relevant cost is the contribution lost plus the cost of the paint sprayers for the 200 hours required.

The T$500 bonus per paint sprayer will be relevant as it is totally dependent on the contract going ahead, it is a future cost and represents an actual cash flow.

Non-relevant costs

Non-relevant costs are costs which do not meet the relevance criteria and therefore should not form part of the costing for the project. This will include the cost of the bespoke paint designs. This is because they have already been paid for and therefore has been irrevocably incurred so will not vary according irrespective of whether Tracs Europe agrees to the TV production company's offer.

More information required

To decide if the administration team's time should be included as a relevant cost, we would need additional information.

If the admin teams costs are for staff who already work for the company and where this role is part of their normal duties, they will not be relevant. However, if they are being specifically recruited on a temporary basis for this project, then they will be relevant.

More information is needed about the T$21,000 machine overheads to decide if the cost is relevant. If this is based on variable and fixed overhead absorption rates, then the variable element would be relevant, as it is taken to be representative of cash flow, but the fixed element is irrelevant given the spare capacity and no mention of any incremental costs being incurred.

OPERATIONAL CASE STUDY

MAY 2023 & AUGUST 2023

EXAM ANSWERS

Variant 2

SECTION 1

Costing of remote-drive app versus costing additional components

The remote-drive app is a purely digital product, run through the farmer's own smartphone or device. This is very different to the tractor components which are physical.

Initial development costs

Both the physical remote drive tractor components and the app will need development time. However, we already have tractors on which we can implement remote drive so components development costs will be limited as we can modify existing components, such as cameras, to allow remote drive. As with all new products, this will be followed by testing, for example, for safety protocols.

In contrast, the app is a digital product linking the tractor to its surrounding area and the job being done. For example, it will allow the farmer to "see" where a physical obstacle is met and allow the farmer to have enough information to take remedial action. Such development, as it is complex and new to us, is likely to take longer than the tractor component modifications. This is because we will have to allow for writing and testing the coding required. This is likely to generate far higher development costs initially.

Ongoing development costs

Development costs for both the tractor components and the app will be ongoing. The physical tractor components will need to be developed to expand the range of jobs that can be undertook remotely. There may also be upgrades in quality of components. However, these improvements are likely to be limited and costs for these should be easily established.

The expansion of the jobs done by the app will have a far greater impact on development time. We will be looking to include jobs such as weeding which is significantly different to other jobs such as sowing, and therefore we will need to develop coding to expand the underlying system. As well as this, the app will need to be tested. Such costs will be more difficult to assess in advance.

Production material and labour costs

As a digital product, the app will have little if any material cost as it will be running on the farmer's phone. Once each phase of the app is complete, that phase will require very little development cost or additional cost to expand it for new customers, compared to the cost of producing a tractor with its embedded components for a customer.

However, the app will continue to develop to include other applications and more analysis for instance. Therefore, we will continue to need high-quality IT staff to develop the coding as well as testing. To obtain the most creative individuals, we are likely to have to pay a premium. Relatively speaking, the material and labour cost of the tractor components will be considerably higher. These will be the costs of buying in the components, any modifications required and the labour cost associated with fixing the components into the tractor.

Maintenance

Once the tractor with its embedded components is complete, unless there is a fault during the warranty period, we will not incur maintenance costs. This will not be the case for the app. Whilst maintenance costs will be minimal compared to development costs, they will still be incurred, and we will be responsible for them. Such maintenance costs may include:

- System management and update costs: These cover operational patches and upgrades to the underlying system to allow for greater system stability and more information processing as the number of applications increases.
- Infrastructure costs: These are costs to host, store and deliver data to the farmers, including, for instance, how much fuel is left and how long the tractor has been idle in each period.

Overheads

For the tractor and its components, the apportionment and absorption of production overheads can be subjective, and it can be difficult to achieve an accurate standard.

For the app, the types of ongoing costs we are likely to incur are:

- Functionality costs, such as for push notifications if information about the tractors progress needs to be forwarded to the end user.
- Data collection costs incurred in collecting data to assess how farmers use the app. This information will form the basis of updates and improvements.

For the software development team, the difficulty of absorbing overheads related to the team will be simpler if they are only working on this one project. It will get more complicated if they have multiple projects or roles developing different projects. Even then for development work on one or more apps or similar projects, there is unlikely to be a standard time attributable, meaning using standard costing would be inappropriate. Producing an app tends to be a one-off process, and therefore it may be useful to use job costing techniques in production.

Difficulties of budgeting for and controlling costs for the software development team

To measure costs effectively, we need to measure budgeted cost against actual cost and to measure outputs to ensure the team is effective and efficient when judged against appropriately measured costs and outputs.

To set a budget, we need to determine a standard. To do this, we will need to determine the stages of the project and what is required at each stage in terms of costs. As we have never completed such a project before, we will be reliant on our analysis and external sources of information; both of which may not be that accurate in the first instance.

We also need to be able to measure output, therefore we need again to determine what are effective controls which highlight important areas through, key performance indicators or variances, for instance. To be effective, we therefore need to have the correct KPIs to match objectives and to have standards set for variances at the correct level, both of which will be difficult to achieve in the first year.

Short-term financing

Our short-term cash requirements can be funded by either a bank overdraft, a bank loan or delaying supplier payments for a short period. Each have advantages and disadvantages and are best considered against each of the following factors:

Term: Whilst we currently expect the warehouse sale to only be delayed for 2 months, we are not yet certain of the time to completion. If the overdraft is chosen, this has a maximum term of 4 months which may not be sufficient time to allow the sale to complete. It may not then be possible to negotiate an additional period of credit. In contrast, the bank loan has a minimum loan period of 1 year which should be more than sufficient time for the sale to complete, but indeed, may actually be longer than needed. There is no set period we could delay the supplier payment; however, it is unlikely to be as long as 2 months and certainly not longer without affecting other deliveries from the supplier.

Cost: The costs for both the overdraft and the bank loan are made up of an arrangement fee and interest on the amount borrowed. The arrangement fee for the overdraft is approximately 50% of the arrangement fee for the loan, while the interest cost of the overdraft at 12.84% is far higher than that of the loan at 5.36%. The total cost for the overdraft will depend on how much is borrowed and over what period. Whilst the total cost for the loan will be the cost of the interest for the loan period plus the arrangement fee. Although delaying supplier payments from 44 days to 60 days will not have an interest cost as such, there is effectively a fee for this, as we will lose the 1% discount for payment within 45 days we normally achieve.

Non-financial costs: In respect of delaying payments to the supplier, there may also be non-financial costs in terms of the quality of the relationship with the supplier. This may have knock-on effects in terms of future contract negotiations and potentially continuity of delivery if payment delays continue over a longer period.

Security: Whilst it is not mentioned in the summary, both the bank overdraft and the bank loan may require security to be given by us to the lender and this should be considered in respect of any other lending which is currently secured on the company's assets.

Credit rating: Whilst additional borrowing is unlikely to influence our credit rating, delaying supplier payments may negatively affect this. Potentially leading to less favourable terms being granted by new suppliers.

Repayable on demand: Whilst a term loan gives confidence in the lending period, which, if the terms of repayment are met, is for a pre-agreed period. An overdraft is repayable on demand, which may lead to cashflow issues if the funding is withdrawn suddenly.

SECTION 2

Regression analysis on IT specialist salaries

The analysis

The regression trend line represents the trend in the value of IT specialist salaries over the period 2003 to 2023 inclusive and is represented by Y. The trend is the average position over time with any seasonal, cyclical or residual variations smoothed out. 30,000 represents the starting point for the trend. This would be the figure at the end of 2002, with a level of 34,605 in the first year which is 2003. Each successive year, according to the equation, would see the value of wages for IT specialists grow by 4,605.

The correlation co-efficient shows us the strength of the linear relationship between two variables, in this case, time and IT specialist wages. Correlation is always between -1 and +1. Where a correlation has a positive number, as it does here, then the relationship shows that as time increases then so will wages, which is not entirely unexpected. However, to call the relationship strong, it is expected that the correlation would be 0.8 or above. Therefore, the relationship we see here at 0.3, whilst positive, is very weak.

The co-efficient of determination can refine that even further by showing the proportion of the total variation in IT specialists wages which is explained by the regression equation. So, in this case, where the co-efficient of determination is 0.09 or 9%. This shows that only 9% of the variation in IT specialists wages is explained by time. Meaning 91% of the variation is explained by other factors.

How useful this information is for planning

The weak correlation of the relationship between time and IT specialists' salaries and the low level of explanation provided by the relationship between the two variables suggests using this regression line to estimate future levels of IT specialists' salaries will not be accurate or realistic.

This is not unexpected as we have simplified what are likely to be many complex factors which drive the growth in IT specialists' wages in real life to just one factor. Time is also highly unlikely to be the main cause of growth, with many other factors also affecting rates of pay such as supply of and demand for IT specialists and inflation rates among others. As well as this, we have assumed that there is a linear relationship between the two factors which may not be the case.

Extrapolating data to the future assumes that what has happened in the past is a reliable guide to the future. With this level of correlation, this is unlikely to be the case and therefore this information is unlikely to provide an accurate base for planning of costs.

Use of big data to estimate future IT specialist salaries

By forecasting IT specialist salaries, we are aiming to establish realistic assumptions for planning, feedforward and control. Big data gives us the opportunity to increase the amount of information we receive about IT specialists' salaries from both structured and unstructured data. Structured data includes areas such as IT industry salary reviews which is collated from answered questionnaires. Unstructured or open-source data, which can be captured passively, includes information posted for instance, on employment agency websites about job vacancies.

Benefits of using big data

Using these varied sources of information allows us to identify new trends, for instance, demand for IT specialists in certain parts of Teeland. It can also help us identify relationships between data sets which can help us build a more accurate picture of the movement in wage levels with inflation for instance. It may also forecast how wage levels may change in the future due to changes in behaviour, such as including the flexibility to work remotely in a package. This is helped by the fact that the data is captured in real time and therefore provides a more up-to-date picture of the situation on an ongoing basis.

Limitations to using big data

However, there are some limitations to using big data in forecasting. These revolve around the volume of data available, the speed at which data is received and the variety of data types available. In terms of salaries, huge volumes of data can be received from sources as diverse as government, academic analysis and other sources.

This can make it very difficult for a traditional system to assimilate the information into a meaningful form. We will also need to make sure we have the specialist skills to be able to accurately capture the information and to analyse it, so it is useful.

Having such huge quantities of data can also make it difficult to distinguish between "noise" and real trends which in turn makes it difficult to make accurate predictions.

It may be that despite the potential to access large amounts of data that a cost benefit analysis would show, information from a recruitment agent specialising in IT personnel or a trade association may be able to provide approximately equivalent information at less cost.

IAS 7: Statement of Cash Flows

The first main heading in the standard cashflow proforma is "cashflows from operating activities". This can be broken down into cash generated from operations, tax paid and interest paid. Cashflow generated from operations can be calculated using either the direct or the indirect method.

The indirect method

Here, profit before tax is taken from the statement of profit or loss and adjustments are made to convert income and expenses from the accruals basis to the cash basis, leaving only cash flows generated from operations.

Under this method, interest payable is not considered part of day-to-day operations and so the interest charged to the statement of profit or loss (T$79,810 in August) is added back to calculate the cash generated from operations.

The actual cashflow (which is T$112,356 in August) will then be included as part of cashflows from other operating activities.

The direct method

This method involves simply totaling cash inflows and deducting cash outflows in respect of operating activities. Such cash inflows and outflows will include cash payments to suppliers, cash receipts from customers for example.

As such, no interest payable is ever included in the cash generated from operations figure. Rather the payment of interest (which is T$112,356 in August), as with the indirect method, is included as part of cashflow from other operating activities.

SECTION 3

Key performance indicators

Performance metrics

This provides performance data which shows the apps technical performance, allowing issues such as slow loading, bugs, or other problems to be identified. Example KPIs can include:

Devices used and operating system speed: This metric displays which devices and operating systems are most used by our existing and potential customers, for example, whether they are using the app on a tablet, computer or different types of phones. Each device/operating system is calculated as a percentage of the total number of customers. Tracking this allows us to ensure our app works efficiently on the operating systems used by our customers and maintains operating system speed when starting and moving between screens. This improves the performance of our app, as it ensures performance quality is maximised for the highest number of customers.

Crash reports: The capabilities of operating systems differ and due to this, apps may crash on occasion. This metric is calculated as the number of crashes for each problem type. The number of crashes should be minimised. Tracking this allows us to ensure customers receive a stable service with the minimal requirement for triaging and troubleshooting in-app bugs.

Engagement

Engagement metrics characterise how users interact with the app and whether they like it or not. Example KPIs can include:

Stickiness ratio: This relates to the number of times the user logs into our app. It is the number of daily active users of the app as a percentage of the number of monthly numbers of active users. We are hoping that the app becomes a valued source of data and information for customers, leading to a dependence on the Tracs brand. Stickiness measures use of the app not only for day-to-day control of the tractor but for additional content which engages a user (for instance regular technical updates on the tractors, forums and so on). This will allow us to understand how the product is being adopted amongst target users and if it requires improvement.

Average screens per visit: This metric demonstrates the quality of the user experience design and its ability to engage users. The type of information a farmer may wish to review may include statistics such as kilometres covered by the tractor, fuel used and manual interventions. It is calculated by counting the number of screens viewed per visit. This allows us to track the number of visits per screen. If this is high, the app is considered to have a user-friendly design which encourages transition between screens. If the number is low or falling, this would suggest additional design requirements to enhance user interaction with the app.

Direct labour variances

Direct labour total variance

The direct labour total cost variance shows the impact of any overall change in the amount spent on labour used in developing the remote drive mechanism. This is calculated as the difference between the standard cost and the actual direct labour cost for the actual number of mechanisms produced in October. As this is T$3,150 favourable, we can see that the overall cost was lower than expected.

Direct labour efficiency

To produce an appropriate control to measure labour efficiency, we should only measure hours where it is possible for labour to be active, as this will give a more realistic reflection of the workforce. Therefore, it is important to remove the time that the labour force has been idle from the total hours paid. This will mean that the active hours give a more realistic reflection of the workforce while they have been working.

Idle time variance

This is recorded when no work is being completed and is always adverse as it is effectively time wasted. Here we can see that 45 hours of time was lost due to a delayed delivery of components leading to an adverse variance of T$2,700.

Efficiency variance

The direct labour efficiency variance examines whether more or less labour hours than the standard expected per unit were used. Here, there is a favourable variance of T$18,900, which shows that at standard rate we used less hours than expected to produce October remote-drive mechanisms. As we have had an idle period, this has been deducted from the actual hours so that the numbers better reflect actual hours worked. A deeper insight could be obtained if we had details of the time the supervisors are producing and the time they spent supervising.

Direct labour rate variance

The direct labour rate variance compares the standard and actual cost of labour for the actual number of remote drive units produced. In October, we can see that the rate variance was T$13,050 adverse. The introduction of more production supervisors, who are likely to be paid a higher rate of pay than production employees, as they can be used to both produce goods and supervise others, is likely to lead to an adverse variance.

Modification of variance analysis

The current analysis of the data gives little information for managers in relation to the direct labour costs on the remote-drive units' project. It would be better to judge the costs against a more realistic standard. This could be done by introducing planning and operational variances and calculating some additional variances.

Planning and operational variances

The most substantial of the variances is the labour efficiency variance which compares how long actual output should have taken per the standard and how long it did take. Even with 45 hours of idle time, there was a large favourable variance showing that the actual production was completed far faster than expected.

There are two possible reasons for this. One is that the original standard set for production of the remote-drive unit was incorrect, that is, the time allowed for production of one unit was too high. The other is that the introduction of additional supervisors, who can both supervise and produce, has improved the speed of the production team. This could have occurred as there were more managers to answer queries for instance. This would also tie in with the larger adverse rate variance, as it would be expected managers would be paid more.

Planning variances are seen as uncontrollable. They occur as incorrect standards are used for example potentially too high a number of hours to produce one remote-drive unit. Such incorrect standards occur as standards are set in advance of production and without the benefit of hindsight. Such variances, whilst not controllable by operational management, can provide useful information for future planning but should not be investigated on an operational level.

Operational variances, calculated on the revised standard, are then more useful in understanding the position of the team and their output in the month and whether the introduction of more supervisors did make a noticeable difference to production levels.

SECTION 4

Valuation of prototype tractor inventory

IAS 2 required that we value inventory at the lower of cost and net realisable value (NRV). Cost should include all costs of purchase, including taxes, transports and handling, net of trade discounts received. It should also include costs of conversion including labour, a share of fixed production overheads and variable production overheads plus other costs incurred in bringing the inventory to its present location and condition. NRV is the estimated selling price in the ordinary course of business less the estimated cost of completion and the estimated costs necessary to make the sale.

For the three tractors, the following should be considered:

Tractor 1: Whilst we have incurred costs of T$89,231 in producing this tractor, we are not able to sell it as it has not passed its safety test. In this case therefore, its value must be the lower net realisable value of T$20,000, which is its scrap value.

Tractor 2: Whilst the production costs of T$90,016 for the tractor are, at first glance, higher than the net realisable value of T$90,000 less selling and distribution costs of T$1,020, we need to remember that the abnormal cost of labour incurred due to machine breakdown should not be included in the cost. On this basis, the excess labour amount of T$9,354 needs to be deducted from the cost, meaning the tractor will be included in the financial statements at cost as the lower amount.

Tractor 3: Unlike the adjustment required for Tractor 2, the cost of the bespoke paint and leather seats does not have to be deducted from the total cost of this tractor, as they form part of the cost of conversion. The selling price of T$95,000 is after the cost of selling and distribution so they do not need to be deducted. Therefore, the tractor should be included in the financial statements at its cost of T$92,335.

Demonstration fleet decision

Member 1: risk seeker

Taking this stance means member 1 will look to achieve the best possible outcome however likely or unlikely it is to occur. They will therefore choose the outcome which generates the highest additional profit, which is T$302,500 for 25 tractors.

Member 2: risk neutral

As a risk neutral decision maker, member 2 will look at all the possible outcomes and will select the strategy which maximises the expected value. In this case, they will rank the supply of 15 tractors as first, as it leads to the highest expected value of T$171,250.

Member 3: risk averse

Risk averse decision makers try to avoid risk and prefer a lower but certain outcome over a higher uncertain pay off. This does not mean a risk averse decision maker will not take on additional risk, however, they will only do this if there is a reward for doing so. Member 3 will therefore look for the largest increase in reward per additional unit of risk. Therefore, they will use the co-efficient of variation to support their decisions, as this measure looks at the potential volatility of returns considering the size of the project. Using this method, member 3 will rank supplying 10 tractors as the best, as it has the lowest co-efficient of variation at 0%.

Why a decision will be difficult

Each member has their own views of the best tractor fleet size for the year. Reaching a consensus will be difficult as one or more members will have to change their point of view, through negotiation, to accommodate the other members.

This might be achieved by discussing the potential losses to be incurred if a preferred fleet size proves incorrect. For instance, member 1 wants to try to achieve the maximum return of T\$302,500, however, there is only a 0.07 probability of this occurring. In fact, a fleet of 25 has a chance of losses and a much-reduced additional profit. Being risk averse, member 3 would not agree to such a high possibility of losses/reduced contribution. It should also be pointed out that this would not be in shareholders' best interests either.

Considering the potential for losses using members 1's preferred course of action, it may be possible for member 3 and member 2 to come to an agreement. It may be possible, with persuasion, for member 3 to agree to member 2's figures in the hope that because there is a relatively high probability (0.9) of a contribution of T\$187,500, this potential excess return would be worth the risk of having a larger fleet size.

Limitations and factors to consider

Limitations

As a single number, expected value is simple to calculate and understand which helps in decision making, as well as considering risk through using probability. However, this use of probabilities has limitations. This is a new product and, as such, there is currently no long run average information as to demand to support the probability. Making the figures being used potentially subjective and inaccurate.

In addition, the expected value is one figure produced from several outcomes and may hide very wide-ranging results, as we can see in the figures for supplying 20 tractors to the show. Here, there is an expected value of T\$126,250, but this includes a high of T\$240,000 and a low of T\$(85,000). It may also be, as is the case for the expected values for 15, 20 and 25 tractors, that the expected value is not even a possible result.

Probabilities rely on long-term averages and therefore may not represent a particular outcome. However, taking this into account, they can be useful in highlighting risk. But we do need to be careful when we consider the fact that this is a new area for Tracs Europe and the source and reliability of the probabilities over a short period may not be reliable. This will also be the case for sales contribution and other estimates made in the figures.

All forecasts are based on underlying assumptions and the quality of these needs to be considered especially since we are looking at a new sales area.

It should also be remembered that an attitude to risk is not set. It can be that risk tolerance will change depending on the amount of money involved in the decision being made. With the sums involved in producing the demonstration fleet and the potential losses if the remote-drive tractor is not successful, this may lead to different attitudes to the available alternatives. Due to this, basing a decision solely on expected values can ignore the range of potential outcomes.

Factors to consider about paying for the ticket agency sales information

If we paid for the information, we would know the number of tickets sold before the event and this would increase the quality of the information we have and allow us to plan more efficiency for each event to maximise our additional profit. This would be because by using the information we could determine accurately how many tractors to send to each show and therefore potentially reduce the costs of transport and staffing.

By the time the information comes from the ticketing agency, most of the cost of the fleet has been incurred as the tractors have been built, so the only worth of the information is in terms of controlling variable costs of staffing and transport to the show. Even saving these costs would be problematic, as the potential for costs savings would depend on the size of fleet we agreed. For instance, if we have a fleet of 20 tractors, we could potentially save costs for attending medium and small shows as we would reduce the number of tractors taken.

But this assumes that staff attendance at such shows could be cancelled at short notice and without penalty. If we were using agency staff/ zero hours staff and third-party transporters, this may be possible to do. However, if we wish to have a quality customer experience, regular cancellation of work may not lead to this.

OPERATIONAL CASE STUDY

MAY 2023 & AUGUST 2023

EXAM ANSWERS

Variant 3

These answers have been provided by CIMA® for information purposes only. The answers created are indicative of a response that could be given by a good candidate. They are not to be considered exhaustive, and other appropriate relevant responses would receive credit.

CIMA will not accept challenges to these answers on the basis of academic judgement.

SECTION 1

How the different purposes of the sales budget may be affected by allowing the Sales Team to be involved in budget setting

Planning

By including the sales team in setting the budget, it should be more accurate, as the team will normally be familiar with the market. However, as both Donna and the market into which she will be selling are new, this will not be the case here. However, there is knowledge within the team, as both members (but Lionel in particular) have worked for the company for several years.

Communication

Ensuring that the sales team is aware of management's strategic goals as part of the budgeting process, through their discussions with Donna, should ensure that the whole team understand more clearly where the sales budget fits into the overall budget and organisational goals. This will be particularly important, as Cetland is a new market and both the SSM and her team are new to the market.

Motivation

By Donna including her team in setting the budgets, this should improve their motivation. This is because it allows staff to feel some control in respect of their role, which may encourage them to take personal ownership of the budget set.

Purposes of budgeting which may be distorted by participation of the SSM

Co-ordination

Whilst there are several benefits of including team members in budget setting, including a larger number of employees in the process will make coordinating all the information received more difficult. This will particularly be the case where some team members are based abroad like Calli Whent. This can slow down the overall process as we wait for consultations in different departments to take place. There may also be inaccuracies in the sales budget if the overall picture is not clearly communicated or understood.

Evaluation

It is possible that some slack may be built into the sales budget, especially where team members are used to exceeding budgets. However, it may be understandable that budgeted sales revenue could be slightly reduced, and budgeted costs overstated, as the members of the sales team are facing a new market in which to sell. However, including slack and making the sales budget more easily achievable will make performance evaluation more difficult for managers. For example, if the sales variance system only returns favourable variances, it will not be possible to identify what is going well in sales and where additional support may be required.

Authorisation

There may also be some disagreement as to who is responsible for certain costs within the sales team, so it is important only costs that team members are responsible for are used as part of the sales budget. For instance, making sales team members responsible for controlling their travel costs when travel must be booked through a central travel department would be demotivating. In contrast, making them responsible for the level of discount given to customers is in their control. Such cost oversight can be motivational for some team members as it increases their control, however, for others, they will prefer not to be involved in the process.

Ethical aspects of budgetary control to be considered

Budgetary control needs to find an ethical balance which motivates and produces optimal performance without creating conflicts of interest and the improper allocation of resources.

Overstate results

When reporting results, it is important to ensure that these are not overstated. Donna has a new team with some members, such as Lionel Gray who appear to exceed targets, whilst Calli Whent did not meet her previous year's sales target. It is important that neither member overstates their results in a bid to achieve or exceed bonus targets for tractors sold, as this will give false information to other stakeholders.

Short term versus long-term performance

It is important that, whilst looking to maximise sales performance, a long-term view is taken by the team. Whilst it might seem attractive to discount products, within the teams' authorised limits (of 1% and 5%) to encourage sales and reach target volumes, this might not be in the best interest of the brand in the long term, as it may devalue our tractors in the eyes of the customers.

Unethical practices

To meet or exceed a sales target, it may be that a member of the team uses aggressive sales tactics on a potential customer such as over representing product features to secure the sale. This would be damaging to the company's brand in a new market.

Management by exception

It is important to remember that if management is carried out by exceptional sales team members who achieve close to their expected targets, they may feel they only receive limited attention, as effort and review will be targeted at those teams who are failing by an unusual margin to achieve targets. This can lead to motivational issues within the team.

Control of costs

It can be that the team will face moves from other areas to widen accountability for costs. For instance, in respect of the travel costs, where there may be efforts to make sales team members responsible for controlling travel expenses but where staff have to book travel using a central department. Therefore, having no control over the cost of travel. In such cases, this may lead to a loss of trust in the process for sales team members.

SECTION 2

The issues around legal status and taxation to consider when setting up the new Cetland operation as a branch or subsidiary

Whilst we may have sold to Cetland from our Teeland premises, without a physical presence in Cetland, by deciding to have a branch or subsidiary we have decided to have a physical presence and therefore it is deemed to be a permanent establishment for tax purposes.

Legal status

As a branch, the Cetland operation will be treated as an extension of the existing company whereas, as a subsidiary. it will be treated as a separate legal entity. The effect of this is that, as a branch, all profits will be subject to corporation tax at the Cetland rate of 27% but will also be taxed in Teeland at the rate of 30%. This is because Tracs Europe effectively has a permanent establishment in Cetland, but the company is resident in Teeland. However, as this is effectively double taxing the same profit and there is a double taxation relief agreement in place between Cetland and Teeland, any corporation tax paid in Cetland will be deducted from the liability due in Teeland as the tax credits method is used.

Taxation

If the Cetland operation is set up as a separate legal entity/ subsidiary of Tracs Europe, the subsidiary will pay corporation tax at 27%, the Cetland tax rate. Tracs Europe, however, will only pay tax on income received from the subsidiary. This could be in the form of dividends, interest or royalty payments. The tax implications of transferring income in each of these ways would have to be assessed to find which would be the most tax effective. Tracs Europe will not pay corporation tax on the subsidiary's profit.

Initial measurement of lease liability and right-of-use asset:

The lease contract gives the right-of-use of the transporter for 3 years in exchange for the lease payments. So, at the commencement of the lease, we, as the lessee should recognise the lease liability and a right-of-use asset.

Lease Liability

The initial measurement of the lease liability is the present value of lease payments which have not yet been paid. This is calculated by multiplying the lease payments of T$45,526 a year with discount factors at the interest rate implicit in the lease (12.3%) to obtain the present value. The present value should not include the option for Tracs Europe to buy the lorry at the end of the lease period, as this is unlikely to be taken up.

The right-of-use asset:

The right-of-use asset is initially recognised at cost in the Statement of financial position. Cost will include the amount of the initial lease liability. It will also include any payments made before the commencement date such as the T$2,000 payment to the agent who arranged the lease. This would be included as it is a direct cost of obtaining the lease. Any estimated costs of removing the asset at the end of the lease period, in this case the fee of T$3,500 due to collect and inspect the transporter, should also be included.

Determining marketing mix

Decision criteria

Maximax criterion

The maximax criterion is where the decision maker takes an optimistic approach. They will do this by selecting the option which maximises the maximum pay off achievable. Therefore, we would be looking at the marketing mix which generates the highest contribution, which is mix C at T$39,464,000.

Maximin criterion

Under this criterion, we would select the option which maximises the minimum pay off achievable. We do this by comparing the minimum contribution for each marketing mix. So, for A, this would be T$11,982,000; for B, it would be T$9,289,000 and for C, T$15,139,000. We then choose the highest of those three figures, which would be marketing mix C.

Minimax regret criterion

The regret matrix, which forms the basis of the decisions made, is calculated by considering the returns under each set of market conditions. So, for market condition 1, marketing mix B produces the highest net contribution. The difference between the contribution for B and the contributions for marketing mixes A and C is then calculated. This calculation is repeated for each set of market conditions and the figures are then used to make the decision according to the criteria.

Using this criterion, we are looking to minimise the maximum regret under the alternative selected. This is because we are looking to minimise the effect of making a bad decision. With regret here, being the opportunity loss from the wrong decision. Again, this is a pessimistic approach to the decision being made.

To achieve this, instead of looking at Table 3, we would look at Table 4, which shows the regret in terms of contribution for each marketing mix. In this table, we will look at each column and compare the highest amount in each. So, for marketing mix A, it would be T$27,482,000; B, T$ 30,175,000 and C, T$8,085,000. We would then choose the lowest of the three, which would be C.

As all decision criteria would choose C, then consideration of the other factors involved will be necessary to ensure that the best alternative would be chosen.

Other factors to consider

Other factors to consider may include the availability of finance to customers, which may be a factor in determining demand. Whether as a company we will be able to meet the additional production requirements generated by demand in the new Cetland market.

When deciding our price point within the market, we will need to consider how the price may be perceived in the market by both customers and competition. For example, for customers, too low a price may lead to the Tracs brand and products being seen an inferior good. Too high a price and we won't be seen as value for money in comparison to competitor products. In addition, we also need to consider our place in the market, as competition will respond to our entry in the market, and we would not want to spark an unwanted price war.

SECTION 3

How profit is calculated using marginal and absorption costing

Marginal and absorption costing treat fixed production overheads differently, which leads to different profit figures being calculated.

Absorption costing will look to determine a full production cost per unit for each type of tractor in the A++ range. This production cost will include all variable production costs of raw materials, direct labour and variable overhead as well as an amount of fixed production overhead costs which is absorbed based on both the budgeted level of overhead and the budgeted level of activity. The measure of activity is based on the most appropriate method using the characteristics of the overhead and the production department.

Under absorption costing, gross profit is calculated as being sales less cost of goods sold where cost of goods sold includes fixed production overheads. The fixed production overheads are absorbed by each tractor based on a pre-determined overhead absorption rate. The profit figure is adjusted by any under or over absorbed overhead. Under/over absorption is calculated by comparing the overheads absorbed to the actual overheads. Seeing that expenditure was higher than anticipated but production was lower would suggest that we have under absorbed. From this gross profit, non-production costs (both fixed and variable), such as selling and administration, are deducted to obtain profit.

Marginal costing on the other hand focusses on the variable costs of production, so for instance, direct labour, materials and variable overhead to produce a contribution figure. From this contribution figure, the actual fixed costs for production for the period and non-production costs are deducted to lead to a net profit.

Why marginal costing profit may be lower than absorption costing in the short term

The major difference between marginal and absorption costing is in how they value each unit of production (and therefore inventory). Marginal costing values each unit produced at the marginal production cost. For example, this would be T$56,644 for the Basic model. With absorption costing, inventory is valued at full production cost and as such includes fixed production overheads. Each unit of production (and therefore inventory) will absorb fixed overheads at the standard rates. When using absorption costing, the value of a Basic tractor will be T$70,736. Inventory will therefore carry some of the fixed production overheads for this period into the next period (T$14,092 for each Basic tractor).

When inventory is increasing, like it has done in September, the value of fixed production overhead taken into October will be greater than the value brought forward from August into this period. Therefore, when inventory is rising, more fixed production overhead costs are carried forward and consequently less are charged this period. Jack Newman's view is incorrect. If we switched to marginal costing for September, the profit would be lower.

Profit in the long term

In the long term, the total reported profit will be the same whichever method is used. This is because all the costs incurred will eventually be charged against sales. It is merely the different timing of the sales and production volumes which causes the differences from period to period.

<u>Why our current system of absorption costing may be of little use for decision making and how ABC could help us make better short-term decisions.</u>

Absorption costing versus ABC costing

With absorption costing, the way in which overheads are apportioned between cost centres and absorbed into tractor production costs is subjective, which means they will not reflect the underlying reasons they are incurred. Also using absorption costing means that because overheads are treated as a fixed amount to be spread over the number of tractors produced.

Rather than using the number of tractors produced to absorb overhead, ABC looks to allocate overheads to cost pools, before absorbing them using cost drivers. A cost pool is a collection of costs which have the same cost driver. This cost pool is then allocated using a cost driver, which means costs are allocated using a factor which affects the amount of the cost. We have therefore established a direct relationship between costs and the activities which cause them. Therefore, what were previously thought to be fixed costs are now viewed as being variable with a relationship to the cost driver.

ABC attempts to treat overheads as variable or short-term cost, allowing costs to be allocated where they are used/relate to a task. This makes the cost more relevant to the decisions being taken, as they are treated in a way which is similar to how cashflows are used in short-term decision making.

Making better decisions with ABC costing

Decision making involved the identification of relevant costs. Relevant costs must satisfy three conditions simultaneously. They must be cash, future and arise because of the decision. Under traditional absorption costing, fixed costs and particularly the fixed production overhead absorption rate were viewed as irrelevant for short-term decision making because the fixed costs were viewed as being fixed over a given period and the overhead absorption rate was based on budgets and not incremental cashflows.

With ABC, we have converted our traditional view of fixed costs as being fixed into them being variable in terms of the activities that drive those costs. As such, just like other variable cost, they will become relevant for short-term decisions. For example, Donna might want to know the lowest price she could charge as a special one-off deal. Under traditional absorption costing, she would not include any fixed costs, whereas an activity-based costing analysis could show that some of those costs are in fact variable and therefore relevant. In this case, Donna could have price the deal too low.

This principle also applies to long-term costing and pricing issues, whereby the identification of direct links between activities and costs as opposed to subjective apportionments will lead to differing costs and possibly therefore prices for tractors, customers and markets.

The increased realism of costs will enable Donna and her team to target customers who appeared unprofitable using absorption costing but profitable using ABC. It will also stop them targeting customers or market segments which now show low or negative profit margins.

Sales team performance KPIs

Sales value per employee

Monthly sales value per sales team member can establish a sales baseline and assist in setting personal goals in performance reviews. This will be important in developing the new team as will the fact that it can also help to identify strengths and areas of development for each team member. It is calculated by totalling the sales values attributable as a specific sales team member in a specific market.

However, we need to be careful this metric doesn't develop into a culture of competition. Rather, it should be used as a performance metric per employee in conjunction with other KPIs to ensure a positive interpretation of sales performance in Cetland and other areas. For example, whilst one employee may achieve a higher value of sales, the level of contribution generated may be lower due to the mix of products sold.

Contact to customer conversion rate

This KPI tracks the number of initial contacts by each member of the sale team, e.g., by phone, trade shows etc. which lead to a sale. It would be useful to have a KPI which tracks the number of customer contacts which are then converted to sales. This can then be used to show how well each team member is growing the number of customer relationships in the new market.

Average revenue per customer

Here, we are looking at the average revenue generated by each sales team member. This is calculated by dividing monthly revenue by the number of customers. A rising trend can suggest several things. For instance, that the salesperson is managing to sell higher value items to customers. Also, it could signal multiple sales to a customer which may indicate we are attracting larger businesses in the new market as the team members become more established. This is important as increasing sales per customer will meet the sales goals of the team and multiple orders per customer should reduce some costs of selling tractors to Cetland such as transport, thereby increasing contribution levels.

Average sales cycle length

Sales cycle is the number of days between the first contact with a customer and the deal being agreed by signing a contract. This will include stages such as producing a proposal/ specification and negotiation as well as deal closure. This KPI is calculated by totalling the number of days each sales take and dividing the total number of days by the number of sales for each sales team member. The KPI is measured in days. To maximise the number of sales each team member can complete, it is important to ensure that the average sales cycle length is minimised.

SECTION 4

Sales variances for A++ Power tractors in Cetland in November 2023

Sales price variance

The sales price variance is calculated as the actual selling price less the budgeted selling price multiplied by the actual sales volume. Here, there are adverse price variances of T$24,000 and T$96,000 for both the Basic and Premium A++ Power tractors, respectively. This means we have sold the tractors at a lower average price than budgeted and is likely due to the price discount given on the range. The Regular tractor, however, does not have an adverse price variance, suggesting that prices have held up for this model. This could be because it has a feature for which customers are willing to pay more. It may also be the case that the Basic and Premium tractors in this power range may be unsuitable for this market, which has meant that to gain potential customers, a discount has had to be offered.

Sales volume profit variance

Sales volume is a measure of the effect on profit of not achieving budgeted sales, as it is the difference between actual and budgeted sales at standard profit. This shows a favourable variance for the Basic model of T$58,529 and adverse variances of T$242,216A and T$157,995 for the Regular and Premium models. Where we have seen an adverse variance, this may be due to the introduction of additional safety checks on imported tractors by the Cetland government delaying delivery of tractors to customers. However, it may also suggest that the sales team has been unsuccessful in November.

Sales mix profit variance

The sales mix profit variance is calculated as the difference between actual sales at the budgeted mix and the actual sales at the actual mix, multiplied by the standard profit per unit. Despite the discount given, only the Basic model of the A++ range showed a favourable variance of T$94,217. This suggests a higher proportion of the Basic model have been sold, which could be in part due to the discount. However, this could also be because the Basic model was used as part of the celebrity reality farming TV show which had very high viewing figures. Despite the discount, both the regular and premium ranges had large adverse variances; however, there is no information which confirms why this occurred whether this may be due to price, suitability for the market or other brand loyalty.

The difference between the total volume and the total mix is the sales quantity variance. This is the difference in between the actual sales volume at the budgeted mix and the budgeted sales volume, multiplied by the standard profit per unit.

Three techniques the Cetland sales team could use to collect outstanding accounts receivable and the factors to consider when using each of these

The longer a debt is allowed to remain outstanding, the more likely that debt is to remain unpaid. Bearing this in mind, it is important to have a series of follow-up procedures available, although we should consider that there is a risk of offending a valued customer with such processes to the extent that their business is lost.

Telephone calls

These can be an efficient way of being proactive about debt collection by confirming that payment will be made by a customer on the due date. Where this is found not to be the case, then action can be taken to resolve any issues e.g., disputes through resolving quality problems or issuing credit notes for instance.

Withholding future products

Whilst putting customers on a "stop" may work for some types of industry, the capital nature of our products means that it is likely to only work for very large customers, as tractors will tend to be one-off purchase which are not often repeated.

Legal action

Where no other method has been successful as a last resort, it may be possible to take the customer to court in Cetland to try to recover the outstanding amount. However, this would be subject to the laws of Cetland which would need to investigate and is more likely to be undertaken by a specialist member of staff or a solicitor.

Decision tree

The decision tree allows us to break down the decision process regarding who will lead the Cetland sales team temporarily whilst a permanent replacement for Donna March is recruited. The complexity of the decision comes from the different combination of ideas. So, we can choose to either recruit a temporary SSM from an external agency or we can follow an internal path where we either use the existing Senior Sales Manager in Teeland and ask them to manage both the Cetland and Teeland teams or we leave the Cetland team with no manager.

Working through the tree from right to left, we come to the circle, EV1. EV's show probability points, where there are issues outside of our control. To the right of the EV circles are the estimated contribution levels which may occur (shown on the arrows) Here, we can where a temporary SSM is put in place there is 0.65 probability high sales will occur and 0.35 probability sales will be low.

The potential contribution earned at the end of a series of decisions is shown in the end column, with a contribution of T$5 million earned if sales are high and only T$3 million if sales are low. Contributions are rolled back from right to left through the tree and the costs of actions (which are shown as negative figures on the arrows) are

netted off to enable us to make the best decision at each decision point, from a financial perspective based on the expected values generated.

All EV points are calculated by totalling the sales outcomes multiplied by their probabilities, so for EV1 this would be:

$$(T\$5,000,000 \times 0.65) + (T\$3,000,000 \times 0.35)$$

The same calculation would also be undertaken to generate expected values of EV2 and EV3. The squares on a decision tree show places where we can make decisions which will influence the next steps. Here, there are two decisions, D2 where we decide between EV2 and EV3 and then D1 where we decide between EV1 and the outcome of the decision at D2.

The decision at D2 would choose between EV2 and EV3. EV2 represents the position where no interim manager oversees the sales team. This generates an expected value of T$3,250,000. EV3 represents an existing Teeland sales team manager taking control of the sales team in Cetland on a temporary basis. This generates an expected value of T$3,965,000 (T$4,050,000 less T$85,000). The T$85,000 represents the cost of the Teeland manager taking control of the Cetland sales team. From this comparison, the highest value would be chosen, which, here, is the value for EV3 where a Teeland sales manager takes control of the Cetland sales team.

At D1, the EV3 value of $3,965,000 would then be compared to the value from EV1 of T$4,300,000 less the T$80,000 cost of recruiting an interim manager. This gives a value of T$4,220,000. So, we would make the final decision that we should recruit a temporary Senior Sales Manager to manage the team, as this decision generates the highest expected contribution of T$4,220,000.

Three issues which are not covered by a financial appraisal of the situation

Whilst the decision tree clearly sets out financial decisions, there are a number of non-financial factors which should be considered.

Concentration on high value clients

The T$ value of sales is highest for the team where they are not supervised. This could suggest that the team may concentrate on the high-value customers, those perhaps seen as "easy pickings" which may lead to a concentration of earnings issue around a few major customers. If this situation is only expected to occur for a short period of time, it may not lead to diversification of sales issues, however, it should be considered if there is an extended period before a permanent replacement is found.

Internal Promotion

The idea of an internal promotion, even on a temporary basis, does not appear to have been considered, with an existing sales manager being drafted in to cover two teams while there is a replacement found. In relation to morale, it could be more beneficial to promote internally within the team. As well as this, the team would have specialist

knowledge of the market and customers which cannot be replicated even by a manager from another Tracs team.

External appointee

The cost of the external appointee is T$5,000 less than the costs associated with the internal appointment of an existing sales manager. Whilst the costs for the internal sales manager option may include the costs of transport to and from Cetland etc., it should be considered that the costs given by the recruitment agency will not represent a candidate of sufficient quality, especially since they will have to assimilate a lot of market knowledge in a short period of time to be effective.

OPERATIONAL CASE STUDY

MAY 2023 & AUGUST 2023

EXAM ANSWERS

Variant 4

SECTION 1

What Chart 1 shows us

The data points joining the solid lines on Chart 1 are actual sales of mini-tractors in Europe each quarter, from January - March 2019 to October - December 2022 (so, 4 years of data). This is known as a time series (a series of data recorded over a period of time) and, based on these data points, we can establish that seasonality affects sales. In each year, sales are highest in quarter two (April to June) and lowest in quarter four (October to December). Given that mini-tractors are used for landscaping and grass cutting as well as light agricultural activities, this is not surprising given that these activities are more likely to occur in the warmer spring and summer months. Whilst seasonality is clear, it is less obvious from the actual sales data whether there has been an upward or a downward trend in sales, which is why a centred 4-point moving average has been calculated and plotted.

The data points joining the dotted line are the centred 4-point moving averages based on the actual sales data. This is the rolling average, across the period of the actual sales data, of successive groups of four data points, with the first average shown in quarter 3 2019, and the last average quarter 2 2022. This 4-point moving average line gives us an indication of the trend in sales. From Chart 1, we can see that there appears to be a slight downward trend at the start of the period, but an upward trend towards the end of the period. This could correspond with the launch of the first electrically powered mini-tractors in late 2021.

Trend line and seasonal variations

To determine a trend line, we can use either the original data or the 4-point moving average. Given the latter has been calculated to lessen the immediate impact of

seasonal variations it is advisable to use it to calculate the trend line. The most accurate method of determining the trend line is to use least squares regression analysis. With this approach, mathematical formulae are used to establish the equation of the line of best fit for the data. The trend line will be represented by $y = a + bx$ where y is the forecast sales volume, a is sales in the base period, b is the constant amount that sales increase or decrease by each quarter and x is the period number.

A major difficulty with using this data is that there appears to be different trends across the period: there is initially a decline in the 4-point moving average with growth from period 11 onwards. If we use all of the data reflected in the chart to determine a trend line, it may possibly understate the rate of growth expected in 2023 and beyond. Even if we focused on only the later period and ignored the initial downward trend, there would give us insufficient data to establish whether the growth trend will continue into the future. In addition, the slope of the centred 4-point moving average line between period 13 and 14 is less than the slopes between periods 11, 12 and 13, therefore determining what the trend will be in the future is very difficult.

Assuming that we can establish a suitable trend line, the next stage is to calculate any seasonal variations which can be determined by comparing the actual time series data read from the chart with the trend. For each quarter, the seasonal variation is the difference between the trend line value and the actual historical value for the same period.

The seasonal variations do appear quite marked, with the second quarter consistently having the highest sales and the fourth quarter of each year consistency having the lowest sales. Given the large season fluctuations in demand, it is likely that the pattern will continue and hence there is a need to calculate seasonal variations from the trend line. However, because of the relatively short time span covered by the chart and changes to the pattern of each quarters relative sales over the period, any seasonal variations may not be that accurate.

Validity of E-Trac sales forecast

We would use the trend line and seasonal variations by extrapolating onwards from the period in the chart to determine forecast total sales of mini-tractors across Europe for each quarter, starting from October 2023. From this, we could then produce our E-Trac sales forecast based on the percentage market share we would expect to capture.

There are a number of issues which limit the validity of an E-Trac sales forecast produced in this way:

- Cyclical and random factors would be ignored. These include general economic factors or one-off events (such as changes in legislation for diesel engines, a global recession or a major natural disaster). However, given that the time series contains only four years of sales data, it would be very difficult to determine what these might be.

- The data being used is for all types of mini-tractor and not just for electrically-powered versions. Whilst we might expect some degree of substitution between diesel and electrical power, too little time has elapsed since the first electrically-powered mini-tractors were launched on the market to determine how much this is the case.
- Estimating our market share will be a best guess. This is the first mini-tractor that we have ever developed. We will be competing with specialist landscaping and grass cutting equipment manufacturers and whilst we have a strong brand name for our agricultural tractors, it may take a while to build brand presence in this more specific market.

Receivables management

Impact on the management of our receivables

Selling to these retailers will have a direct administrative impact on the workload of the sales and credit control teams. Each potential retailer will need to have their creditworthiness checked by the credit control team once accepted, and we will need to set credit limits and monitor payments received against these credit limits. In addition, the sales team will need to develop and maintain relationships with the retailers to ensure that payment is received. There is a risk that our existing teams are unable to deal with this increased workload.

Another impact of selling to retailers is that there is an increased risk of late payment and irrecoverable debts. Currently, because of the strong relationships that the sales teams have developed with our dealers, our receivables are paid on time. Taking on between 25 to 40 new retailers, where there are currently no relationships, significantly increases the risk that either payments are received after the credit period or not received at all because the retailers go out of business.

Ways to mitigate any additional risk

We will need to ensure that we have sufficient employees in both the sales and credit control teams and to manage the increase in workload. We need to ensure that we have adequately trained credit controllers in place to deal with the acceptance and monitoring of the new retailers.

We need to ensure that we only accept new retailers which are creditworthy by performing robust creditworthiness checks. We should look at the financial health of each potential retailer by reviewing financial statements, looking at press information and possibly also obtaining a credit reference from an independent agency. We also need to ensure that we set reasonable credit terms (both in terms of the amount we are prepared to sell to them on credit and the length of time given to pay). This should be based on the assessment of their creditworthiness.

We need to have robust credit control procedures in place which ensure that invoices are accurately processed in a timely manner and that aged receivables reports are prepared and monitored so that outstanding debts are chased up as required.

SECTION 2

<u>Suitability of activity based costing (ABC)</u>

It has been suggested that facility-wide rates based on robot hours should be used to absorb variable and fixed production overhead. If we were to use ABC in the E-Trac Production Facility, we will need to undertake a detailed analysis of all production activities to identify activities and the costs they drive. Costs that have the same driver can be grouped into a common cost pool and the costs of that pool would be absorbed into products by using the cost driver. For the new facility to be suitable as a pilot for the use of ABC, we need to be confident that the use of ABC will result in a fairer or more accurate absorption of production overheads into products and be of significance. Therefore, we need to consider the situations where ABC is beneficial and how these apply to our new facility.

ABC is typically beneficial where:	Application to the E-Trac Production Facility
Products are tailored to customer specifications or there is a wide range of products	There will be three models in the E-Trac range. Each model has a standard specification and therefore is not tailored to customer specification. In addition, whilst there are three different E-Trac models, there are a lot of similarities between the models which indicate that there is not a wide range of products.
	For example, each model will require a similar number of parts and components to be assembled. These will take different amounts of time to assemble, but the assembly processes are the same for each model. Therefore, ABC is unlikely to give us a significantly different allocation of the resources consumed (such as power and indirect labour) compared to the approach suggested of absorbing overheads on the basis of robot hours.
The production process is complex	E-Trac models will be assembled on a single assembly line and each model will follow the same processes, in the same order as each unit is moved along the line. Most of the assembly processes will be automated and will be performed by robots, whilst others will be manual, but the process is likely to be reasonably consistent across the different models given that each model has a similar number of parts and components to be assembled.
	Given production is scheduled each day for an individual model at the start of each day, and each model takes a different amount of time to assemble, this would indicate that production batch sizes between set ups will be different. Assuming that set up uses the same resources each time regardless of the model, this means that the

	model that takes the longest to assemble (and therefore will have the smallest batch size) should take a greater proportion of set up costs, compared to the model that takes the least time to assemble and therefore has the largest batch size. This would also be the case if robot hours were used: a unit of the model that takes the longest time to assemble will absorb a greater amount of set up cost than a unit of the model which takes the least time. Indeed, if production time is the same each day, both methods would give the same result. Therefore, even for set up costs, using ABC will not make a difference to the way that these costs are shared out.
Indirect costs of production are high relative to the direct costs of production	Our indirect costs of production are variable and fixed production overheads, which in the main Production Facility budget for the year ending 31 December 2023 are just under 32% of total production cost. The same budget shows that over 62% of total production cost is raw materials, parts and components. Whilst we do not have budgets yet for the new facility, we know that we will be buying in all parts and component (rather than for example, making engines from scratch) and therefore it's possible that the percentage of direct costs will be even higher than for the main facility. It is therefore questionable whether the relative importance of overhead cost to total production cost is going to be high enough to warrant the use of ABC.

Overall, given the similarities in the models, similarities in the processes involved and a relatively low level of overhead as a proportion of total production cost, it would appear that the new E-Trac Production Facility is unlikely to be suitable as a pilot for the use of ABC.

Benefits of using a digital costing system

One benefit of using a digital costing system is that standards would be updated regularly, rather than on an annual basis. Therefore, standards would continuously reflect the current prices for the various E-Trac inputs (such as engines and body panels) and also reflect up-to-date operations (such as time taken to assemble a model). Having up-to-date standards means that E-Trac production managers would be aware of the current operating environment and should act accordingly in terms of operating decisions.

Having up-to-date standards would also lead to more meaningful variance analysis. There should be no planning variances and any operational variances would arise because a manager is not acting in accordance with the current environment. This will be particularly important in the E-Trac Production Facility because it is new.

Our initial assessments of how long a process on the assembly line will take, and therefore our initial standards, may not be reflective of the reality once production starts. There are likely to be unforeseen snags or bottlenecks which result in our initial standards not reflecting the reality of operations.

A digital costing system would also allow us to better understand the factors or activities that drive cost, particularly overheads. It would give us information that allow us to see where cost was being incurred (for example, power consumption of the robots on the line or the number of set ups used) and therefore where focus should be directed in managing cost.

Finally, sourcing suppliers and supplies could be improved because we would be able to identify the best price or the best lead times available. Having readily-available information about prices and lead times would assist the procurement decision process and could allow us to take an aggressive approach and to therefore reduce costs of holding inventory.

Accounting treatment of the equipment asset

Lease

If the equipment is leased, we will need to record a right-of-use asset as part of non-current assets in the statement of financial position. This will be initially recorded at the initial measurement value of the liability plus any lease payment made at the start of the lease plus any lease arrangement fee. The initial measurement value of the liability is the present value of the lease payments that are unpaid at the commencement of the lease, and which are due over the lease term.

IFRS 16 defines the lease term as the period of non-cancellable payments plus any optional period if the option is reasonably certain of being exercised. For this lease, there is an initial lease term of 5 years and an option to extend the lease term for a further 4 years. However, because we do not expect to exercise that option and extend the term, the lease term for this lease is 5 years. Therefore, the right-of-use asset will be initially recorded at T$100,000 (initial lease payment) + present value of the further four payments of T$100,000 commencing on 1 August 2024 + T$8,000 (lease arrangement fee). The payments of T$20,000 a year in the optional period are ignored.

The right-of-use asset will need to be depreciated in line with the principles of IAS 16: Property, Plant and Equipment. Because the lessor will own the equipment at the end of the lease term, the depreciation period will be the lower of the lease term and the useful life of the asset and therefore 5 years. For the year ending 31 December 2023, this will result in 3 months of depreciation being charged to profit or loss with the initial value of the right-of-use asset reduced by the depreciation. Depreciation will be 3 months because depreciation only starts when the equipment is available for use.

Purchase outright

If the equipment is purchased outright, we will still recognise an asset, although this will be included as part of property, plant and equipment within non-current assets in the statement of financial position, rather than a separate category of asset. This asset will initially be recorded at cost, which is purchase price (T$450,000) plus any costs which are directly attributable to getting the asset ready for its intended use. This will include the delivery costs of T$4,000 and the installation costs of T$15,000, because without these expenditures the equipment will not be ready for use. The initial value of the asset will therefore be different compared to leasing.

The equipment will be depreciated over its useful life to the company. Given that we expect to use the equipment for 5 years and then sell it (presumably to then upgrade the equipment), its useful life is this 5 years. We ignore the fact that the equipment itself has a useful life of 9 years and instead focus on the period that the company expects to derive utility from the asset. The annual depreciation on a straight-line basis will be calculated as initial cost less residual value of T$150,000 divided by 5. However, in line with the treatment for the lease, only 3 months' worth of depreciation will be charged for the year ending 31 December 2023 to reflect the fact that the equipment will be available for use from 1 October 2023.

SECTION 3

Variances for the E-Trac Production Facility

Raw material variances

The raw materials price variance is T$576,929 favourable, which means that in total we paid less for the parts and components purchased compared to what we expected based on our standard prices. The supplier of seat units and control panels was changed during the period because of quality issues with the previous supplier. Possibly the new suppliers charge us lower prices than the original suppliers. Alternatively, perhaps we took advantage of bulk purchase discounts that we weren't expecting.

The raw materials usage variance is T$446,121 adverse, which means that we used more parts and components than we should have (based on our standard) to create actual production of finished E-Trac models. At the start of the period, there were issues with some of the robots on the assembly line damaging parts. From the KPI information in Table 2, we can see that, in October and November, the % of scrapped parts and components due to production issues was significantly above target. Therefore, it's highly possible that the damaged parts had to be scrapped. The level of scrap in December is still running above target and therefore it's possible that there are some smaller issues with the set-up of the robots still to be resolved.

Direct labour variances

The direct labour rate variance is T$240,000 adverse, which means that, on average, we paid more per hour than we expected to, based on our standard. We had to employ new people during the period as a result of losing some of the workers that we had initially recruited to a competitor car assembly plant. To attract new workers, we probably needed to increase the hourly rate offered, which may have also led to unplanned increases for our existing workers.

The direct labour idle time variance is T$125,000 adverse, which means that we paid our direct employees for hours where they were not being productive. The shut-down of the assembly line for recalibration of the robots (reflected in the robot idle time KPI in Table 2) will have resulted in direct labour idle time. It's also possible that the bottlenecks in production arising from delayed receipt of components resulted in direct labour idle time. Table 2 shows that, in November, the percentage of parts and components delivered on time from suppliers was significantly lower than target, despite being slightly above target the month before. Possibly new suppliers were keen to please in the first month but were affected by external factors in the second month. It would appear that the delivery situation has now improved given that December is almost in line with the target.

The direct labour efficiency variance is T$138,226 adverse, which means that our direct employees took more productive time than we expected them to, based on our standard, for finished production of E-Trac models. We had to employ new workers during the period and its possible that these workers were initially slow to complete their work as they learnt the processes. Additionally, the assembly line has been slowed down as a result of initial issues, and therefore this will result in the direct employees working at a slower rate. To counter these effects, the seat units and control panels from the new suppliers are easier to fit, which would have a favourable impact on this variance.

Variable overhead variances

The variable overhead expenditure variance is T$164,160 adverse, which means that we spent more on variable production overhead for the assembly line than we should have for the robot hours worked. One likely reason for this is the additional overtime and overtime premiums that had to be paid to the indirect and direct employees to catch up following the various issues during the period. It's also possible that there have been unforeseen increases in some of the variable production costs such as power.

The variable overhead efficiency variance is T$77,961 adverse, which means that it took more productive robot hours than standard to assemble our finished E-Trac models. One possible reason for this is that some of the robots were recalibrated in the period, resulting in them operating at a slightly slower rate. If this is a permanent change in operating speed, we need to amend our standard for robot hours. As shown in the KPI dashboard, there was significant robot idle time during November due to the line shut down. This is not captured within the variable overhead efficiency variance given that this is based on productive hours only and hence the KPI gives us additional information.

Benefits of a real-time KPI dashboard

A key benefit of a KPI dashboard is that it will use graphics (charts and diagrams) to visually represent data. Rather than show a single measure per month as seen in Table 2, in a dashboard, much more data underpinning the measure can be shown through graphics. For example, the % of scrap measure could be represented with a pie chart to show the various production issues giving rise to the scrap. This gives more detailed information that will be easy to interpret by financial and non-financial managers alike and will allow the relevant managers to be held accountable.

A benefit of a KPI dashboard being real time is that it will be continuously updated through the period. It allows immediate understanding of current performance and will give the E-Trac production managers the opportunity to take action to correct or amend performance straight away rather than having to wait until the end of the period when measures are calculated and summarised.

For example, had the Procurement Manager had the KPIs in real time, they might have been able to deal with the supplier delivery issues more quickly. Synchronising real time data with data visualisation gives live up to date information in a clear, informative style and allows quicker response to issues rather than waiting for weekly or monthly reports.

The real time nature and clarity of the information being displayed supports better decision making, as well as proactive and efficient utilisation of resources because issues are identified promptly. Combining data and visualising it in this way can lead to improved understanding and fresh insights about the cause-and-effect relationships that underpin performance.

SECTION 4

Linear programming: purchase of additional GPXs

The optimal point on Graph 1 has been identified as the point where lines A and B intersect, which means that part GPX and part KLP are binding constraints for next month's production. We are unable to increase our inventory of KLP, but we could buy in additional GPXs from the alternative supplier, although we would need to pay for the bespoke tooling required. To determine whether it is worthwhile to do this, we need to consider the amount that we might want to purchase and then whether the price charged would be worth it.

We can use Graph 1 to determine the amount of GPXs that we might consider ordering from the alternative supplier. As we purchase additional GPXs, line B on the graph will move away from the origin. Given the slope of the iso-contribution line (which indicates the relative contributions of the ET5+ and ET6+ models), the optimum point would move to where lines A and C intersect. This is the new optimal solution as it would not be sensible to buy any additional GPXs beyond this point because we cannot buy anymore inventory of the part KLP. At the point where lines A and C intersect, there will be a new optimal production plan of 600 ET5+ and 500 ET6+ models. This compares to the original optimal production plan of 550 ET5+ and 525 ET6+. The number of additional GPXs to potentially order will be the difference between the number required for the new optimal solution and the number required for the old optimal solution.

Whether we would buy these additional units depends on the maximum price that we would be willing to pay for each unit of GPX. This is its shadow price (the amount of additional contribution from having one unit of GPX) plus its normal price (T$134 per unit). The shadow price of GPX has been established at T$1,498, and therefore we would be prepared to pay up to T$1,632 per unit. The supplier would charge us T$20,000 plus T$134 per unit. Whether this is acceptable will depend on how many additional units we would need to buy based on new optimal solution explained above. As long as the cost per unit, calculated as:

(T$20,000 + number of additional units x T$134) / number of additional units

was less than T$1,632, then it would be worthwhile.

Accounting treatment of damaged equipment

Adjustment required for asset ETF823

The damage to asset ETF823 can be repaired at a cost of T$51,500. Because these repairs will restore the asset back to its condition immediately before the damage occurred, there is no enhancement of the economic value of the asset.

Therefore, this subsequent expenditure of T$51,500 cannot be capitalised and must instead be written off to profit or loss when the costs are incurred.

Adjustment required for asset ETF915

Asset ETF915 is to be put into storage and used for spare parts, presumably with effect from the date of the storm which was 1 February 2024. As such, there are no plans to sell the asset and therefore it is not an asset held for sale in accordance with IFRS 5 Non-current Assets Held for Sale and Discontinued Operations. Instead, we need to consider whether there is an impairment in the value of the asset. An impairment arises where the carrying amount of the asset is higher than the recoverable amount of the asset. The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use.

For asset ETF915, its carrying amount is T$123,500. Its recoverable amount is the higher of T$45,000 (scrap value) and its value in use. Value in use is based on the value to be derived from the spares that could come from the asset in the future, which we expect to be around T$20,000. Therefore, recoverable amount will be less than carrying amount and therefore asset ETF915 should be reflected at its recoverable amount in the statement of financial position and the difference between this and the carrying amount written off to profit or loss.

Adjustments in 2023 or 2024

The storm is an event after the reporting period in accordance with IAS 10: Events after the Reporting Period, because it occurred after the year end of 31 December 2023 but before the financial statements for that year have been authorised. However, the storm is a non-adjusting event because it is indicative of conditions that arose after the reporting period rather than an event providing evidence of conditions that existed at the reporting period.

As a non-adjusting event, all adjustments related to the damaged assets will be adjusted for in profit or loss for the year ending 31 December 2024 rather than for the year ended 31 December 2023. However, we may need to disclose the impact of this in the financial statements for the year ended 31 December 2023 if this is considered material.

Decision criteria

Maximax

Using a maximax approach to this decision we would choose the campaign that maximises the maximum payoff achievable for each campaign and will therefore select the best of the best. The maximax criterion is best suited to a decision maker that is optimistic.

The best payoff under Campaign 1 is T$548,000, under Campaign 2 is T$950,000 and under Campaign 3 is T$676,000. Of these, the highest and therefore best payoff is T$950,000, and therefore under this criterion we would choose Campaign 2.

Maximin

Using a maximin approach to this decision we would choose the campaign that maximises the minimum payoff achievable for each campaign and will therefore select the best of the worst. The maximin criterion is best suited to a decision maker that is pessimistic.

The worst payoff under Campaign 1 is an additional loss of (T$365,000), under Campaign 2 is an additional loss of (T$618,000) and under Campaign 3 is an additional profit of T$329,000. Of these, the best of the worst payoffs is an additional profit of T$329,000, and therefore under this criterion we would choose Campaign 3.

Minimax regret

Using a minimax regret approach, the alternative that minimises the maximum regret under each of the potential campaigns is selected. This is generally used where we want to minimise the regret of making a bad decision. 'Regret' refers to the opportunity loss from having made the wrong decision.

Table 3 shows the regret depending on the state of the market for each campaign. For example, if the state of the market was strong, we would have no regret if we had chosen Campaign 2 because this would give us the best result. The regret for each of the other order options is the difference between additional profit of T$950,000 and the additional profit or loss from each of the other promotional campaigns. The maximum regret is T$1,315,000 for Campaign 1, T$1,166,000 for Campaign 2 and T$274,000 for Campaign 3. To minimise maximum regret, we should therefore select Campaign 3.

OPERATIONAL CASE STUDY

MAY 2023 & AUGUST 2023

EXAM ANSWERS

Variant 5

SECTION 1

Production overhead variances for the Main Assembly Department for May

Expenditure variances

The variable production overhead expenditure variance is favourable, which means that for the direct labour hours worked in the department, overall, we spent less on variable production overhead than we should have based on our standard. There are two conflicting factors affecting this variance. Firstly, there was significant unplanned overtime worked in the month due to higher-than-anticipated production and various machinery issues. This additional overtime premium will have created an adverse variance. Secondly, the electricity supplier was changed, which resulted in a lower power cost per unit of electricity. Power costs are likely to be a significant portion of variable overhead in the department. Even though the equipment is likely to have been operating for longer because of the need to slow it down, overall power costs would appear to have reduced creating a favourable variance. This has outweighed the impact of the additional overtime.

The fixed production overhead expenditure variance is adverse, which means that we spent more than we had budgeted to spend in the month. This variance has a different meaning than the variable overhead expenditure variance because it is measured against originally budgeted fixed costs rather than an allowance for the actual direct labour hours worked. Fixed costs are expected to be constant for a given level of activity, and therefore this adverse variance reflects additional costs that were not anticipated when the original budget was set. There are potentially numerous reasons for this including the additional costs incurred for the external engineers to fix the machinery issues, the wages of the new supervisors recruited (which will be indirect

employees) and the costs incurred recruiting and training the new direct workers taken on in the month. It will also include the costs of the additional equipment hired.

Efficiency variances

The variable and fixed production overhead efficiency variances are both adverse, which means that it took more direct labour hours to complete actual production than standard. The meaning of these two variances is the same because both are calculated as the difference between the standard direct labour hours needed for the actual output and the actual direct labour hours worked multiplied by the appropriate standard absorption rate per hour. This variance measures the efficiency of the absorption base which is direct labour hours. The reasons for the adverse efficiency variances include a slower work rate as a result of slowing some of the processes down and also the possibility that some of the new direct workers taken on may have been working more slowly as they got used to the processes.

Capacity variance

The capacity variance reflects the difference between the budgeted direct labour hours and the actual direct labour hours worked multiplied by the standard fixed overhead absorption rate per hour. This variance is favourable, which means that more direct labour hours were worked than budgeted, reflecting an increase in the capacity of our direct labour resource. This increase is due to the increase in the direct labour workforce in the department, the significant overtime being worked and the need to work for longer as a result of slower working equipment and new employees. Note that the fixed overhead production efficiency and capacity variances added together give a favourable volume variance. This is due to higher production of tractors than expected in May.

<u>**Responsibility accounting**</u>

Within a responsibility accounting system, it is important that managers are only held accountable for variances over which they have influence or control. If we consider the fixed production overhead expenditure variance, there are numerous reasons why this occurred, not all of which could be influenced or were controllable by Bill Gomez. For example, additional costs were incurred on machinery maintenance which potentially should have been undertaken by our own Maintenance Department. This part of the variance is arguably the responsibility of the Maintenance Manager.

Additionally, part of the adverse expenditure variance has arisen because of employing additional supervisors to support the expanded workforce. This resulted from a decision taken by the Production Director, and therefore outside of the control of Bill Gomez. However, it is important that we do not consider the expenditure variance in isolation. Expanding the workforce and employing additional supervisors has increased production capacity as reflected in the capacity variance. How Bill Gomez uses this extra capacity to meet increased production levels and to ensure the absorption base (direct labour hours) is working efficiently, is within his control.

In May, the fixed production overhead efficiency variance is adverse due to both machinery downtime and the fact that a significant number of new workers had to be employed resulting in a slower rate of working. As noted above, it is questionable whether the part of the variance related to machinery downtime was controllable by Bill Gomez given the issues within the Maintenance Department. It is, however, less clear whether Bill should be held responsible for the inefficiency resulting from taking on new workers. Presumably, the new vehicle assembly plant which has opened nearby has been known about for a while. Therefore, Bill could be held accountable for the fact that so many direct workers left to work there as worker satisfaction is largely within his control. Although if worker dissatisfaction was the result of poor pay rates, this wouldn't be within his control.

The potential benefits and drawbacks of a rolling budgets approach for our cash budget

Using a rolling budgets approach, we would always have a budget that looks 12 months ahead, because, as one budget period ends (which would be a month), a new budget period would be added at the end. Currently, our cash budget is prepared at the start of the year and therefore, by this time of the year, it includes only the next 7 months. As the year progresses, this will reduce until we reach the budget prepared at the start of the next financial year. Always having 12 months included in the cash budget will help us to see where there is significant planned expenditure, for example, purchases of new production assets, which will an impact on operations.

Using a rolling budgets approach means that, as a month is added, the cash receipts and payments for the previous months in the budget can be reviewed and updated for anticipated changes. For example, given the higher-than-expected sales orders at the moment, this should mean that future cash receipts are higher than currently shown in our cash budget. Similarly, any on-going expenditures, such as the wages of the additional supervisors taken on recently are not currently reflected in the budget. Using a rolling budgets approach means that these can be factored in each month and therefore cash balances can be adjusted to reflect more closely the reality of anticipated cash payments and receipts. This will enable management to more accurately foresee and therefore prepare for any liquidity issues.

Despite the clear benefits of using a rolling budgets approach, an issue of using this approach compared to what we currently do is the amount of work involved. This additional work is in preparing, checking and communicating the revised cash budget. All of this takes time and maybe seen by management as drawing them away from other important tasks. Therefore, it is important that the rolling budgets process is not seen as too onerous. In addition, there may be a perception amongst management that, because the budget is reviewed each month, that it is a completely accurate reflection of the cash commitments and cash balances ahead. There will always be unforeseen events, such as competitor actions affecting sales and therefore cash receipts. Or an event such as a fire or a flood affecting the Production Facility resulting in additional spend, that could impact the budget.

SECTION 2

How an ABC approach will differ from our current costing approach

Current approach

Our current approach to absorbing overheads is based on the use of two absorption rates (variable and fixed). Overheads are classified as either variable or fixed based on whether the overhead cost varies in proportion to units of output. If it does vary, this would be classified as variable (for example, power for the presses), and if not, it would be classified as fixed.

The base for an overhead absorption rate should be chosen to reflect a causal link between the overhead and the base. The absorption rate for the Body Panel Production Department is based on machine hours and therefore, when these rates were established, it must have been thought that there was a closer link between the incidence of overheads in the department and machine hours than with any other factor.

When the rates were set up, it must also have been thought that there was no benefit to be gained by calculating individual rates for differing parts of the process, for example, different rates for pressing and painting. Perhaps if these processes had been in different departments, they would have had separate rates. Maybe it was decided that the cost of calculating different rates (and subsequently recording costs in separate overhead cost centres) was not warranted in terms of increased benefits.

Activity based costing (ABC)

With ABC, we need to look at all of the processes in the department and identify the overhead costs. For example, the pressing machines will have power costs and set up costs. Each item of cost will need to be identified and listed. Then we need to consider what causes the cost, that is, what activity 'drives' each cost. Costs that have the same cost driver can be grouped together in the same cost pool and the cost per driver calculated. This will tell us that each time that activity named in the cost driver is carried out there will be causal link to the cost. This has benefits for both planning and control.

Applying this to the Body Panel Production Department:

- The first process is moving the steel sheets. The costs of doing this are the driver's wages, the power for the forklift truck and the forklift truck itself. If the truck does other jobs too, then we would need to find an equitable way of apportioning the truck costs to each job it does. Having established the costs, we then need to consider the activity that causes these costs to be incurred. This will be moving the steel sheets, and we do this when the sheets are needed at the start of a batch production run, which means that the driver is "per batch".

- Feeding the steel sheets is carried out on a sheet-by-sheet basis and therefore the appropriate driver is "per sheet". We cannot use per batch because batches differ in size.
- The costs of the pressing process will include all of the costs associated with the pressing machine (for example power). Because the press takes the same amount of time to press each body panel, irrespective of the type of panel, an appropriate driver for the cost of power would be "per sheet". Therefore, this cost can be put in the same cost pool as the costs of feeding the sheets.
- However, another cost related to the press is the set-up costs. These are incurred at the start of each batch and can therefore be put in the same cost pool as the costs of moving the steel because they will have the cost driver "per batch".
- Removing the sheets and attaching them to the robot arm again appears to be a cost that has the driver of "per sheet" and can be put in the pool we set up earlier.
- Assuming the cleaning and drying are the same for each panel produced, then these costs too can be placed in the "per sheet" pool.
- Setting up the paint sprayer is "per batch" and the appropriate costs would be grouped in the "per batch" cost pool.

More details are needed about the spraying process. If it takes the same amount of time to spray each panel, then the appropriate costs could be put in the "per unit" pool. But if some parts take different amounts of time (and thereby incur more power for example) then a more causal link would be "per minute". This time relationship is similar to what we currently use but here it would only be used for a cost where we can see a direct causal link.

The cost of Bryan Zola, the Body Panel Production Manager, is not directly related to any particular activity and would be seen as a "facility level" cost. However, it is a production overhead and does need to be absorbed by the products on a fair and equitable manner. Perhaps "per unit" would be easiest and appropriate.

It can therefore be seen that ABC differs from our current approach in that it looks at each individual cost and tries to identify an activity that causes (drives) that cost. This is useful for planning and control, and costing (and ultimately pricing or profit identification). Importantly, the causal relationship readily identifies the impact of certain decisions: reducing the number of batches would cause the batch costs to fall. In effect, it also reclassifies costs. Previously, our classification of variable and fixed was in relation to units of output. With ABC, some costs that we previously thought to be fixed are now viewed as being 'variable' but not in relation to units of output; they are variable in relation to the activity that causes them.

Key Performance Indicators

Three KPIs that could be used to assess the performance of the robotic equipment maintenance service provider are as follows:

Percentage of scheduled routine maintenance completed on time

It will be important to establish up front a schedule for when routine maintenance of each robot should occur. This will consider the need to balance production requirements with the need to ensure that the robots are adequately maintained so that they operate optimally. It will also be important that the service provider meets this schedule, else there is a risk of a higher level of robot break downs which could have a significant impact on the ability of the department to meet production requirements because of the disruption. This can be monitored by establishing the percentage of scheduled routine maintenance completed on time each month, calculated as number of robots maintained according to schedule in the month divided by the number of robots scheduled to be maintained in the month. We might consider a target of 100% is appropriate, although care will be needed when interpreting this measure to ensure that non-achievement is the result of the service providers actions (and therefore indicative of poor performance) and not the result of barriers enforced by the department.

Time from call out to completion of repair

The maintenance service provider will be responsible for repairing robots which break down. It will be important that any repairs are dealt with in a timely manner to ensure that the robot is not out of action for too long. Otherwise this could have a detrimental effect on production flow and our ability to produce tractors. This is especially important given that we are running at full capacity because of higher-than-anticipated sales demand. This could be a simple time measurement and could be broken down into the average time taken to respond to robot break downs and the average time taken to repair each month, both of which could be compared to a pre-agreed target set out in a service level agreement.

Percentage of rejected body panels due to poor paint application

The maintenance service provider will be responsible for maintaining the robot paint sprayers. The objective of this maintenance will be to ensure that the robots do what is intended of them: that is, apply three coats of paint to give a quality finish to the body panels. Therefore, a measure of the service providers performance will be to monitor whether there are any quality failures dues to poor robot performance. This could be measured as number of body panels rejected due to poor paint application divided by total body panels sprayed in the month. Again, it will be important to ensure that the reason for the rejection is the result of the robots not working optimally rather than an internal production issue arising from, for example, poor set up.

SECTION 3

New robotic equipment

In accordance with IAS 16: Property, Plant and Equipment, an item can be classified as property, plant or equipment if it is held for use in the production of goods and is expected to be used for more than 12 months. Both criteria are met, as the robotic equipment is to be used in the assembly of tractor bodies and we expect to use it for 12 years.

The costs associated with an item of property, plant and equipment can be recognised as an asset if it is probable that future economic benefit will flow into the business and cost of the item can be reliably measured. Again, both criteria are met because the asset will allow us to produce and then sell tractors and the costs have already been established.

The amount that the equipment is initially recorded at will be its purchase price of T$1,500,000, plus any expenditure which is directly attributable to bringing the asset to its location and condition necessary for it to be ready for its intended use. Thus, the T$125,000 to be spent on installation and the T$18,000 to be spent on testing can be capitalised. Both are required to get the equipment ready for its intended use.

The T$12,000 to be spent on training our employees will be written off to profit or loss when incurred, because training of employees has no bearing on the ability of the equipment itself to be ready to operate as intended.

The new equipment will be depreciated over its useful life from the date that it is available for use, which will be 1 December 2023, rather than the date of initial purchase. For the year ending 31 December 2023, one month of depreciation will be recorded.

Where an asset has elements that have different useful lives, IAS 16 states that the initial carrying amount of the asset should be split into its elements and depreciated separately. In this instance, the equipment has a useful life of 12 years, however, the robot arms within it will need to be replaced every 4 years. This means that the robot arms have a useful life of 4 years rather than 12 years. Therefore, we need to establish how much of the total cost of the equipment relates to the robot arms and treat this as a separate asset depreciated over 4 years. The remaining cost will be depreciated over 12 years.

Decision tree

Explanation of the decision tree

The decision tree shows that there are two decisions to be made: whether to use Robotics+ or Prestige Engineers (decision point B) and whether for Robotics+, Contract 1 or Contract 2 should be chosen (decision point A).

The decision tree shows that Robotics+ is offering two possible contracts:

- Contract 1 is based on two factors sets of factors: whether production is at its maximum or minimum level and then whether there will be a high or low level of problems with the equipment. This is represented in the decision tree as four possible outcomes, the top one being maximum production and a high level of problems and the last one being minimum production and a low level of problems. The decision tree shows the probabilities associated with each possibility. There is an 80% chance that production will be at the maximum level and a 20% chance that it will be at the minimum level. If production is at the maximum level, there is a 50% chance of a high level of problems, but if production is at a minimum level, there is only a 30% chance of a high level of problems.
- Contract 2 is a fixed fee of T$200,000 for the year, which is irrespective of how much production there is and the level of problems on the production line.

Prestige Engineers is offering a similar contract to Contract 1, in terms of the variable element of the cost being based on the level of production and the level of problems. In contrast to Robotics+'s Contract 1 though, Prestige Engineers contract also includes a fixed fee element of T$60,000 for the year.

How to use the tree to make the decision

To make the decision using the decision tree, we start with the decision at point A about whether to take Contract 1 or Contract 2. At point A, the expected value of cost for Contract 1 is T$196,550 (which is the weighted average of the four possible outcomes weighted according to the joint probabilities) and the expected value of cost for Contract 2 is T$200,000. Therefore, at point A, we should select Contract 1 as this has the lowest expected value of cost.

We then consider decision point B. At decision point A, we know that the decision is to choose Contract 1 if we choose Robotics+. At point B, we need to make the decision whether to use Robotics+ or Prestige Engineers. We again compare the expected value of cost for each service provider which are T$196,550 for Robotics+ and T$123,300 + T$60,000 (=T$183,300) for Prestige Engineers. We would again choose the lowest expected value of cost and hence to maximise profits would choose Prestige Engineers.

Working capital approaches

Robotics+

Robotics+ seems to be taking a conservative approach to working capital management, as it has a long working capital cycle of 33 days compared to the industry average of 8 days. It has relatively high inventory and receivable days in comparison to the industry average and slightly lower payable days.

Robotics+ is a relatively small business for the industry and given the significant revenue growth last year, could be a relatively new business.

The higher level of inventory and receivables could be the result of deliberate policies to ensure spare parts are always available and to offer extend credit terms to customers in a bid to offer a quality service and to attract new business. The slightly lower payable days could indicate that, as a newer business, Robotics+ has lower credit terms given to it from its suppliers. Alternatively, it could indicate that Robotics+ is taking advantage of early payment discounts that are available given that it has a positive cash balance.

Prestige Engineers

Prestige Engineers seems to be taking an aggressive approach to working capital management as it has a negative working capital cycle of -38 days compared to the industry average of 8 days. It has relatively low inventory and receivable days in comparison to the industry average and significantly higher payable days. Prestige Engineers is considerably larger than the industry average and, given its steady state of growth and high level of customers, could indicate that the business has been operating for many years.

The low level of inventory days could indicate that Prestige Engineers has good relationships with its suppliers whereby it is able to source parts quickly and therefore does not need to hold excessive inventories. The low level of receivables could indicate that it has a very strong credit control function or that it offers prompt payment discounts that its customers take up. It could also be that it does not offer as favourable credit terms as Robotics+, given that it has significantly more customers. The high level of payable days could indicate that Prestige Engineers is aggressive with its suppliers in terms of demanding long credit terms given its size and therefore potential bargaining power in the industry. Alternatively, it could indicate that Prestige Engineers chooses to pay its suppliers late, a potentially unethical practice.

SECTION 4

Testing equipment

We will still own the testing equipment that we plan to sell on 31 December 2023, however, we need to determine whether the asset should remain part of property, plant and equipment or be reclassified as an asset held for sale in our statement of financial position.

To be reclassified as an asset held for sale, an asset needs to be available for immediate sale in its present condition and its sale must be highly probable. A sale is highly probable when: management are committed to sell the asset; there is an active programme to find a buyer; the asset is marketed at a reasonable price; the sale is expected to take place within 12 months; and it is unlikely that the plan to sell the asset will change. We plan to stop using the testing equipment on 30 November 2023 and then recondition it ready for sale. This reconditioning will be complete by the end of December, and therefore it is at that point that the equipment will be available for immediate sale in its present condition.

To determine whether the sale is also highly probable at the end of December 2023, we need to consider the above criteria. It appears that at that date management will be committed to the sale, there will be an active programme to find a buyer and it is unlikely the plan will change, because we have already engaged the services of a specialist equipment dealer. In addition, the dealer is confident of selling the equipment at the price we have set within 9 months, which means that we will also meet the criteria of marketing the asset for a reasonable price and selling within 12 months. Therefore, it would appear all the criteria for reclassifying the equipment as an asset held for sale will be met with effect from 31 December 2023. As a result, we will record the equipment as a separate component of current assets in our statement of financial position.

The value that we record as an asset held for sale will be the lower of the equipment's carrying amount at the date of reclassification (which is its depreciated cost at 31 December 2023) and fair value less costs to sell. The carrying amount will be T$230,000 less two months depreciation of T$30,000 (we continue to depreciate the asset until the date of reclassification even though we will cease to use it in production on 30 November). Fair value less costs to sell will be T$150,000 minus T$10,000 (reconditioning costs) minus T$12,000 (equipment dealer selling costs). As this will be lower than carrying amount, the difference will be charged to profit or loss, which will reduce profit.

Multi-product profit-volume chart

The original budget for the year ending 31 December 2024

Chart 1 has been drawn up on the assumption that revenue will be earned from our A++ Power models in the order of their contribution to sales (c/s) ratios.

For the original budget for the year ending 31 December 2024, this order is Premium, Regular and then Basic. The line for the original budget starts at around -T$120 million, which reflects the share of budgeted fixed costs that relate to the A++ range. The line ends at the total amount of budgeted revenue and profit from the range: revenue of around T$6250 million and profit of around T$200 million.

The breakeven position for the original budget (which is where neither a profit of loss is made) is revenue of around T$225 million. This gives a significant margin of safety because revenue would need to fall from around T$625 million to the breakeven of T$225 million before a loss was made. The original budget line also indicates that the Regular model is budgeted to have the largest total contribution out of the three models because its share of the line is the greatest.

Impact of the proposed changes

There are a number of impacts of the proposed changes which are explained below:

- Two of the individual model c/s ratios have changed, which has affected the order in which the models are depicted on the chart. The c/s ratio for Basic has increased compared to the original budget, whilst that for Premium has fallen. Given that variable costs per unit have not changed, these changes in the c/s ratios must relate to changes in selling price. The selling price for Basic has been increased and the selling price for Premium has been reduced.
- The impact of these planned pricing changes has resulted in a change in the mix of models sold. This is reflected in the different lengths of each part of the line. For the original budget, Premium is the first section, whilst for the revised budget is the second section. The length of line for Premium in the proposed budget is significantly longer than for the original budget, indicating that we expect the price decrease to significantly increase volumes sold, and thereby the amount of contribution generated.
- Fixed costs attributed to the range are budgeted to be higher in the proposed budget compared to the original budget by around T$12 million. This will be due to the additional promotional costs for the range.
- Profit for the range is expected to be around T$25 million higher in the proposed budget compared to the original. Given that fixed costs are expected to increase, and the overall c/s margin expected to fall, this would indicate that we expect sales volumes to increase. The breakeven position has increased to approximately T$250 million from T$225 million because the level of fixed costs has increased: more contribution is needed to make a profit.

Benefits of beyond budgeting

A beyond budgeting approach uses rolling budgets, which means that all of our budgets (including sales and production as well as cash) will always look 12 months ahead and will be regularly updated to reflect the latest conditions and trading environment. Currently, we budget on an annual basis, which means that our sales and production budgets quickly become out of date. If we consider our proposed changes to the marketing and pricing of our A++ Power range, using rolling budgets will mean that we can adjust our budgets as we progress through 2024 to reflect how the market reacts.

With a beyond budgeting approach, there is a greater focus on looking ahead and forecasting what might happen rather than looking backward at what has happened. Part of beyond budgeting will be to benchmark ourselves against our competitors. This will give us greater insight into what they are doing and help us to foresee where we can get a competitive advantage. For example, if competitors are heavily discounting their basic models, we may want to reconsider increasing selling prices to protect our market share.

Beyond budgeting means involving all parts of the business in setting budgets and performance targets. This potentially means that those budgets and targets are more realistic. In addition, participation in the process should motivate our managers by giving them clear responsibilities and targets that they will have been involved in setting.

OPERATIONAL CASE STUDY

MAY 2023 & AUGUST 2023

EXAM ANSWERS

Variant 6

SECTION 1

Costing of new TractorPal app

How to determine the cost per download of the app

To determine the cost per download of the TractorPal app, we need to first determine all the costs associated with the app. This will include costs specific to this app (direct costs) and a share of any costs related to more than just this app (indirect costs). Some of these costs will be incurred up front, whilst others will be incurred across the lifetime of the app.

The direct costs for the TractorPal app will include:
- The fees paid to the external app developer. This includes the up-front development fee and the ongoing fees associated with updates and bug fixes.
- Any costs incurred when producing the tractor maintenance videos which are specific to the series of videos. For example, hire of actors and video recording equipment. These costs will be a significant part of setting up the app but will also be ongoing as new videos are added.
- Any fees paid to the platform providers for hosting this specific app. This will also include the ongoing fee per download.
- Any costs that are specifically incurred in respect of the internal administration of the app. If the extra employees work exclusively on the app, their salaries will be categorised as a direct cost of the app.
- Any costs of marketing the app.

The indirect costs are those costs which cannot be directly associated with the TractorPal app. This will include infrastructure and ongoing IT administration and support costs that relate to the IT department as a whole.

This will include the costs of maintaining the servers on which data is stored, as presumably the servers will include more than just the app data. Another example of an indirect cost will be costs associated with the sales teams involved in producing the videos, as presumably this will only be part of their job.

The cost per download will include any direct costs which relate to a single download (the fee per download to the platform providers), plus the total of other direct costs for the app divided by the by number of expected downloads, plus an appropriate share of the indirect costs associated with the app divided by the number of downloads.

Difficulties of determining the full cost per download

In general, establishing a cost per unit of a product is relatively straight-forward for a physical product, such as a tractor, where there are significant direct costs of production, and we can absorb indirect overheads on a reasonable basis. However, the fact that our app is a digital product means that it is very difficult to determine the cost per download. These difficulties include:

- Estimating all the costs associated with the app. Many of the costs associated with the TractorPal app will be incurred in the future and will be difficult to determine at this time. For example, at this stage, it will be hard to determine how many bug fixes or how often we will need to upgrade the app and therefore how much we will need to pay the external app developer in the future. It may also be difficult to know the number of videos that will be created.
- Determining the number of downloads. The calculation of cost per download is very dependent on the number of downloads, which in turn will depend on the lifetime of the app and also how many people download the app. It's possible that new technology makes the app redundant earlier than anticipated or that farmers are not keen to engage with the app, or indeed be prepared to pay for it.
- Sharing of indirect costs. There could be significant indirect costs associated with our internal IT support and administration of the app, and it will be difficult to determine how much of these costs should be apportioned to the app. It may be possible to use IT hours spent for employee time, but it will be more difficult to determine an appropriate apportionment base for other costs.

Relevant and irrelevant costs and revenues of the decision to proceed with the 'Tractor Festival' event

The relevant costs and revenues to be considered in the decision will be the incremental, future cash flows that will arise as a result of proceeding with the 'Tractor Festival' event. This excludes any costs which have already been incurred or committed to. In terms of the information in Table 1 and the associated notes:

Tickets sold to date	The T$125,000 of receipts from ticket sales included in Table 1 represents ticket sales for 5,000 people at T$25 per ticket. This money has already been received but would need to be refunded if the event did not go ahead. As such, this is a relevant cash inflow of holding the event because it is saving us from the refund. There is still time for further tickets to be sold and receipts from further sales would be relevant income, as these would future incremental cash flows. We would need to establish how many more ticket we would realistically expect to sell.
Hire of venue	The cost of hiring the venue of T$74,000 is a future cash flow. However, whether it is a relevant cost will depend on the terms of the hire agreement. It is possible that we are committed to pay the whole fee or possibly committed to pay the deposit which is due next week. Any element of the fee that we are committed to would not be relevant to this decision as we would need to pay it regardless. Therefore, we need to review the hire agreement to ascertain the position here.
Employee costs	The T$28,000 of employee cost is irrelevant to the decision because this represents the cost of the time based on standard wage rates and salaries. This will be paid regardless of whether the event happens or not because the direct production workers are contracted to be paid 40 hours are week and the sales team are all salaried. The relevant cost here will be the cost of the T$100 bonus to each production worker and the cost of the overtime required in the Production Facility (which will presumably be at a higher rate than standard to reflect overtime premium). To quantify this cost, we need to establish the number of production workers involved and the level of overtime expected.
Promotional items	The promotional items required for the event are already in inventory at their original cost of T$15,200. The original cost of these items is irrelevant as this has already been incurred and is therefore a sunk cost. These items are regularly used as promotional items and therefore presumably we will need to replace the inventory. If this is the case, the relevant cost will be the future cash flow incurred to replace the items that we would give away at the event. Therefore, to quantify the relevant cost, we need to determine the replacement cost of these items and ascertain the amount of items that we would give away based on anticipated attendance.

Tractor transport costs	The T$19,800 cost of transporting the vintage tractors is a relevant cost because it will only arise as a result of the event. There is, though, an additional opportunity cost here of T$7,000 which represents the new income lost as a result of sending the vintage tractors to Teeland. If the event was not held, this revenue would arise and therefore this represents a lost opportunity.
Other costs	Only those other costs which are future and incremental are relevant. On that basis, assuming that the event insurance has not yet been paid, the cost of this will be relevant. However, travel expenses already incurred are sunk and therefore not relevant. It will be important to establish whether there might be other future costs such as site cleaning after the event or the need to hire equipment, that are not included within the other expenses yet to be paid.

SECTION 2

Sensitivity analysis on the A++ Power Premium model budget

The sensitivities

The sensitivity measures shown in Table 2 reflect how much each of the budget items could change before we start to make a budgeted loss on this model. The lower the percentage, the greater the sensitivity of profit to a change in that item. Table 2 shows that the most sensitive budget item is selling price: this would need to drop by 23.2% to change the budgeted profit of T$7,725,000 to a budgeted loss. The table also shows what fixed production costs is the least sensitive of the budget items: it would need to increase by over 200% before a loss was generated.

There are two inter-connected reasons why the level of sensitivity differs: the impact of each item on contribution and the absolute value of the item in relation to budgeted profit.

If we reduce selling price, both revenue and contribution will decrease in absolute terms and the contribution margin will also decrease. A reduction in sales volume will reduce revenue, but will also reduce variable costs, leading to a smaller reduction in contribution in absolute terms and no change in contribution margin. Therefore, the sensitivity of selling price (23.2%) will be greater than the sensitivity of sales volume (48.5%).

The sensitivity of variable cost per unit is also less than selling price because selling price per unit is higher than variable cost per unit in absolute terms. Therefore, a smaller percentage reduction in selling price (which is a bigger value than variable cost per unit) is needed to change budgeted profit to budgeted loss. Similarly, the fixed costs have the least sensitivity because the value of fixed costs in absolute terms is less than the value of either revenue or total variable costs.

The benefits and limitations of this analysis

Table 2 tells us the percentage change required in each of the budget items (when considered in isolation) that would turn a budgeted profit into a loss. Given that there is some uncertainty regarding some of the budget items, this is potentially useful information. For example, the level of discounts and the marketing spend are still being debated. The analysis tells us that sales price could fall by a significant 23.2% before a loss would be made. Similarly, the analysis tells us that marketing spend could be significantly more than double.

Sensitivity analysis tells us which budget variables are most sensitive and therefore are the riskiest. In our case, selling price is the most sensitive at 23.2%, which means that it is perhaps the variable that we need to keep the closest watch on. However, 23.2% is a considerable reduction that would be required and therefore it tells us that there is still considerable scope to increase discounts given to dealers.

However, sensitivity analysis involves changing only one budget item at a time. This limits the usefulness of this analysis because the inter-relationships between budget items are ignored. In our situation, for example, it is likely that an increase in the level of discounts given (and therefore a reduction in selling price) will increase the number of tractors that we will sell. Also, increasing marketing spend is also likely to increase volumes or allow us to charge higher prices, the effects of either of which will reduce the impact of the higher marketing cost on the budget.

The analysis is also limited because it is focused on only one model, which is the first of the modified Premium models to be launched. The data reflected in Table 1 for the budget includes a share of fixed production cost, which will be based on an arbitrary assessment of what is an appropriate share. Also, the marketing costs will presumably affect sales of this model and also future modified models. The impact of these costs will therefore stretch beyond the 3-month period being considered.

KPIs for digital marketing dashboard

Rate of growth in followers for social media accounts: This would be measured as the increase or decrease in followers for each social media account in a week or month divided by the number of followers at the start of the week or month, reflected as a percentage. Social media marketing will involve posting content about our modified Premium models and the TractorPal app, promotions and links to approved dealers. The intention of these posts is to reach as wide an audience as possible, and therefore it is important that we keep track of the number of followers and perhaps more importantly any growth or decline in the number of followers. Any decline in growth rates or fall in the number of followers may indicate that the posts are not being effective and that we are not reaching a wide audience.

Percentage of enquiries dealt with within a certain time period: This would be measured as the number of enquiries responded to within, say, 48 hours divided by the total number of enquiries received through the Tracs Europe communication channel, reflected as a percentage. It is important that any enquiries that are received via our digital marketing are responded to in a timely manner. Dealing with enquiries quickly is part of delivering good customer service, which is important in generating future sales.

Click through rate to approved dealers: This would be measured as the number of people clicking through to an approved dealer divided by the number of emails or posts viewed, measured as a percentage. All our tractor sales are through approved dealers, and therefore it is important that potential customers are able to and encouraged to connect through to a dealer to enquire about a sale. This KPI would indicate what percentage of people viewing the email or post are engaged enough with the content to connect with an approved dealer to start the sales process.

Transfer pricing

Adjustments required when applying transfer pricing rules

It has been suggested that AgRi, our parent company, recharges the cost of the external marketing consultant to Tracs Europe at a transfer price which is double the actual cost incurred. This will result in lower profit for Tracs Europe and higher profit in AgRi, which has the lower tax rate.

Both countries have transfer pricing regulations which state that transactions between companies in the same group that operate in different countries should be deemed to take place on an "arms-length" basis for tax purposes. This is so that profits of individual companies are not distorted to take advantage of differences in tax rates. In our case, it is highly likely that tax authorities would deem that the arms-length value of this transaction would be the cost charged by the external consultant of T$150,000 and not the T$300,000 suggested.

If the transaction occurs as suggested, applying transfer pricing regulations would mean that adjustments would be required in the corporate tax computations for both Tracs Europe and AgRi to reflect profit that would have been achieved if the transaction had been at arms-length. Tax payable will then be calculated based on these adjusted profit figures.

Tax avoidance or tax evasion

Tax evasion is the illegal manipulation of the tax system to reduce the amount of tax payable and can include claiming a tax deduction for expenses that are not tax deductible, or under declaring income and claiming fictitious expenses.

Tax avoidance is tax planning to arrange affairs, within the scope of the law, to minimise the tax liability. An example of this is to set up a subsidiary in a foreign country which has a lower tax rate.

If the recharge is charged at T$300,000 and we do not apply the transfer pricing regulations to adjust each company's tax calculation, this could well be deemed to be tax evasion given that we would be deliberately ignoring the rules.

SECTION 3

Zero based budgeting (ZBB) process

The first stage of the ZBB process is to identify the decision units, which are the activities that generate cost. One of the main activities of each Sales Office is promoting our brand at agricultural shows. Each activity has an objective associated with it. For example, the objective of attending agricultural shows is to promote the brand and to generate sales.

The second stage is to develop decision packages for each decision unit. A decision package is an analysis and costing of different ways in which the objectives associated with each activity can be achieved. Decision packages can either be mutually exclusive or incremental. Mutually-exclusive decision packages involve either/or scenarios. For example, we might consider outsourcing attendance at agricultural shows to our dealers, to promote the brand on our behalf. The alternative to this is that we continue to use our own sales teams. Both of these options would achieve the objective but would have different costs associated with them and potentially also different expected outcomes.

Incremental decision packages can then be developed for each option, starting with a starting base package which represents the minimum spend. For example, for agricultural shows, base packages may include costings for a limited number of shows, using the minimum number of employees (thereby limiting salary and travel and subsistence costs) and without promotional gifts to give away. Additional add-on packages can then also be developed which add different dimensions to the base package, for example, promotional gifts, additional employees, more tractors on display, additional agricultural shows and so on.

The third stage, once all the decision packages are analysed and costed, is to review and rank each one on a cost-benefit basis. The benefits with respect to attending agricultural shows will be the increase in brand awareness, building of good customer relationships and increased sales. Budget resources can then be allocated based on this ranking.

Challenges of using a ZBB approach

A challenge of using a ZBB approach is that establishing some of the benefits of the decision packages can be difficult. For example, whilst we know that attendance at agricultural shows will increase our brand awareness and allow end customers to see our tractors up close and talk to our sales people, it will be difficult to quantify the effect of this in terms of additional future sales. The intangible nature of many of the benefits also leads to issues when ranking decision packages because quantitative information is much easier to compare than qualitative information.

Another challenge is the amount of time that will be required to implement it. Creating decision packages that are fully costed and justified is time consuming. In addition, as we have not used ZBB before, training will be required and its possible that the sales managers that would need to be involved in the process may resent being asked to do it, if they do not foresee any personal benefit.

Inventory approaches and EOQ

Inventory ordering approaches and financial implications

The two European Sales Offices appear to have very similar approaches to inventory ordering, as both have significantly higher inventory days than the Teeland Sales Office. Both European Sales Offices take advantage of bulk discounts, whilst the Teeland Sales Office doesn't. It appears that the Teeland Sales Office orders in smaller quantities and more often than the European Sales Office. It's possible that the fact that the supplier is based in Teeland makes it easier for the Teeland Sales Office to do this or it could be that higher delivery costs to the European Sales Offices mean that they limit the number of orders.

The financial implications of the approach taken by the Teeland Sales Office compared to the European Sales Offices are as follows:

- A lower level of inventory holding costs (storage costs, insurance costs) arising from a lower inventory on hand.
- A higher purchase cost of inventory as bulk purchase discounts is not taken.
- A lower level of investment in working capital and therefore a lower finance cost.
- A higher level of ordering cost given that the Teeland office makes more frequent orders.

The suitability of the EOQ model

In principle, the EOQ model is useful because it calculates an order quantity that minimises the total of the holding (insurance, storage costs and finance costs) and ordering costs associated with carrying inventory. It could be used by all three Sales Offices and would result in a consistent policy across the company.

However, the EOQ model is based on underlying assumptions, some of which may reduce its suitability for managing this inventory. The model assumes that:

- Annual demand for each type of brochure and promotional item can be determined with a reasonable level of certainty and that this demand is constant throughout the year. As we've seen recently with the modified Premium models, there has been uncertainty regarding the level of future sales which potentially also creates uncertainty for the amount of promotional material required. Having said that, if dealer contacts are reasonably stable, it could be feasible to determine demand for the year, and it's also feasible that demand is reasonably even through the year.

- The lead time between order and delivery is constant or zero. Given that the supplier is in Teeland, lead time is likely to be different for each office. Although, because there is one supplier, this is potentially predictable and therefore can be factored into the model.
- Purchase costs are constant with no bulk purchase discounts. However, we know that bulk purchase discounts are available, which could distort the model. However, the model can be expanded to take account of purchase discounts; it is possible to calculate the level of inventory that minimises the sum of holding, ordering and purchasing costs after deduction of any discounts.
- Holding costs vary with the level of inventory held. This is unlikely to be true because a significant proportion of the holding costs for are likely to be storage and insurance costs which are likely to be fixed in nature.

Overall, considering the above, using the EOQ model, extended to include the impact of bulk purchase discounts, could be a suitable way to the manage inventory levels of our Sales Offices.

SECTION 4

Sales variances

Sales price variances

The sales price variance measures the difference between the actual price achieved and the standard price for the actual volumes sold. There are adverse variances for the Basic and Premium models, meaning that average selling prices after dealer discounts for these models were lower than expected. The variance for the Premium model is likely a direct result of the additional discounts that the Sales Managers were authorised to allow for the new modified model. In the absence of any other information, the variance for the Basic model is likely the result of Sales Managers increasing the level of dealer discounts offered within their 5% parameter. The favourable variance for the Regular model (indicating a lower level of discount) is probably also due to this.

Sales mix profit variances

The sales mix profit variance measures the change in profit as a result of a change in the mix of models. Our Premium model gives us the highest profit per model, and therefore the favourable mix variance means that we sold proportionately more of this, our most profitable model. The Basic model variance is also favourable but, because this model has the lowest profit per model, this means that we sold proportionately less of this model. Regular models have a budgeted profit of T$58,156, which is higher than the weighted average of T$52,536, and therefore the favourable variance means that proportionately more has been sold of this model.

There are several reasons why the sales mix might have changed. Firstly, the additional discount that was authorised could have made it more attractive compared to the other models. Secondly, the government announcement about the grant could have made some farmers more inclined to upgrade the model purchased on the basis of the funding. It is interesting to note that the additional dealer discounts given for Basic model did not result in a greater proportion of sales of this model. Similarly, a reduction in the level of discount for the Regular model actually resulted in a greater proportion of this model being sold. This gives credence to the idea that farmers have upgraded their model selection given the unexpected boost to their finances.

Sales quantity profit variances

The sales quantity profit variance measures the change in profit as a result of selling more or less at the standard mix. This variance is best considered in total and means that profit is increased by T$210,000 as a result of selling more A++ tractors in standard mix than we expected to. This increase in sales could be because of the additional grants available to farmers and also because of the additional discount given for the Premium range.

Overall, it should be noted that the negative impact of the additional discounts is outweighed by the positive impact of the change in mix and the higher level of sales.

Laptop lease

IFRS 16 Leases states that a lessee can elect to treat the lease of a low-value item in one of two ways: as a lease of a low value item or as a right-of-use asset and lease liability in line with most leased assets. There is no formal definition of low value, but the standard gives personal computer equipment such as laptops as an example.

The election to treat a lease as low value can be decided on a lease-by-lease basis and therefore it does not matter how any other computer equipment leases have been treated in the past. If we do make the election to treat this as a lease of low value items, the accounting treatment is relatively simple.

We will record the lease payments as an expense over the lease term on either a straight-line basis or some other systematic basis. The total lease payments are T$750 x 2 and the total lease period is 24 months. This means that the expense in the statement of profit or loss for the year ending 31 December 2023 will represent 3/24ths of the total lease payment. Because the first payment will be made in arrears, the amount charged to profit or loss will need to be accrued at the year end and reflected as part of current liabilities in the statement of financial position.

If the election is not made, the lease should be treated in the same way as our other leases. An initial lease liability equivalent to the present value of the lease payments unpaid on 1 October 2023 (which is both payments) will be recognised. The rate used to calculate the present value will be the interest rate implicit in the lease of 8%. This lease liability will be increased by an interest expense for the 3 months to 31 December 2023 at 8% of the lease liability. This interest expense will reduce profit for the period.

A right-of-use asset will also be initially recognised at the initial value of the lease liability. Because the laptop will be handed back to the lessor at the end of the 2-year lease term, the right-of-use asset will be depreciated over the lower of the lease term and the useful life of the asset, which is 2 years. For the year ending 31 December 2023, 3 months of depreciation will be charged to profit or loss and will reduce the carrying amount of the right-of-use asset.

Perfect information

The value of perfect information of T$122,000 is higher than the cost of obtaining that perfect information of T$110,000. Therefore, it would potentially be worthwhile buying this information, although the additional benefit is not that significant given the size of the potential outcomes.

If we take a risk neutral approach to the decision, we would select Campaign 2, which has the highest expected value. This option also gives us the best outcomes if the market reaction is very good or good. Therefore, if these outcomes arise, it would not have been worthwhile buying the perfect information, because we would have paid T$110,000 but achieved the best outcomes anyway.

If market reactions are poor, Campaign 2 would result in T$610,000 less profit than would be achieved in the best outcome here (which would have been to select Campaign 1). The perfect information would protect us from making a loss and therefore we would need to consider if it is worth paying T$110,000 for this protection, when we estimate that there is only a 20% chance of this occurring.

If we take a risk averse approach, we would choose the campaign with the lowest co-efficient of variation, which is Campaign 1. Given the aversion to risk, we are likely to be happy to pay for the perfect information that is available, given that this information claims to totally eliminate risk of there being a mismatch between the campaign we implement and the state of the market.

Operational Level Case Study – Examiner's report

May 2023 – August 2023 exam session

This document should be read in conjunction with the examiner's suggested answers and marking guidance.

General comments

The OCS examinations for May 2023 and August 2023 were based on Tracs Europe, a company that manufactures and sells tractors used for agricultural purposes. The company is based in Teeland, a country in Europe which has the T$ as its currency. Tracs Europe is a wholly-owned subsidiary of AgRi, a leading global manufacturer and seller of a range of agricultural equipment including tractors, combine harvesters, trailers and ploughs. AgRi is based in North America.

Tracs Europe does not sell directly to the end-users of its tractors (who are mostly farmers), instead, the company sells to dealers throughout Europe, who then sell to the end-user. Tracs Europe has a large network of dealers across Europe and relationships are developed and maintained by Tracs Europe's sales teams.

All of the tractors that Tracs Europe sells are large tractors for agricultural use. These are manufactured at the company's Production Facility, located in the west of Teeland. Manufacturing is largely an assembly process, starting with the engines which are built from scratch and ending with the final tractor assembly. Tracs Europe buys in raw materials, parts, components and sub-assemblies from a variety of suppliers (including other group companies).

In 2022, Tracs Europe manufactured and sold 31,150 tractors in Europe. It generated revenue of T$2,990 million and had a gross margin of 25.9%, an operating margin of 8.7% and an average of 4,120 employees.

Six variants were written based on Tracs Europe. The focus of each variant was as follows:

- Variant 1: Development and launch of a new hydrogen-powered tractor
- Variant 2: Development and launch of a remote drive tractor
- Variant 3: Selling into a new market in a different country
- Variant 4: Launch of a new range of electric-powered mini-tractors
- Variant 5: Production-related issues due to higher than forecast sales
- Variant 6: Development of a TractorPal app and promotional activities

Each variant was based on the OCS case study blueprint and covered all core activities in accordance with the weightings prescribed. A levels-based approach was used for marking candidate answers. Each variant consisted of four tasks and each of these tasks was broken down into between two and four sub-tasks. Each sub-task was then broken down into between one and five traits for marking. For each trait, there was a detailed marking guide which split the total mark available into three levels: level 1, level 2 and level 3. It was also possible to achieve a score of zero for a trait if there was no rewardable material.

As is always the case, to achieve a level 3 on a trait, it was expected that a candidate would demonstrate good technical understanding of the topic being tested and apply this technical understanding to the Tracs Europe business and the particular scenario within the task, providing clear and comprehensive explanations.

If a candidate scored only at a level 1 on a trait, it is likely that they did some or all of the following:

- Demonstrated some or limited technical understanding, but with gaps in knowledge.
- Identified issues and points rather than explained.
- Explained issues too briefly or with a lack of clarity.
- Failed to relate their answer to the task scenario and the specifics of Tracs Europe.
- Failed to answer the task given, instead providing the answer to a different task from a previous OCS exam.

As is mentioned in each and every examiner's report, demonstrating good technical understanding is not enough on its own to pass. Candidates need to demonstrate technical understanding in the context of the scenario and the particulars of the issue being addressed. Information given to candidates as part of the task is there for a reason and should be, as far as possible, incorporated into answers, along with relevant information from the pre-seen. Application to the scenario is key to achieving high level 2 and level 3 scores. Clearly where there are gaps in knowledge, application is not possible and therefore the importance of candidates ensuring that their knowledge base is complete needs to be reiterated.

One other area worthy of mention is candidates' ability to explain. At the operational level, many of the tasks require explanation and, to achieve high level 2 and level 3, it is expected that this will be clear and comprehensive. It should also be an explanation or justification rather than a description, identification or simple statement.

Candidate Performance

Candidate performance was varied. As is always the case, there were some excellent high-scoring answers, which were a pleasure to mark. These candidates gave well-structured, clearly and comprehensively explained answers to the specific task given that demonstrated technical understanding in an applied way, by fully utilising the information given in the pre-seen and the unseen materials. At the other extreme, for this session, there were more really poor candidate answers, which was disappointing. For the

most part, these candidates attempted all tasks, but failed to score more than 20% of the marks. This was usually due to a lack of technical understanding: these candidates appeared to be completely unprepared for this exam. As is usually the case, the majority of candidates for this session were in the mid-range, either because some or all of their task answers lacked: technical understanding in the topic area, application to the scenario and/or clarity and depth. Many of the candidates in this category often answered the task that they wish had been asked (because they had a prepared answer) rather than the specific task given.

Specific topic areas where many candidates demonstrated good technical understanding (and usually good application) included relevant costing, beyond budgeting, rolling budgets, KPIs, digital costing systems, difficulties of costing digital products, basic variances (raw materials, direct labour and sales price), basic interpretation of decision trees and review of working capital ratios. Technical knowledge of almost all of the financial reporting standards was either very good or very poor: students either knew it or they didn't.

There were a number of topic areas where candidates demonstrated a lack of technical understanding and many of these are topic areas that have been weak in previous sessions. These included variable and fixed overhead variances, sales mix and quantity variances, linear programming (especially in relation to buying additional resource), the value of perfect information, sensitivity analysis and anything related to the tax part of the F1 syllabus. In addition, there were several topic areas where candidates were able to demonstrate general technical understanding but failed to give an answer that was applied to the context of the case. This included topics such as activity based costing and zero based budgeting.

There continues to be a lack of depth of explanation or justification in some of the tasks, especially in relation to financial reporting tasks. Remember, an explanation requires more than a short sentence on a point or simple identification of a rule in a financial reporting standard. Application to the specifics of the scenario and the situation at hand is also lacking at times. There was also a lack of clarity in certain areas such as explaining the meaning of an adverse or favourable variance or how a KPI would be measured.

With respect to the core activities, candidate performance was typically best for F (working capital), C (performance evaluation) and A (costing). The less competent core activities appeared to be B (budgeting), D (financial reporting) and E (decision making), but this often depended on the topic area that the task was based on. Most answers were clearly laid out, with heading and sub-headings.

To sum up, as has been noted many times before, the difference between a fail/bare pass and a good pass is often a candidate's ability to apply their technical understanding to the scenario and to incorporate this application into their answers consistently. Candidates should also pay attention to their clarity of explanation and ensure that they have addressed all parts of the sub-task. The same general advice to candidates applies to this session as much as all the previous sessions: answer the sub-task set (not what you wish had been set based on your pre-prepared answer), answer all parts of the sub-task and demonstrate technical understanding within the context of the business and the sub-task, referring as much as possible to the information given to you.

Variant 1 Comments on performance

Task 1

The first sub-task asked for an explanation, based on the information in Table 1, of how changes in both the estimated useful life and the residual value of machine 1 and machine 2 would be reflected in the financial statements for the year ending 31 December 2023. This tested core activity D. Candidate answers were usually one of two kinds. Those candidates who had good technical knowledge and understanding of the financial reporting standard scored well because they could correctly explain the implications for changes in expected useful life and residual value for the two machines. In contrast, some candidates demonstrated poor technical knowledge and understanding, by arguing for the need of a revaluation of the machines' values, which was not the case, and often saying that retrospective adjustments should be made for depreciation. For example, some candidates commented that the T$500,000 cost for machine 1 should be now depreciated over 12 years, which was not correct. These types of candidates often scored only at level 1.

The second sub-task asked for an explanation of why, based on the principles of short-term decision making and the information in Table 2, the ranking was correct. It also asked for two other non-financial factors that should be considered. This tested core activity E. This was expected to be a relatively straightforward sub-task, however, there were a significant number of very poor answers explaining why the ranking was correct. Few candidates explained why fixed costs should not be included and often just repeated the line of "extra cost to buy in per staff hour" that was provided to them in a table, rather than explaining why the proposed buying-in decision was correct. Hence, few candidates scored above a low level 2 here. In contrast, however, most candidates could usefully suggest two non-financial factors that should be considered, typically discussing two out of the following three factors: quality, lead time or supplier ethics.

The third sub-task asked for an explanation, based on the information in Table 3, of the financial and non-financial factors to be considered in deciding which of the three financing methods would be the most suitable for the pilot project. This tested core activity F. This was not that well answered by most candidates. Some common errors were to only comment on factoring and invoice discounting, thereby ignoring the suitability of the bank overdraft. Invoice discounting was also not well explained. Some candidates confused invoice discounting with discounts for early payments from customers, and not many candidates recognised that Tracs Europe would still need to retain its own sales invoicing and credit control staff if they chose invoice discounting.

Task 2

The first sub-task asked for an explanation of the differences between incremental and beyond budgeting using the information in Table 1. This tested core activity B. This was reasonably well answered by most candidates, with some candidates sensibly referring to budgeting practices explained in the pre-seen. Many candidates used the information in Table 1 to great effect when explaining

beyond budgeting and, as a result, many scored at higher level 2 or above. Lower scoring candidates often only discussed beyond budgeting and forgot to explain incremental budgeting. These kinds of answers failed to fully answer the task, which was to compare the two approaches to budgeting.

The second sub-task asked for an explanation of how the budgeting for, and control of, tractor delivery costs could be improved by using big data analytics. This tested core activity B. Whilst most candidates understood the meaning of big data analytics, and in particular the 4Vs of big data, many struggled to apply to this to delivery costs. In addition, many answers did not clearly separate out budgeting and control. Having said this, with careful reading, it was often possible to determine that many candidates were making some sensible comments on how big data analytics could help with budgeting. However, there were fewer sensible comments about how big data analytics could help with control of delivery costs. As a result, few candidates scored above a level 1 for the control trait, although many were able to score a high level 2 or above for the budgeting trait.

The third sub-task asked for an explanation, using the information in Table 2, of how the new system could reduce the risks of non-payment of accounts receivable. This tested core activity F. Most candidates sensibly focused their answer on the information in the table and provided reasonable explanations of how categorising customers in this way might reduce the risk of non-payment. Many candidates scored at high level 2 or above.

Task 3

The first sub-task asked for an explanation of what each of the variances in Table 1 meant, giving possible reasons why the variances had occurred. This tested core activity C. Despite this being tested numerous times before, many candidates struggled to provide clear explanations of what the variances meant. A fairly common error was for candidates to discuss labour efficiency in terms of budgeted hours (this was too vague) instead of explicitly comparing actual hours with the standard hours for the actual output. Also, for the direct labour idle variance, it often needed to be clearer that this variance referred to workers being paid when no productive work could be done. Some candidates stated that actual idle time must be higher than the budgeted idle time, when they had been told this was planned at nil. Many candidates failed to provide a reason for the idle time. The labour rate variance was better attempted, but even then, some candidates tried to link this variance to the number of machines produced rather than comparing the actual and budgeted rates per hour for the direct labour hours paid for. As a result, many candidates failed to score higher than a mid-level 2.

The second sub-task asked for suggestions for two KPIs that could be used to monitor machine utilisation and one KPI that could be used to monitor machine efficiency. It also asked for an explanation of how each KPI would be measured and why it would be appropriate. This tested core activity C. Many candidates made a reasonable attempt at suggesting KPIs that would be useful and how they could be measured. However, what was noticeable in some answers was that candidates were often unsure how to distinguish

utilisation from efficiency, leading to, for example, a sensible KPI for monitoring efficiency being included under a heading of utilisation. To avoid negative marking, allowances were made for these kinds of answers. Many candidates scored mid to high level 2 here.

The third sub-task asked for an explanation of the role of a non-executive director, including the reasons why they need to be independent. It also asked for reference to Ms. Smith's biography to illustrate the explanation. This tested core activity D. Given that this type of topic has not been assessed that often at OCS, it was pleasing to see candidates make sensible use of the information provided, and in general show an understanding of the role of a non-executive director (NED). Many candidates made some effort to link it with the biography provided. Weaker candidates sometimes overlooked the need to explain reasons why NEDs need to be independent or provided answers with very little depth to them.

Task 4

The first sub-task asked for an explanation, using the information in Tables and 2, of the issues that should be considered from a cost perspective when using cost plus pricing. This tested core activity A. This was poorly answered by the majority of candidates, who did not use the information given. Some candidates assumed the task was asking for an explanation of cost-plus pricing compared with competitor pricing. What was required was an explanation that the mark-ups on cost would need to take account of the cost base used, for example, that a mark-up on marginal cost would need to be larger than a mark-up on production cost. Very few candidates discussed the issue of overhead cost allocations that could impact on production and total costs. As a result, few candidates scored above a low level 2.

The second sub-task asked for an explanation, using the information in Tables 1 and 2, of three factors, other than cost, that would affect the price that could be charged. This tested core activity A. In contrast to sub-task (a), this was usually well answered. Most candidates made use of the market survey results they were given and could therefore come up with two or three factors other than cost that could affect the price of the tractors. Many candidates scored at level 3 here.

The final sub-task asked for an explanation of whether each of the costs in Table 3 were relevant, or not, to the decision regarding the acceptance of the offer from the TV Production Company. This tested core activity E. This was by far the best attempted part of this variant, and many candidates scored at level 3. Relevant costing principles are clearly well understood by candidates and good technical knowledge was demonstrated by most. Usually, the only errors were in assuming that the T$21,000 for machine overheads would not be relevant, thereby forgetting that some of these overheads could be variable, and again, assuming that the T$20,000 for the liaison costs would also not be relevant when candidates were told that existing staff may not have sufficient time to complete this role. If there was a weakness in a candidate's answer, it was usually in failing to adequately justify why a cost would be relevant or not, or just having headings for relevant or not relevant with bullet points of costs under each heading..

Variant 2 Comments on performance

Task 1

The first sub-task asked for an explanation of how costing the remote drive tractor app was different from costing the additional components of the remote drive tractor itself, using the information in Schedule 1. This tested core activity A. Many candidates had prepared for questions about digital costing based on past paper tasks and so answered a different task. For example, many candidates explained how to cost the app, without any emphasis on differences to the physical product, or explained the difficulties associated with doing so. Good answers attempted to use the information to make comparisons between the process of costing the two different aspects of the new product. Many candidates concentrated on the differences concerning the timing of initial costs incurred such as research and development. There were fewer answers that went into detail about other aspects of cost and then attempted to make comparisons. Those that did scored at level 3.

The second sub-task asked for an explanation of the difficulties of budgeting for, and controlling the costs of, the proposed software development team in the first year. This tested core activity A. Many candidates missed the point here and, instead of commenting on the team, commented on the app itself and the issues associated in establishing a full cost. Although the nature of the app does present some issues for costing of the team, answers that solely focused on the app did not address the task. Good answers considered both the problems of setting a budget and then controlling the costs. Few answers discussed the difficulties of setting an appropriate standard or a measure of output against which to measure performance.

The third sub-task asked for an explanation of the factors to consider when deciding which of the three methods of providing short-term finance was most suitable, using the information in Tables 1 and 2. This tested core activity F. There were several factors to be explained here and higher level 2 and level 3 answers used the information provided and drew on knowledge of the financing methods to compare and contrast the three possible solutions. Many candidates discussed cost as a factor, although few explained how interest is only charged on an overdraft for the period that it is used. Some candidates covered the three methods but did not use the information well or merely stated the obvious points about comparative costs as stated, which limited scores to mid level 2 at best.

Task 2

The first sub-task asked for an explanation of what the analysis, shown in Table 1, meant and what it indicated about the usefulness of the data for planning purposes. This tested core activity B. A sizeable number of candidates were unable to interpret the trend information and referred to fixed and variable costs in their answers. Some candidates also suggested that the 2003 value was a starting salary that then increased as IT employees progressed through pay grades. This shows a lack of understanding. Many candidates though did explain the trend reasonably well, but few candidates explained what the trend was. The correlation coefficient and coefficient of determination were generally well explained. Candidate answers about the usefulness of the information for planning

purposes were quite wide ranging. Many candidates did pick up on the weak correlation and managed to apply this well to the scenario of IT salaries and many commented on other factors that would affect salaries and so scored well here.

The second sub-task asked for an explanation of the benefits and limitations of using big data in planning IT specialist salaries. This tested core activity B. Far too many candidates relied on generic answers here, especially for the limitations (citing the 4 Vs). These were valid but needed to be applied to the context of the IT salaries to score at a higher level 2 or 3. For benefits, the application was better; for example, candidates explained the trends that could be identified and how accessing information in real time could help planning IT salaries. Candidates should always remember that to score well, they need to apply their technical knowledge to the case.

The third sub-task asked for an explanation of the difference between how cashflow from operating activities is calculated using both the indirect and direct methods, including how the overdraft interest would be recorded in the financial statements using this method. This tested core activity D. This was done reasonably well. Most candidates could explain how profit was adjusted to cash and the types of items that would be adjusted in the indirect method. The explanations of the direct method were reasonable, but often students were not clear in exactly what would be included here. Many answers omitted to mention the interest, which limited to the score to a lower level 2.

Task 3

The first sub-task asked for suggestions of two KPIs that measured app performance and two KPIs that measured app engagement. It also asked for an explanation, for each KPI, of how it would be measured and why it would be appropriate. This tested core activity C. Many candidates produced good answers here that scored at high level 2 or level 3. However, many candidates missed out on maximum marks as they did not articulate how the KPI would be measured that clearly. Some candidates mixed up the two, so for example, they suggested KPIs that would measure app engagement in relation to app performance, although credit was still given for this.

The second sub-task asked for an explanation of what each of the variances in Table 1 meant, giving reasons why the variances may have arisen. This tested core activity C. Many candidates did well here. The main weakness in candidate answers here was clarity of explanation. Candidates need to clearly explain what the variance means. This is different to how you calculate it. Candidates need to clearly explain what the favourable or adverse means in relation to each variance; for example, an adverse rate variance means that labour was paid a higher rate per hour than standard for the hours they were paid for. Also, a clear reason should be provided. The information in the case provides clues which the candidate should use to explain the relevant variance. Clarity of explanation was the main differentiator between level 3 and lower level 2 answers.

The third sub-task asked for an explanation of how the variance analysis could have been modified to give more relevant information for the month. This tested core activity C. Many candidates missed that this was about planning and operational variances. There were some good answers that did explain this and then used the information to show how it could be applied.

Task 4

The first sub-task asked for an explanation of the amount at which each tractor would be included in the financial statements for the year ending 31 December 2023. This tested core activity D. Most candidates were able to identify that this was testing application of IAS 2 and explained the relevant rule. Explanation of the treatment of each tractor often lacked depth and did not reference the information well. It is not explaining the treatment to just provide a short bullet point stating what the value should be. Candidates should consider that they need to provide a full rationale for each tractor. As a result, many candidates only scored at mid level 2 here.

The second sub-task asked for an explanation of which size of demonstration fleet each of the three members of the SMT would choose. It also asked for an explanation of, with reasons, why it would be hard to reach agreement between them. This tested core activity E. The first part of this was done well by many candidates who scored at level 3 for this trait. Some candidates did apply the maximin criteria for the risk averse decision maker, showing a lack of understanding that this task was about risk and not uncertainty. In situations of risk, a risk averse decision maker will base their decision on coefficient of variation and not maximin. Most candidates made some attempt to explain why it would be difficult to reach agreement. However, this was a challenging task and required candidates to think more widely about the information provided, which very few were able to do well.

The final sub-task asked for an explanation of the limitations of the information and analysis in Table 2 and the factors to consider when evaluating whether to pay the fee to the ticket agency to gain information about the number of tickets sold. This tested core activity E. Most candidates were able to explain the limitations of expected values. However, many did not apply these to the scenario and therefore limited their score to mid-level 2. The final part of this task was challenging. Many candidates could make some comments about perfect information. However, the task required a more applied understanding about the nature of the scenario and decision in question. The size of the fleet was fixed, and this was missed by many. However, other costs could be saved by knowing audience size, such as how many vehicles and staff to actually send to each show. Answers demonstrating this understanding scored well.

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Variant 3 Comments on performance

Task 1

The first sub-task asked for an explanation of how the different purposes of budgeting may be positively or negatively affected by allowing the sales team to participate in budget setting. This tested core activity B. Candidate answers were mixed here. Some candidates correctly identified that this was about participation in budget setting, but then failed to read the task carefully enough to identify that the task was also about the purposes of budgeting. Such candidates typically gave generic answers about the benefits and limitations of participation in budget setting with no reference to the purposes of budgets or much reference to the scenario. These candidates scored at level 1. Other candidates did comment on the purposes of budgeting, although often this was limited to planning, motivation and control rather than wider purposes, and sometimes ignored points about participation altogether. Candidates that scored at higher level 2 or level 3 for this sub-task did so because they were able to link the purposes of budgeting to the benefits and limitations of participation with good reference to the scenario.

The second sub-task asked for an explanation of the ethical aspects of budgetary control which Donna Marsh should consider when setting and reviewing the budgets of individuals in her team. This tested core activity B. This was not that well done on the whole, with few scoring above a mid-level 2. Some candidates completely ignored budgetary control and explained how the company should act ethically in a general sense, which scored few marks. Where candidates did make an attempt to use the information in the scenario, they were able to make sensible points about controllability and achievement of targets, with some picking up on the potential for unethical sales practices. These sorts of points scored well. The issue with many answers though was a lack of depth.

Task 2

The first sub-task asked for an explanation of the issues around legal status and taxation that we should consider when setting up the new Cetland operation as either a branch or a subsidiary of Tracs Europe. This tested core activity D. This was quite a tricky technical task and so perhaps it was not surprising that many candidate answers were muddled. Most candidates were able to identify that a branch would be an extension of the parent and that a subsidiary would be a separate legal entity, but hardly anybody commented that whichever, there would be a permanent establishment in Cetland for the purposes of tax. Some candidates tried to apply the double tax treaty to the subsidiary situation, although many candidates did recognise the differential in the tax rate if a subsidiary was set up.

The second sub-task asked for an explanation of how the lease liability and right-of-use asset for the transporter lease should be measured initially in our financial statements. This tested core activity D. This was either answered really well or really poorly. Candidates that scored at level 3 did so because they clearly explained the rules for the initial measurement of the lease liability and

right-of-use asset and referred to the information given about this lease. Only a few candidates commented on the option to purchase the transporter, but many did comment correctly on the collection fees at the end of the lease term. At the other extreme, there were some very poor answers, which demonstrated a complete lack of knowledge about how to account for a lease. This is a common topic in OCS exams and future candidates are reminded to make sure that knowledge in the area is complete. Some candidates did waste time here explaining the subsequent measurement of the lease liability and right-of-use asset, which was not asked for and scored no marks.

The third sub-task asked for an explanation of how the maximin, maximax and minimax regret decision criteria would be used to select the marketing mix. It also asked to state the other factors that should be considered before deciding which marketing mix to choose. This tested core activity E. The first part of this was answered well by most candidates, with many scoring at level 3. This demonstrated good understanding. Some candidates though are still referring to risk attitudes when this was about uncertainty and not risk. The second part was also well answered, with many candidates making sensible commercial points about the marketing mix. There were some candidates though that answered a different task, that being the limitations of the analysis. Some credit was given for that.

Task 3

The first sub-task asked for an explanation of the differences in how profit is calculated using both marginal and absorption costing based on Table 1, and the impact of the different methods on profit in the short and long term. This tested core activity A. There were some excellent level 3 answers here where candidates clearly explained the differences in the two approaches and made reference to the scenario in respect of the costs and the increase in inventory. Only a handful of candidates though commented on the over/under absorption and so there were not many full mark answers. The majority of answers though were vague and poorly explained, although most did get the point that inventory increasing would lead to a higher profit under absorption costing. Many candidates seemed to forget to comment on profit in the long term.

The second sub-task asked for an explanation of why the current system of absorption costing may be of little use for short-term decision making and why ABC could help us to make better short-term decisions. This tested core activity A. This was not well answered. Many candidates failed to comment on absorption costing at all and instead gave lengthy and often muddled explanations about how ABC would be implemented (the answer to a different task). Few candidates gave much focus to decision making, although many did comment that costs would be more accurate. Very few picked up that ABC effectively treats all costs as variable.

The third sub-task asked for suggestions of four KPIs which could be used to monitor the performance of each member of the sales team. It also asked for explanation of how each KPI would be measured and why it would be appropriate. This tested core activity C. This was well answered with many candidates scoring at mid-level 2 or higher. Where candidates didn't score so well, it was because they gave vague measures or didn't focus on the sales team and individual members within that team. As has been mentioned before,

a weakness here was a lack of clarity when explaining how it would be measured. Candidates need to be more explicit here.

Task 4

The first sub-task asked for an explanation of what the variances in Table 1 told about sales in Cetland, giving possible reasons why the sales variances had occurred. This tested core activity C. This was well answered by many candidates. This was slightly different from other sales variance tasks in the past, in that the volume variance was given rather than the quantity variance. This didn't faze most candidates who demonstrated good technical understanding of the volume variance. The variance where candidates demonstrated the least understanding was, not surprisingly, the mix variance. Answers about the meaning of the mix variance were often vague, although usually valid reasons for the change in mix were identified.

The second sub-task asked for an explanation of three different techniques which the Cetland sales team could use to collect outstanding accounts receivable and the factors to consider when using each of these. This tested core activity F. Again, this was reasonably well answered by many candidates who scored at level 2 or above. Where candidates didn't score this highly, it was often because they had focused on external approaches to receivables management, such as factoring and invoice discounting, rather than techniques that the Cetland sales team could use.

The third sub-task asked for an explanation of how the decision tree should be interpreted. It also asked for an explanation of three issues that were not covered by a financial appraisal of the situation. This tested core activity E. The first part of this was well answered by most candidates, who were able to describe the tree and how to interpret it to make the decision. Where candidates scored at level 1 here, it was usually because answers were too brief or very vague, demonstrating a lack of technical understanding of decision trees. The second part of this sub-task was either answered very well or very badly. Some candidates seemed to miss that fact these the issues needed to not be covered by the financial appraisal. This does not include the limitations of the financial appraisal, which a number of candidates explained at length.

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Variant 4 Comments on performance

Task 1

The first sub-task asked for an explanation of what Chart 1 showed. This tested core activity B. Most candidates were able to achieve a good level 2 here for being able to explain and offer good reasons for the trend and seasonal variations based on the scenario.

The second sub-task asked for an explanation of how to determine a trend line and seasonal variations from the data on which Chart 1 had been constructed, including any difficulties associated with using this data. This tested core activity B. For the most part, this was very poorly answered. Few candidates offered any explanation of how to determine either seasonal variations or the trend line and therefore did not address the task given. Explanation of difficulties was a little better.

The third sub-task asked for an explanation of the validity of a forecast of sales volumes for E-Trac from October 2023 onwards, based on this trend line and seasonal variations. This tested core activity B. This again was poorly answered. Candidates that made simple statements such as "the sales forecast was not valid because past events may not be replicated in the future", in other words, those candidates that presented only generic answers without reference to the case material specific content, received a low level 1 mark. In contrast, candidates commenting on the fact that the sales data included the sales of diesel mini-tractors as well as electrically-powered ones, demonstrating application to the scenario, which usually led to at least a level 2 score.

The fourth sub-task asked for an explanation of the impact on the management of receivables by the sales and credit control team of selling to retailers and how the company could mitigate any potential additional risk that might arise. This tested core activity F. This was also poorly answered, with many candidates failing to explain any impact at all (the increase in the workload, the risk of irrecoverable debt, and so on) therefore, halving the marks they could be awarded. It cannot be stressed enough that candidates must answer the entire task given.

Task 2

The first sub-task asked for an explanation of the suitability of using the new E-Trac Production Facility as a pilot for an activity based costing (ABC) approach. This tested core activity A. Some candidates produced excellent answers that used the information given in the case scenario: the high level of direct costs, simple production-line assembly and standard products that required similar levels of resource to explain that ABC was probably not suitable for the new E-Trac Production Facility. These candidates achieved level 3 marks. However, many candidates merely described ABC rather than answer the task given and, even where these descriptions were

excellent, only minimal credit could be awarded. Many candidates explained the existing use of absorption costing for the existing production processes which earned no credit as it did not address the task posed at all.

The second sub-task asked for an explanation of the benefits for the E-Trac Production Facility by using a digital costing system. This tested core activity A. This was answered well by most candidates. There was ample evidence that most candidates understood the benefits of digital costing systems and a good range of points were offered, most earning a high level 2. Weaker answers were knowledge based rather than applied to the case scenario.

The third sub-task asked for an explanation of how the right-of-use asset would be initially recorded and subsequently measured in the financial statement for the year ending 31 December 2023 if the equipment was leased. It also asked for explanation of how the treatment of the asset would differ if the equipment were purchased outright. This tested core activity D. Accounting for leases has been examined at OCS many times and therefore, the standard of candidate answer was disappointing. Most answers neglected to include the future annual lease payments in the valuation of the right-of-use asset and those that did include them did not seem to know that they should be discounted. Many candidates explained subsequent measurement of the lease liability (although usually incorrectly), and this earned no credit as it was not asked for. Few candidates used the correct number of years to depreciate the asset and fewer still correctly explained the part year depreciation charge. While candidates on the whole demonstrated a much better understanding of accounting for a purchased asset, hardly any tried to explain the difference compared to leasing the asset. This meant that few candidates exceeded level 1 as they did not address the task.

Task 3

The first sub-task asked for an explanation of what each of the variances shown in Table 1 meant and possible reasons for their occurrence, based on the information in the email and the KPI information in Table 2. This tested core activity C. Few candidates did all that was asked well enough to achieve a high level 2 score. Most candidates did not reference the KPI information at all, which meant that 5% of the marks were missed entirely. Many candidates explained how to calculate the variances, but this was not enough to explain the meaning of a variance, which is what was asked for. Technical knowledge and understanding were good for the direct material variances, less good for direct labour and very poor for variable overhead variances. Many candidates stated that the direct labour rate was adverse because of the overtime paid, that the idle time was caused by a lack of budgeted idle time and that the variable overhead expenditure was due to the slowing down of the assembly line. All of these are incorrect reasons.

The second sub-task asked for an explanation of the benefits to the managers of the E-Trac Production Facility by introducing a real-time KPI dashboard. This tested core activity C. Most candidate answers were good enough to be awarded a level 2 as they considered the importance of up-to-date data for decision making and control, the visual impact on understanding and motivation. A few simply

explained the KPIs in the table and stated whether this indicated improved or deteriorating performance. This was not asked for and earned no credit.

Task 4

The first sub-task asked for an explanation of how to determine, based on Graph 1, how many GPXs the company might consider ordering from the alternative supplier and how the company would decide whether this would be worthwhile. This tested core activity E. This was the worst answered task of this variant. Most candidates simply did not seem to have any idea how to answer this task or even understand what it was asking, and simply repeated information given in the reference material without adding any value. Similar questions have been asked in previous diets and future candidates are advised to work through previous OCS exams, using suggested answers, prior to sitting this examination.

The second sub-task asked for an explanation of how to account for both pieces of damaged equipment identified in Table 1. It also asked for an explanation of whether any adjustment would affect the financial statement for the year ending 31 December 2023 or 31 December 2024, given that the 2023 financial statements had not yet been finalised. This tested core activity D. Although this was answered much better than the leasing question, there were significant errors in some answers; for example, stating that repairs should be capitalised and that the financial statements for 2023 must be adjusted. Similar questions have been asked in the past and candidates should know when an event is adjusting or non-adjusting and that a repair of this sort is not capitalised as it does not enhance the economic value of the asset.

The third sub-task asked for an explanation of the maximax, maximin and minimax regret decision criteria and how the company should use each of these to decide which promotional campaign to choose. It also asked for identification of the campaign that would be chosen under each criterion. This tested core activity E. Given that this has been tested many times before, it was disappointing that many candidates could not explain or apply the three decision criteria and merely stated "campaign 1/2/3", without any explanation. A significant proportion of candidates did not know how to use the payoff and regret tables or did not use the information given in the reference material.

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Variant 5 Comments on performance

Task 1

The first sub-task asked for an explanation of what each of the variances in Table 1 meant and possible reasons for their occurrence. This tested core activity C. This was reasonably well answered by most candidates, although very few earned the full marks that were available. A common error was stating that the variable overhead expenditure variance was favourable because actual costs were lower than the budget. Whilst this is the correct rationale for a favourable fixed overhead expenditure variance, a variable overhead expenditure variance is derived from the actual level of activity (actual direct labour hours worked). As has been the case in previous sessions, few candidates could explain the fixed overhead capacity variance, often saying that this was due to producing more tractors than budgeted, instead of correctly explaining that this was because actual direct labour hours were significantly higher than the budgeted labour hours, thereby resulting in a greater production capacity in terms of hours.

The second sub-task asked for an explanation of whether it was appropriate to hold Bill Gomez, Main Assembly Manager, responsible for the fixed production overhead variances of the Main Assembly Department in May. This tested core activity B. This was reasonably well answered by most candidates who demonstrated an understanding of responsibility accounting in their answers. The main problem was not a lack of knowledge but failing to apply answers to the scenario in sufficient depth. Having explained the reasons for the fixed production overhead variances in task (a) of their answers, it should have been relatively easy to then go on to discuss some of these in the context of the Main Assembly Manager's responsibilities.

The third sub-task asked for an explanation of the potential benefits and drawbacks of adopting a rolling budgets approach for the cash budget. This tested core activity B. Again, this was reasonably well answered by many candidates. The majority of candidates clearly understood what was meant by a rolling budget and could provide some potential benefits and drawbacks. However, some candidates lost marks by only answering the task in very general terms that could be applied to any budget. The focus of the candidates' explanation should have been on the cash budget, as specified in the task. As a result, scores tended to be limited to level 2.

Task 2

The first sub-task asked for an explanation of how an ABC approach would differ to the current costing approach for the Body Panel Production Department. This tested core activity A. ABC has been examined in a number of past case studies and yet many candidates' answers are still disappointing in depth. This task was worth 64% of the marks for this section, and candidates were provided with information on 5 different processes in the Body Panel Department. This should have been a clue as to the depth of answer that was expected. Most candidates demonstrated an understanding of cost pools and cost drivers and could make some brief comparison with

the current costing system being used, but often failed to apply this knowledge by explaining how ABC could be applied in the Body Panel Department. It wasn't necessary to explain all the processes in the department, but to write enough to justify being awarded more marks in the time that was available.

The second sub-task asked for suggestions of three KPIs that would be appropriate to monitor the performance of the service provider, and to explain how each KPI would be measured and justify why it would be appropriate. This tested core activity C. Most candidates managed to earn a level 2 mark, or higher, which showed good understanding of KPIs. Weaker candidates failed to recognise the context which was to suggest KPIs that would be suitable to monitor the service quality of the outsourced service provider. Suitable KPIs included the length of time from calling out the service provider to repair the robots in the event of a break-down, and the percentage of scheduled preventative maintenance being completed on time. Many weaker candidates gave KPIs that were linked to production issues not related to the service provider or suggested the provider's cost as a KPI. The cost of repairs would have been a poor KPI to assess the quality of the service provider because a cheap repair would probably lead to more unreliable robots with the damaging impact this would have on lost production.

Task 3

The first sub-task asked for an explanation of how the expenditure associated with the new equipment would be initially recorded in the financial statements. It also asked for explanation of how the equipment asset would be depreciated in the financial statements for the year ending 31 December 2023. This tested core activity D. This was well answered by most candidates who showed a level of knowledge and understanding of the "F" syllabus that has often been missing in the past. A few candidates thought that training costs could be capitalised, but they were in the minority, and some candidates forgot to explain that depreciation would start from 1 December when the equipment became available for use.

The second sub-task asked for an explanation of the decision tree and how it could be used to decide which contract to choose, assuming a risk neutral approach. This tested core activity E. The first part of this sub-task was looking for a simple explanation of the information contained in the decision tree, however, many candidates lost marks by failing to fully explain the tree. The second part of the sub-task required candidates to start with the evaluation of decision point A and compare with decision point B using expected value (EV) criteria to indicate which contract to choose. This was not well answered by many candidates. These candidates did not make sufficient use of the data provided in explaining their answers. Also, some candidates went off at a tangent and discussed issues such as risk seeking approaches to decision making or the limitations of EV. These were not asked for and scored no marks.

The third sub-task asked for an explanation for both Robotics+ and Prestige Engineers, what the information contained in Table 1 indicated about its approach to working capital management, with reference to each element of the working capital cycle for each service provider. This tested core activity F. Many candidates' answers were disappointing for this sub-task. Too often candidates just

repeated back the information they were given for each potential service provider. What candidates needed to do to earn better marks was to explain what the working days might indicate for each supplier's approach to their working capital management. For example, low inventory days might indicate a JIT approach, and what may be the implications of this for Tracs Europe? Again, Prestige Engineers receivable days were very low. Could this mean they were offering prompt payment discounts, or could it mean that they were putting pressure on their customers to pay? How might this impact on Tracs Europe?

Task 4

The first sub-task asked for an explanation, with appropriate justification of how the testing equipment would be reflected in the financial statements for the year ending 31 December 2023. This tested core activity D. Most candidates recognised that this was an issue of whether the testing equipment could be reclassified as an asset held for sale. Many candidates scored well here because they could explain the criteria for reclassification and did make a good attempt to apply these to the scenario, including comments that a specialist equipment dealer had been engaged to find a buyer. However, some candidates were unsure about what this would mean for the financial statements. The key was to recognise that at the year end the asset would be valued at the lower of its carrying amount at the year end, after having adjusted for 2 months of depreciation, and the fair value less costs to sell of the asset, with the loss being written off to profit or loss in 2023. This was not always clearly explained by candidates.

The second sub-task asked for an explanation of what Chart 1 indicated about the original budget for the A++ Power range of tractors for the year ending 31 December 2024. It also asked for an explanation of the impacts that the proposed changes would have on the budget as illustrated by the chart. This tested core activity E. In general, many candidates were able to make some sensible observations on the two lines on the chart. Most candidates commented on fixed cost, break-even point and total profit for the two budget lines. Some candidates also went on to comment on the order of the three products and the implications this had for the margin of safety, demonstrating good understanding of the chart. Few candidates though linked the differences in the lines back to the proposed changes, which limited many scores to level 2.

The third sub-task asked for an explanation of three benefits to the business of using a beyond budgeting approach. This tested core activity B. Again, as with the other tasks in Section 4, this was usually well answered by most candidates. Technical knowledge and understanding of beyond budgeting were demonstrated and most candidates earned at least a level 2 mark by being able to explain at least two benefits.

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Variant 6 Comments on performance

Task 1

The first sub-task asked for an explanation of how to determine the full cost per download of the TractorPal app and the difficulties of doing so. This tested core activity A. For the first part of this sub-task, many candidates were able to identify the costs and comment that the cost per download would be calculated as the total of these divided by the number of downloads. However, most candidates did not differentiate between direct and indirect costs or the nature of shared costs, which limited scores to a mid level 2. Answers for the second part of this sub-task were better, with most candidates commenting on at least two difficulties. Where candidates lost marks, it was because of a lack of depth to the explanation. Some candidates scored poorly because they answered a different question (that being how costing the physical tractor is different to the app).

The second sub-task asked for an explanation of how relevant costing could be applied to each item in Table 1, starting any further information needed to determine and quantify the relevant costs and revenues for the decision. This tested core activity E. Most candidates were able to identify which items were relevant or not, although problematic items were the refunds on income and the replacement cost of the promotional inventory. Some candidates did seem to be mixing up relevant and direct costs as their rationale for inclusion was based on whether it could be wholly associated with the festival. Few candidates commented on further information, which then limited scores to level 2.

Task 2

The first sub-task asked for an explanation of the sensitivity information shown in Table 2 and why the level of sensitivity differs. It also asked for an explanation of the benefits and limitations of this sensitivity analysis. This tested core activity B. This was the worst answered sub-task on this variant. Most candidates demonstrated that they had no understanding of what sensitivity measures mean, with many candidates stating for example that profit would change by 23.2% if the selling price changed. A common error was for candidates to state that selling price was the least sensitive and fixed production costs the most sensitive, when in fact the opposite was correct. Even where candidates identified that sensitivity measures how much a variable can change before a profit becomes a loss, most did not explain this in the context of the information given or made any attempt to explain why the measures differed. Future candidates need to ensure that they have technical knowledge and understanding of sensitivity analysis. Many candidates did pick up a mark or two for the benefits and limitations part of this sub-task for comments such as it only considers one variable at a time. However, because of a lack of technical understanding, overall, this was also poorly done.

The second sub-task asked for an explanation of three KPIs that could be included on a digital marketing dashboard, explaining how each would be measured and why each would be appropriate. This tested core activity C. Many candidates did well here, scoring high

level 2 or low level 3. At times, explanations of how the KPI would be measured were a little vague but there was a good attempt to focus on assessing performance of the digital marketing.

The third sub-task asked for an explanation of the adjustments that would need to be made to ensure compliance with transfer pricing regulations if AgRi applied the 100% mark-up when charging the company. It also asked for explanation of whether, if the transfer pricing regulations were not applied, this would be an example of tax evasion or tax avoidance. This tested core activity D. This was poorly answered by most candidates. Basic understanding of tax evasion version tax avoidance was demonstrated, but the application of the rules was often completely ignored.

Task 3

The first sub-task asked for an explanation of the ZBB process and how this would be applied to create a budget for agricultural shows for one of the sales offices for the year ending 31 December 2023. This tested core activity B. Candidate answers here were mixed. Those candidates who knew the specific stages of the process, generally made a good attempt at application and scored well. There were some really good answers that applied mutually exclusive and incremental packages well in context. However, there were some candidates that could not go beyond stating that it was a budget that started from zero, indicating a lack of knowledge in this area. There were quite a few candidate answers that made the point about starting from scratch and then went on to describe how to prepare a normal budget, costing out the various element they were given.

The second sub-task asked for an explanation of the challenges of using a ZBB approach to determine the budget. This tested core activity B. Most candidates identified that it was time consuming and costly, but few went beyond this to consider issues such as quantifying benefits due to their intangible nature.

The third sub-task asked for an explanation of the inventory ordering approaches of the sales offices and the financial implications of the approach taken by the Teeland office compared to the European offices. It also asked for an explanation of whether the EOQ model might be suitable as a method of managing the procurement of promotional items. This tested core activity F. There were some high-scoring answers for the ordering approaches part of this sub-task here, where candidates showed good analytical skills in commenting about the use of bulk purchase discounts, the frequency of orders and the impacts on holding and ordering costs. However, many candidates simply stated the obvious and repeated information from the scenario, rather than adding value. For the EOQ, some candidates did not realise 'suitability' meant commenting about the assumptions. Most were able to explain what EOQ was, but few went into the assumptions and why these may or may not apply. Instead, quite a lot of answers focused on giving their own personal opinion about the EOQ method.

Task 4

The first sub-task asked for an explanation of what the sales variances in Table 1 meant and possible reasons why thy had arisen. This tested core activity C. As has been the case numerous times before, most candidates were able to explain the price variance very well but demonstrated a lack of understanding about the mix variance based on the weighted average method. Candidates still seem confused between the two methods of calculating sales mix variances, with many stating that a favourable variance meant that more had been sold of that model, which meant that they then gave the wrong reasons. A lot of candidates muddled the quantity and mix variances.

The second sub-task asked for an explanation of two alternative ways in which the lease for the laptop could be reflected in the financial statement for the year ending 31 December 2023. This tested core activity D. Candidates either had the technical knowledge or not, and when they did, scored well. Some candidates took the 'two methods' to be the right-of-use asset and the lease liability, and ignored the low value option, which limited their mark. Most were able to explain the standard treatment for a lease, although often missed the prorate required for depreciation and interest and often made only limited reference to the information in the task.

The third sub-task asked for an explanation of how having a risk neutral and a risk averse attitude would impact on the SMT's willingness to pay for perfect information, based on the information in Tables 3 and 4. This tested core activity E. Most candidates were able to explain how to make the decision using a risk averse and risk neutral approach, but unfortunately, this was not what the task was looking for. Explanations of perfect information in the context of decision-making approaches were very poor. There were some candidates who commented that a risk averse decision maker would be more likely to pay to eliminate risk, however, only a very small number of candidates made sensible comments about the risk neutral decision maker.

Operational Level Case Study May 2023 & August 2023

Marking Guidance

Variant 1

About this marking scheme

This marking scheme has been prepared for the CIMA 2019 professional qualification Operational Case Study [May 2023 & August 2023].

The indicative answers will show the expected or most orthodox approach; however, the nature of the case study examination tasks means that a range of responses will be valid. The descriptors within this level-based marking scheme are holistic and can accommodate a range of acceptable responses.

General marking guidance is given below, and markers are subject to extensive training and standardisation activities and ongoing monitoring to ensure that judgements are being made correctly and consistently.

Care must be taken not to make too many assumptions about future marking schemes on the basis of this document. While the guiding principles remain constant, details may change depending on the content of a particular case study examination form.

General marking guidance

- Marking schemes should be applied positively, with candidates rewarded for what they have demonstrated and not penalised for omissions.
- All marks on the scheme are designed to be awarded, and full marks should be awarded when all level descriptor criteria are met.

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- An answer which does not address the requirements of the task must be awarded no marks. Markers should mark according to the marking scheme and not their perception of where the passing standard may lie.
  Where markers are in doubt as to the application of the marking scheme to a particular candidate script, they must contact their lead marker.

How to use this levels-based marking scheme

1. Read the candidates' response in full

2. Select the level

- For each trait in the marking scheme, read each level descriptor and select one, using a best-fit approach.
- The response does not need to meet all of the criteria of the level descriptor – it should be placed at the level when it meets more of the criteria of this level than the criteria of the other levels.
- If the work fits more than one level, judge which one provides the best match.
- If the work is on the borderline between two levels, then it should be placed either at the top of the lower band or the bottom of the higher band, depending on where it fits best.

3. Select a mark within the level

- Once you have selected the level, you will need to choose the mark to apply.
- A small range of marks may be given at each level. You will need to use your professional judgement to decide which mark to allocate.
- If the answer is of high quality and convincingly meets the requirements of the level, then you should award the highest mark available. If not, then you should award a lower mark within the range available, making a judgement on the overall quality of the answer in relation to the level descriptor.

Summary of the core activities tested within each sub-task

Sub-task		Core Activity	Sub-task weighting (% section time)
Section 1			
(a)	**D**	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	**36%**
(b)	**E**	Prepare information to support short-term decision making.	**36%**
(c)	**F**	Prepare information to manage working capital.	**28%**
Section 2			
(a)	**B**	Prepare budget information and assess its use for planning and control purposes.	**40%**
(b)	**B**	Prepare budget information and assess its use for planning and control purposes.	**40%**
(c)	**F**	Prepare information to manage working capital.	**20%**
Section 3			
(a)	**C**	Analyse performance using financial and non-financial information.	**32%**
(b)	**C**	Analyse performance using financial and non-financial information.	**36%**
(c)	**D**	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	**32%**
Section 4			
(a)	**A**	Prepare costing information for different purposes to meet the needs of management.	**32%**
(b)	**A**	Prepare costing information for different purposes to meet the needs of management.	**20%**
(c)	**E**	Prepare information to support short-term decision making.	**48%**

SECTION 1			
Task (a): Explain, based on the information in Table 1, how the changes in both the estimated useful life and the residual value of machine 1 and machine 2 will be reflected in our financial statements for the year ending 31 December 2023.			
Trait			
IAS 16	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the rules in IAS 16 regarding changes to estimated useful life and residual value. The explanation of the effect in the financial statements lacks clarity, technical accuracy, application to the scenario and is not complete.	1 - 3
	Level 2	Demonstrates reasonable understanding of the rules in IAS 16 regarding changes to estimated useful life and residual value. The explanation of the effect in the financial statements lacks some clarity, technical accuracy, application to the scenario and may not be complete.	4 - 6
	Level 3	Demonstrates good understanding of the rules in IAS 16 regarding changes to estimated useful life and residual value. The explanation of the effect in the financial is mostly clear, technically accurate, complete and applied to the scenario.	7 - 9

SECTION 1 continued			
Task (b): Explain why, based on the principles of short-term decision making and the information in Table 2, my ranking is correct. You should also include two other non-financial factors we should consider.			
Make or buy	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of the principles of short-term decision making relating to make or buy decisions with limited explanation of why the ranking given is correct. The explanation lacks clarity, depth and has little/no application to the scenario.	1 - 2
	Level 2	Demonstrates reasonable technical understanding of the principles of short-term decision making relating to make or buy decisions with an explanation of why the ranking given is correct. The explanation lacks some clarity and depth, but has some application to the scenario.	3 - 4
	Level 3	Demonstrates good technical understanding of the principles of short-term decision making relating to make or buy decisions with an explanation of why the ranking given is correct. The explanation is mostly clear, comprehensive and is applied to the scenario.	5
Other factors	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Identifies one other non-financial factor to be considered in the decision, but the explanation is not clear and there is no link to the scenario information.	1
	Level 2	Identifies one or two other non-financial factors to be considered, but the explanation lacks depth and clarity and there is only limited relevance to the scenario	2 - 3
	Level 3	Identifies two other non-financial factors with a clear explanation which has depth and links directly to the information in the scenario.	4

SECTION 1 continued			
Task (c): Explain the financial and non-financial factors to be considered in deciding which of these three financing methods would be most suitable for the pilot project.			
Trait			
Receivables management	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of the differences between each financing method. However, the explanation is not clear and lacks depth. There is no link to the information in the scenario. No assessment of suitability is given.	1 - 2
	Level 2	Demonstrates some technical understanding of the differences between each financing method. However, the explanation is limited and lacks some depth. There is only a limited link to the information in the scenario. An attempt is made to assess the suitability of both factoring and invoice discounting.	3 - 5
	Level 3	Demonstrates technical understanding of the differences between each financing method. The explanation has clarity and depth. There are clear links to the scenario. The suitability of both factoring and invoice discounting compared to the overdraft is assessed.	6 - 7

SECTION 2			
Task (a): Explain the differences between incremental budgeting and beyond budgeting using the information in Table 1.			
Trait			
Beyond budgeting	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the differences between incremental budgeting and beyond budgeting. The explanation lacks clarity, depth and reference to the scenario or the information given.	1 - 3
	Level 2	Demonstrates reasonable understanding of the differences between incremental budgeting and beyond budgeting. The explanation may lack some clarity, depth and/or reference to the scenario or the information given.	4 - 7
	Level 3	Demonstrates good understanding of the differences between incremental budgeting and beyond budgeting. The explanation is clear, comprehensive and refers to the scenario and the information given.	8 -10

SECTION 2 (continued)			
Task (b): Explain how the budgeting for, and control of, our tractor delivery costs could be improved by using big data analytics.			
Trait			
Big data	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of big data analytics and makes some attempt to explain how it could be used to improve budgeting. The explanation lacks clarity, depth, and application to specific scenario of delivery costs.	1 - 2
	Level 2	Demonstrates reasonable understanding of big data analytics and makes some attempt to explain how it could be used to improve budgeting. The explanation may lack some clarity and/or depth. There is some application to the specific scenario of delivery costs.	3 - 4
	Level 3	Demonstrates good understanding of big data analytics and makes a good attempt at explaining how it could be used to improve budgeting. The explanation is mostly clear and comprehensive. There is application to the specific scenario of delivery costs.	5
Control	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how analytics could be used to improve cost control. The explanation lacks clarity, depth and application to the specific scenario of delivery costs.	1 - 2
	Level 2	Demonstrates reasonable understanding of how analytics could be used to improve cost control. The explanation may lack some clarity and/or depth. There is some application to the specific scenario of delivery costs.	3 - 4
	Level 3	Demonstrates good understanding of how analytics could be used to improve cost control. The explanation is mostly clear and comprehensive. There is application to the specific scenario of delivery costs.	5

SECTION 2 (continued)			
Task (c): Explain how the new system could reduce the risks of non-payment of accounts receivable.			
Trait			
Accounts receivable	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the risks of non-payment of accounts and how the new system could reduce this risk. The explanation lacks clarity, depth and reference to the scenario or the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of the risks of non-payment of accounts and how the new system could reduce this risk. The explanation may lack some clarity, depth and/or reference to the scenario or the information given.	3 - 4
	Level 3	Demonstrates good understanding of the risks of non-payments of accounts and how the new system could reduce this risk. The explanation is clear, comprehensive and refers to the scenario and the information given.	5

SECTION 3			
Task (a): Explain what each of the variances in Table 1 means, giving possible reasons why the variances have occurred			
Trait			
Variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of what direct labour variances mean. The explanation as to why the variances have occurred lacks clarity, depth and reference to the scenario or the information given.	1 - 3
	Level 2	Demonstrates some technical understanding of what direct labour variances mean. The explanation as to why the variances have occurred may lack some clarity or depth and may not reference the scenario or information given clearly.	4 - 6
	Level 3	Demonstrates good technical understanding of what the direct labour variances mean. The explanation as to why the variances have occurred has clarity and depth and references the scenario and information given clearly.	7 - 8

SECTION 3 (continued)			
Task (b): Suggestions for two KPIs we can use to monitor machine utilisation and one KPI we can use to monitor machine efficiency. For each KPI, please explain how it would be measured and why it would be appropriate.			
Trait			
Machine utilisation	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Identifies at least one KPI which is relevant for measuring machine utilisation, but the measurement method and appropriateness explanation is missing or not clear.	1 - 2
	Level 2	Identifies one or two KPIs which are relevant for measuring machine utilisation, but the measurement methods and appropriateness explanation lacks some clarity and/or depth.	3 - 4
	Level 3	Identifies two KPIs which are wholly appropriate for measuring machine utilisation which are well explained, including details of how they would be measured.	5 - 6
Machine efficiency	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Identifies one KPI which is relevant for measuring machine efficiency, but the explanation is missing or not clear. No information on how this was measured.	1
	Level 2	Identifies one KPI which is relevant for measuring machine efficiency, but the explanation and method of measurement may lack some clarity and/or depth.	2
	Level 3	Identifies one KPI which is wholly appropriate for measuring machine efficiency which is well explained and includes how measured.	3

SECTION 3 (continued)			
Task (c): Explain the role of a non-executive director, including the reasons they need to be independent. Please refer to Ms. Smiths biography to illustrate your explanation.			
Trait			
Non-executive director	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the role of a non-executive director. The explanation lacks clarity, depth and reference to the scenario or the information given.	1 - 3
	Level 2	Demonstrates reasonable understanding of the role of a non-executive director including an attempt to explain the need for independence. The explanation may lack some clarity, depth and/or reference to the scenario or the information given.	4 - 6
	Level 3	Demonstrates a good understanding of the role of a non-executive director including an attempt to explain the need for independence. The explanation is clear, comprehensive and refers to the scenario and the information given	7 - 8

SECTION 4			
Task (a): Explain, using the information in Tables 1 and 2, the issues we should consider from a cost perspective when using cost plus pricing.			
Trait			
Cost issues	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the issues that should be considered when using cost plus pricing. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 3
	Level 2	Demonstrates reasonable understanding of the issues that should be considered when using cost plus pricing. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	4 - 6
	Level 3	Demonstrates good understanding of the issues that should be considered when using cost plus pricing. The explanation given is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	7 - 8

SECTION 4 (continued)			
Task (b): Explain, using the information in Tables 1 and 2 three factors, other than cost, that will affect the price we are able to charge.			
Trait			
Other factors	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of at least one other factor that should be considered. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of at least two other factors that should be considered. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	3 - 4
	Level 3	Demonstrates good understanding of three other factors that should be considered. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	5

SECTION 4 (continued)			
Task (c): Explain whether each of the costs in Table 3 is relevant, or not, to the decision regarding the acceptance of the offer from the TV Production Company.			
Trait			
Relevant costs	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates understanding of the difference between relevant and non-relevant costs for decision making. Some of the costs have been correctly identified as relevant or not relevant, although the explanation of why this is the case is mostly missing.	1 - 4
	Level 2	Demonstrates understanding of the difference between relevant and non-relevant costs for decision making. Most of the costs are likely to have been correctly identified as relevant or not relevant, although the explanation of why this is the this may sometimes be missing.	5 - 8
	Level 3	Demonstrate full understanding of the difference between relevant and non-relevant costs for decision making. Most, if not all the costs, are likely to have been correctly identified as relevant or not relevant. For the most part, the explanation of why this is the this is accurate and comprehensive.	9 -12

Operational Level Case Study May 2023 & August 2023

Marking Guidance

Variant 2

About this marking scheme

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  Where markers are in doubt as to the application of the marking scheme to a particular candidate script, they must contact their lead marker.

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2. Select the level
For each trait in the marking scheme, read each level descriptor and select one, using a best-fit approach.

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- If the work fits more than one level, judge which one provides the best match.
- If the work is on the borderline between two levels, then it should be placed either at the top of the lower band or the bottom of the higher band, depending on where it fits best.

3. Select a mark within the level

- Once you have selected the level, you will need to choose the mark to apply.
- A small range of marks may be given at each level. You will need to use your professional judgement to decide which mark to allocate.
- If the answer is of high quality and convincingly meets the requirements of the level, then you should award the highest mark available. If not, then you should award a lower mark within the range available, making a judgement on the overall quality of the answer in relation to the level descriptor.

Summary of the core activities tested within each sub-task

Sub-task		Core Activity	Sub-task weighting (% section time)
Section 1			
(a)	A	Prepare costing information for different purposes to meet the needs of management.	40%
(b)	A	Prepare costing information for different purposes to meet the needs of management.	20%
(c)	F	Prepare information to manage working capital.	40%
Section 2			
(a)	B	Prepare budget information and assess its use for planning and control purposes.	48%
(b)	B	Prepare budget information and assess its use for planning and control purposes.	32%
(c)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	20%
Section 3			
(a)	C	Analyse performance using financial and non-financial information.	48%
(b)	C	Analyse performance using financial and non-financial information.	28%
(c)	C	Analyse performance using financial and non-financial information.	24%
Section 4			
(a)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	28%
(b)	E	Prepare information to support short-term decision making.	36%
(c)	E	Prepare information to support short-term decision making.	36%

SECTION 1			
Task (a): Explain how costing the remote drive tractor app is different to costing the additional components of the remote drive tractor itself, using the information in Schedule 1.			
Trait			
Costing of app	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the differences in costing a digital product and a physical product. The explanation lacks clarity, depth and reference to the scenario and the information given.	1 - 3
	Level 2	Demonstrates reasonable understanding of the differences in costing a digital product and a physical product. The explanation may lack some clarity, depth and/or reference to the scenario and the information given.	4 - 7
	Level 3	Demonstrates good understanding of the differences in costing a digital product and a physical product. The explanation is clear, comprehensive and refers to the scenario and the information given.	8 - 10

SECTION 1 continued			
Task (b): Explain the difficulties of budgeting for, and controlling the costs of, the proposed software development team in the first year.			
Cost control	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the difficulties of budgeting for and controlling costs in a new project. Explanation lacks clarity, depth and has little/no application to the scenario.	1 - 2
	Level 2	Demonstrates some understanding of the difficulties of budgeting and controlling costs in a new project. Explanation lacks some clarity, depth and has only some application to the scenario.	3 - 4
	Level 3	Demonstrates good understanding of the difficulties of budgeting and controlling the costs of a new project. Explanation is mostly clear, comprehensive and applied to the scenario.	5

SECTION 1 continued			
Task (c): Explain the factors to consider when deciding which of the three methods of providing short-term finance is most suitable using the information in Tables 1 and 2.			
Trait			
Short-term finance	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the differences between using an overdraft, a short-term loan and delaying payments to provide short-term finance. However, the explanation is not clear and lacks depth. There is no link to the information in the scenario. No assessment of suitability is given.	1 - 3
	Level 2	Demonstrates reasonable understanding of the differences between using an overdraft, a short-term loan and delaying payments to provide short-term finance. However, the explanation is limited and lacks some depth. There is only a limited link to the information in the scenario. An attempt is made to assess the suitability of at least two of the short-term finance methods.	4 - 7
	Level 3	Demonstrates good understanding of the differences between using an overdraft, a short-term loan and delaying payments to provide short-term finance. The explanation has clarity and depth. There are clear links to the scenario. The suitability of all three finance methods is assessed.	8 - 10

SECTION 2			
Task (a): Explain what my analysis, shown in Table 1, means and what it indicates about the usefulness of data for our planning purposes.			
Trait			
Linear regression	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of regression analysis, correlation co-efficient and coefficient of determination. However, there is little reference to the usefulness of the information for planning. Explanation lacks clarity, depth and reference to the scenario, or the information given.	1 - 4
	Level 2	Demonstrates reasonable technical understanding of regression analysis, correlation co-efficient and coefficient of determination. There is some reference to the usefulness of the information for planning. Explanation may lack clarity, depth and/or reference to the scenario, or the information given.	5 - 8
	Level 3	Demonstrates good understanding of regression analysis, correlation co-efficient and coefficient of determination. There is good reference to the usefulness of the information for planning. The explanation given is clear, comprehensive and refers to the scenario and the information given.	9 - 12

SECTION 2 (continued)			
Task (b): Explain the benefits and limitations of using big data in planning IT specialist salaries.			
Trait			
Big data	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the benefits and limitations of using big data for planning purposes. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 3
	Level 2	Demonstrates reasonable understanding of the benefits and limitations of using big data for planning purposes. The explanation may lack some clarity and/or depth. There is some application to the specific scenario and/or some reference to the information given.	4 - 6
	Level 3	Demonstrates good understanding of the benefits and limitations of using big data for planning purposes. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	7- 8

SECTION 2 (continued)			
Task (c): Explain the difference between how cashflow from operating activities is calculated using both the direct and indirect method in IAS 7: Statement of Cash Flows, including how the overdraft interest would be recorded in the financial statements using each method.			
Trait			
IAS 7	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of the difference between the direct and indirect method of calculating cashflow using IAS 7. The explanation lacks clarity, depth and reference to the scenario or the information given.	1 - 2
	Level 2	Demonstrates reasonable technical understanding of the difference between the direct and indirect method of calculating cashflow using IAS 7. The explanation may lack some clarity, depth and/or reference to the scenario or the information given.	3 - 4
	Level 3	Demonstrates good technical understanding of the difference between the direct and indirect methods of calculating cashflow using IAS 7. The explanation is clear, comprehensive and refers to the scenario and the information given.	5

SECTION 3			
Task (a): Suggest two KPIs that measure app performance and two KPIs that measure app engagement. For each KPI, explain how it would be measured and why it would be appropriate.			
Trait			
App performance	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Identifies one or two KPIs which are relevant for app performance, but the measurement method and appropriateness explanation is missing or not clear.	1 - 2
	Level 2	Identifies one or two KPIs which are relevant for measuring app performance, but the measurement methods and appropriateness explanation lacks some clarity and/or depth.	3 - 4
	Level 3	Identifies two KPIs which are wholly appropriate for measuring app performance which are well explained, including details of how they would be measured.	5 - 6
App engagement	**Level**	**Descriptor**	
		No rewardable material	0
	Level 1	Identifies one or two KPIs which are relevant for measuring app engagement, but the measurement method and appropriateness explanation is missing or not clear.	1 - 2
	Level 2	Identifies one or two KPIs which are relevant for measuring app engagement, but the measurement methods and appropriateness explanation lacks some clarity and/or depth.	3 - 4
	Level 3	Identifies two KPIs which are wholly appropriate for measuring app engagement which are well explained, including details of how they would be measured.	5 - 6

SECTION 3 (continued)			
Task (b): Explain what each of the variances in Table 1 means, giving reasons why the variances may have occurred.			
Trait			
Variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	
	Level 1	Demonstrates some technical understanding of what direct labour variances show, but there is a limited attempt to explain the meaning of the variances given. The explanation as to why the variances have occurred lacks clarity, depth and reference to the scenario or the information given.	1 - 2
	Level 2	Demonstrates some technical understanding of what direct labour variances show, and there is a reasonable attempt to explain the meaning of the variances given. The explanation as to why the variances have occurred may lack some clarity or depth and may not reference the scenario or information given clearly.	3 - 5
	Level 3	Demonstrates good technical understanding of direct labour variances and makes a good attempt to explain their meaning. The explanation as to why the variances have occurred has clarity, depth and references the scenario and information given clearly.	6 - 7

SECTION 3 (continued)			
Task (c): Explain how the variance analysis could have been modified to give more relevant information for the month.			
Trait			
Variance analysis	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the variance analysis could have been modified to give more relevant information. The explanation lacks clarity, depth and reference to the scenario or the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of how the variance analysis could have been modified to give more relevant information. The explanation may lack some clarity, depth and/or reference to the scenario or the information given.	3 - 4
	Level 3	Demonstrates a good understanding of how the variance analysis could have been modified to give more relevant information. The explanation is clear, comprehensive and refers to the scenario and the information given.	5 - 6

SECTION 4			
Task (a): Explain the amount at which each tractor will be included in our financial statements for the year ending 31 December 2023.			
Trait			
IAS 2	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the factors to consider when valuing inventory. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 2
	Level 2	Demonstrates some understanding of the factors to consider when valuing inventory. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	3 - 5
	Level 3	Demonstrates good understanding of the factors to consider when valuing inventory. The explanation given is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	6 – 7

SECTION 4 (continued)			
Task (b): Explain which size of demonstration fleet each of the three members of the SMT would choose. Please also explain, with reasons, why it will be hard to reach an agreement between them.			
Trait			
Size of fleet	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of which fleet size each member would choose. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of which fleet size each member would choose. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	3 - 4
	Level 3	Demonstrates good understanding of which fleet size each member would choose. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	5
Agreement	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of why agreement would be difficult. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1
	Level 2	Demonstrates reasonable understanding of why agreement would be difficult. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	2 – 3
	Level 3	Demonstrates good understanding of why agreement would be difficult. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	4

SECTION 4 (continued)			
Task (c): Explain the limitations of the information and analysis in Table 2 and the factors we should consider when evaluating whether we should pay the fee to the ticket agency to gain information about the number of tickets sold.			
Trait			
Limitations	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the limitations of the information and analysis presented. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of the information and analysis presented. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	3 - 4
	Level 3	Demonstrate full understanding of the limitations of the information and analysis presented. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	5
Factors	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the factors to consider in relation to the ticket agency. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1
	Level 2	Demonstrates reasonable understanding of the factors to consider in relation to the ticket agency. The explanation may lack some clarity and/or depth and application to the specific scenario/reference to the information given.	2 - 3
	Level 3	Demonstrate full understanding of the factors to consider in relation to the ticket agency. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	4

Operational Level Case Study May 2023 & August 2023

Marking Guidance

Variant 3

About this marking scheme

This marking scheme has been prepared for the CIMA 2019 Professional Qualification Operational Case Study [May 2023 & August 2023].

The indicative answers will show the expected or most orthodox approach; however, the nature of the case study examination tasks means that a range of responses will be valid. The descriptors within this level-based marking scheme are holistic and can accommodate a range of acceptable responses.

General marking guidance is given below, and markers are subject to extensive training and standardisation activities and ongoing monitoring to ensure that judgements are being made correctly and consistently.

Care must be taken not to make too many assumptions about future marking schemes on the basis of this document. While the guiding principles remain constant, details may change depending on the content of a particular case study examination form.

General marking guidance

- Marking schemes should be applied positively, with candidates rewarded for what they have demonstrated and not penalised for omissions.
- All marks on the scheme are designed to be awarded, and full marks should be awarded when all level descriptor criteria are met.

- The marking scheme and indicative answers are provided as a guide to markers. They are not intended to be exhaustive and other valid approaches must be rewarded. Equally, students do not have to make all of the points mentioned in the indicative answers to receive the highest level of the marking scheme.
- An answer which does not address the requirements of the task must be awarded no marks. Markers should mark according to the marking scheme and not their perception of where the passing standard may lie.
  Where markers are in doubt as to the application of the marking scheme to a particular candidate script, they must contact their lead marker.

How to use this levels-based marking scheme

1. Read the candidates' response in full

2. Select the level

- For each trait in the marking scheme, read each level descriptor and select one, using a best-fit approach.
- The response does not need to meet all of the criteria of the level descriptor – it should be placed at the level when it meets more of the criteria of this level than the criteria of the other levels.
- If the work fits more than one level, judge which one provides the best match.
- If the work is on the borderline between two levels, then it should be placed either at the top of the lower band or the bottom of the higher band, depending on where it fits best.

3. Select a mark within the level

- Once you have selected the level, you will need to choose the mark to apply.
- A small range of marks may be given at each level. You will need to use your professional judgement to decide which mark to allocate.
- If the answer is of high quality and convincingly meets the requirements of the level, then you should award the highest mark available. If not, then you should award a lower mark within the range available, making a judgement on the overall quality of the answer in relation to the level descriptor.

Summary of the core activities tested within each sub-task

Sub-task		Core Activity	Sub-task weighting (% section time)
Section 1			
(a)	B	Prepare budget information and assess its use for planning and control purposes.	56%
(b)	B	Prepare budget information and assess its use for planning and control purposes.	44%
Section 2			
(a)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	28%
(b)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	28%
(c)	E	Prepare information to support short-term decision making	44%
Section 3			
(a)	A	Prepare costing information for different purposes to meet the needs of management.	32%
(b)	A	Prepare costing information for different purposes to meet the needs of management.	20%
(c)	C	Analyse performance using financial and non-financial information.	48%
Section 4			
(a)	C	Analyse performance using financial and non-financial information.	32%
(b)	F	Prepare information to manage working capital	28%
(c)	E	Prepare information to support short-term decision making.	40%

SECTION 1			
Task (a): Explain how the different purposes of budgeting may be positively or negatively affected by allowing the sales team to participate in budget setting.			
Trait			
Positive affects	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the different purposes of budgeting may be affected positively by allowing the sales team to be involved in budget setting. The explanation lacks clarity, depth and reference to the scenario and the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of how the different purposes of budgeting may be affected positively by allowing the sales team to be involved. The explanation may lack some clarity, depth and/or reference to the scenario and the information given.	3 - 5
	Level 3	Demonstrates good understanding of how the different purposes of budgeting may be affected positively by allowing the sales team to be involved. The explanation is clear, comprehensive and refers to the scenario and the information given.	6 - 7
Negative affects	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the different purposes of budgeting may be affected negatively by allowing the sales team to be involved in budget setting. The explanation lacks clarity, depth and reference to the scenario and the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of how the different purposes of budgeting may be affected negatively by allowing the sales team to be involved. The explanation may lack some clarity, depth and/or reference to the scenario and the information given.	3 - 5
	Level 3	Demonstrates good understanding of how the different purposes of budgeting may be affected negatively by allowing the sales team to be involved. The explanation is clear, comprehensive and refers to the scenario and the information given.	6 - 7

SECTION 1 continued			
Task (b): Explain the ethical aspects of budgetary control which Donna Marsh should consider when setting and reviewing the budgets of individuals in her team.			
Ethical aspects	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the ethical aspects of budgetary control which should be considered when setting and reviewing the budgets of sales team members. The explanation lacks clarity, depth and has little/no application to the scenario.	1 - 4
	Level 2	Demonstrates reasonable understanding of the ethical aspects of budgetary control which should be considered when setting and reviewing the budgets of sales team members. The explanation may lack some clarity, depth and application to the scenario.	5 - 8
	Level 3	Demonstrates good understanding of the ethical aspects of budgetary control which should be considered when setting and reviewing the budgets of sales team members. Explanations are mostly clear, comprehensive and applied to the scenario.	9 - 11

SECTION 2			
Task (a): Explain the issues around legal status and taxation we should consider when setting up the new Cetland operation as either a branch or a subsidiary of Tracs Europe.			
Trait			
Branch or sub	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of the legal and taxation issues to be considered when setting up a branch or a subsidiary in a foreign country. Explanations lack clarity, depth and reference to the scenario or the information given.	1 - 2
	Level 2	Demonstrates reasonable technical understanding of the legal and taxation issues to be considered when setting up a branch or a subsidiary in a foreign country. Explanations may lack clarity, depth and/or reference to the scenario or the information given.	3 - 5
	Level 3	Demonstrates good technical understanding of the legal and taxation issues to be considered when setting up a branch or a subsidiary in a foreign country. The explanations given are clear, comprehensive and refer to the scenario and the information given.	6 - 7

SECTION 2 (continued)			
Task (b): Explain how the lease liability and right-of-use asset or the transporter lease should be measured initially in our financial statements.			
Trait			
Lease liability	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the lease liability should be initially measured in the financial statements. The explanation lacks clarity, depth and reference to the information given.	1
	Level 2	Demonstrates reasonable understanding of how the lease liability should be initially measured in the financial statements. There is some reference to the information given in the explanation.	2
	Level 3	Demonstrates good understanding of how the lease liability should be initially measured in the financial statements. There is reference to the information given in the explanation.	3
Right-of-use asset	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the right-of-use asset should be initially measured in the financial statements. The explanation lacks clarity, depth and reference to the information given.	1
	Level 2	Demonstrates reasonable understanding of how the right-of-use asset should be initially measured in the financial statements. The explanation may lack some clarity, depth and reference to the information given.	2 - 3
	Level 3	Demonstrates good understanding of how the right-of-use asset should be initially measured in the financial statements. The explanation is clear, detailed with reference to the information given.	4

SECTION 2 (continued)			
Task (c): Explain how the maximin, maximax and minimax regret decision criteria would be used to select the marketing mix. Please state the other factors we should consider before we decide which marketing mix to choose.			
Trait			
Decisions	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the maximin, maximax and minimax regret decision criteria would be used to select the marketing mix. The explanation lacks clarity, depth and reference to the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of how the maximin, maximax and minimax regret decision criteria would be used to select the marketing mix. The explanation may lack some clarity, depth and/or reference to the information given.	3 - 4
	Level 3	Demonstrates good understanding of how the maximin, maximax and minimax regret decision criteria would be used to select the marketing mix. The explanation is clear, comprehensive and refers to the information given.	5 - 6
Other factors	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the other factors we should consider before we decide which marketing mix to choose. The explanation lacks clarity, depth and reference to the scenario.	1
	Level 2	Demonstrates reasonable understanding of the other factors we should consider before we decide which marketing mix to choose. The explanation may lack some clarity, depth and/or reference to the scenario.	2 - 3
	Level 3	Demonstrates good understanding of the other factors we should consider before we decide which marketing mix to choose. The explanation is clear, comprehensive and refers to the scenario.	4 - 5

SECTION 3			
Task (a): Explain the differences in how profit is calculated using both marginal and absorption costing based on Table 1, and the impact of the different methods on profit in the short and long term.			
Trait			
Marginal vs absorption	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how profit is calculated using both marginal and absorption costing and the impact of using the different methods on profit in the short term and long term. The explanation lacks clarity, depth and reference to the information given.	1 - 3
	Level 2	Demonstrates reasonable understanding of how profit is calculated using both marginal and absorption costing and the impact of using the different methods on profit in the short term and long term. The explanation may lack some clarity, depth and/or reference to the information given.	4 - 6
	Level 3	Demonstrates good understanding of how profit is calculated using both marginal and absorption costing and the impact of using the different methods on profit in the short term and long term. The explanation is clear, comprehensive and refers to the information given	7 - 8

SECTION 3 (continued)			
Task (b): Explain why our current system of absorption costing may be of little use for short-term decision making and why ABC could help us to make better short-term decisions.			
Trait			
ABC	**Level**	**Descriptor**	**Marks**
		No rewardable material	
	Level 1	Demonstrates some understanding of why absorption costing is of little use for short-term decision making and why ABC could help us to make better decisions. The explanation lacks clarity, depth and reference to the scenario.	1 - 2
	Level 2	Demonstrates some understanding of why absorption costing is of little use for short-term decision making and why ABC could help us to make better decisions. The explanation may lack some clarity or depth and may not reference the scenario.	3 - 4
	Level 3	Demonstrates good understanding of why absorption costing is of little use for short-term decision making and why ABC could help us to make better decisions. The explanation has clarity and depth and references the scenario.	5

SECTION 3 (continued)			
Task (c): Suggest four KPIs which could be used to monitor the performance of each member of the sales team. For each KPI, explain how it would be measured and why it would be appropriate.			
Trait			
KPIs	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Identifies at least one KPI which is relevant for measuring the sales team's performance, but the calculation method and appropriateness explanation is missing or may not be clear.	1 - 4
	Level 2	Identifies at least two KPIs which are relevant for measuring the sales team performance, but the calculation methods and appropriateness explanation lacks some clarity and/or depth.	5 - 8
	Level 3	Identifies at least three KPIs which are wholly appropriate for measuring sales team performance which are well explained, including details of how they would be calculated.	9 - 12

SECTION 4			
Task (a): Explain what the variances in Table 1 tell us about sales in Cetland, giving possible reasons why the sales variances have occurred.			
Trait			
Sales variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of what sales variances show, but there is a limited attempt to explain the meaning of the variances given. The explanation as to why the variances have occurred lacks clarity, depth and reference to the scenario or the information given.	1 - 3
	Level 2	Demonstrates some understanding of what sales variances show and there is a reasonable attempt to explain the meaning of the variances given. The explanation as to why the variances have occurred may lack some clarity or depth and may not reference the scenario or information given clearly.	4 - 6
	Level 3	Demonstrates good understanding of sales variances and makes a good attempt to explain their meaning. The explanation as to why the variances have occurred has clarity and depth and references the scenario and information given clearly.	7 – 8

SECTION 4 (continued)			
Task (b): Explain three different techniques which the Cetland sales team could use to collect outstanding accounts receivable and the factors to consider when using each of these.			
Trait			
Accounts receivable	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates understanding of at least one method for collecting outstanding account receivables. The explanation lacks clarity, depth and application to the scenario.	1 - 2
	Level 2	Demonstrates understanding of at least two methods for collecting outstanding account receivables. The explanation may lack some clarity and/or depth and application to the scenario.	3 - 5
	Level 3	Demonstrates understanding of at least three methods for collecting outstanding account receivables. The explanation is mostly clear and comprehensive. There is application to the scenario.	6 - 7

SECTION 4 (continued)			
Task (c): Explain how the decision tree should be interpreted. Please also explain three issues that are not covered by a financial appraisal of the situation.			
Trait			
Decision tree	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how the decision tree should be interpreted. The explanation lacks clarity, depth and reference to the information given.	1 - 2
	Level 2	Demonstrates reasonable understanding of how the decision tree should be interpreted. The explanation may lack some clarity, depth and/or reference to the information given.	3 - 4
	Level 3	Demonstrate good understanding of how the decision tree should be interpreted. The explanation is mostly clear and comprehensive. There is reference to the information given.	5
Other factors	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one issue which should be considered and which is not covered by the financial appraisal. The explanation lacks clarity, depth and application to the specific scenario/reference to the information given.	1 - 2
	Level 2	Explains at least two other issues which should be considered and which are not covered by the financial appraisal. The explanation may lack some clarity, depth and/or application to the specific scenario/reference to the information given.	3 - 4
	Level 3	Explain three other issues which should be considered and which are not covered by the financial appraisal. The explanation is mostly clear and comprehensive. There is application to the specific scenario and reference to the information given.	5

Operational Level Case Study May 2023 & August 2023

Marking Guidance

Variant 4

About this marking scheme

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- All marks on the scheme are designed to be awarded, and full marks should be awarded when all level descriptor criteria are met.

- The marking scheme and indicative answers are provided as a guide to markers. They are not intended to be exhaustive and other valid approaches must be rewarded. Equally, students do not have to make all of the points mentioned in the indicative answers to receive the highest level of the marking scheme.
- An answer which does not address the requirements of the task must be awarded no marks. Markers should mark according to the marking scheme and not their perception of where the passing standard may lie.
  Where markers are in doubt as to the application of the marking scheme to a particular candidate script, they must contact their lead marker.

How to use this levels-based marking scheme

1. Read the candidates' response in full

2. Select the level

- For each trait in the marking scheme, read each level descriptor and select one, using a best-fit approach.
- The response does not need to meet all of the criteria of the level descriptor – it should be placed at the level when it meets more of the criteria of this level than the criteria of the other levels.
- If the work fits more than one level, judge which one provides the best match.
- If the work is on the borderline between two levels, then it should be placed either at the top of the lower band or the bottom of the higher band, depending on where it fits best.

3. Select a mark within the level

- Once you have selected the level, you will need to choose the mark to apply.
- A small range of marks may be given at each level. You will need to use your professional judgement to decide which mark to allocate.
- If the answer is of high quality and convincingly meets the requirements of the level, then you should award the highest mark available. If not, then you should award a lower mark within the range available, making a judgement on the overall quality of the answer in relation to the level descriptor.

Summary of the core activities tested within each sub-task

Sub-task		Core Activity	Sub-task weighting (% section time)
Section 1			
(a)	B	Prepare budget information and assess its use for planning and control purposes.	20%
(b)	B	Prepare budget information and assess its use for planning and control purposes.	24%
(c)	B	Prepare budget information and assess its use for planning and control purposes.	24%
(d)	F	Prepare information to manage working capital.	32%
Section 2			
(a)	A	Prepare costing information for different purposes to meet the needs of management.	28%
(b)	A	Prepare costing information for different purposes to meet the needs of management.	32%
(c)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	40%
Section 3			
(a)	C	Analyse performance using financial and non-financial information.	76%
(b)	C	Analyse performance using financial and non-financial information.	24%
Section 4			
(a)	E	Prepare information to support short-term decision making.	32%
(b)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	32%
(c)	E	Prepare information to support short-term decision making.	36%

SECTION 1			
Task (a): Explain what Chart 1 shows us.			
Trait			
Chart 1	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates understanding of what the data and lines in the chart represent, but there is a limited attempt to explain what this shows in respect of seasonal variations and trend. The explanation lacks clarity and application to the scenario.	1 – 2
	Level 2	Demonstrates understanding of what the data and the lines in the chart represent and there is a reasonable attempt to explain what this shows in respect of seasonal variations and trend. The explanation may lack some clarity and application to the scenario.	3 – 4
	Level 3	Demonstrates understanding of what the data and the lines in the chart represent and there is a good attempt to explain what this shows in respect of seasonal variations and trend. The explanation is mostly clear and applied to the scenario.	5

SECTION 1 (CONTINUED)			
Task (b): Explain how to determine a trend line and seasonal variations from the data on which Chart 1 has been constructed, including any difficulties associated with using this data.			
Trait			
Trend and seasonal	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Provides some attempt to explain how to determine a trend line and seasonal variations from the data in the chart. The explanation lacks clarity and application and gives few if any difficulties associated with the data.	1 – 2
	Level 2	Provides a reasonable attempt to explain how to determine a trend line and seasonal variations from the data in the chart. The explanation may lack some clarity and application but does make some consideration of difficulties associated with the data.	3 – 4
	Level 3	Provides a good attempt to explain how to determine a trend line and seasonal variations from the data in the chart. The explanation is mostly clear and applied and does consider the difficulties associated with the data.	5 – 6
Task (c): Explain the validity of a forecast of sales volumes for E-Trac from October 2023 onwards based on this trend line and seasonal variations.			
Trait			
Validity of forecast	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Provides some attempt to explain factors affecting the validity of the forecast. The explanation lacks clarity and application.	1 – 2
	Level 2	Provides a reasonable attempt to explain factors affecting the validity of the forecast. The explanation may lack some clarity and application.	3 – 4
	Level 3	Provides a good attempt to explain factors affecting the validity of the forecast. The explanation is mostly clear and applied.	5 – 6

SECTION 1 (CONTINUED)			
Task (d): Explain the impact on the management of our receivables by our sales and credit control teams of selling to these retailers and how we could mitigate any potential additional risks that may arise.			
Trait			
Impact	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains one impact. The explanation lacks clarity depth and application.	1
	Level 2	Explains at least one impact. The explanation may lack some clarity, depth and/or application.	2 – 3
	Level 3	Explains at least two impacts. The explanation is mostly clear and applied.	4
Mitigations	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains one mitigation. The explanation lacks clarity depth and application.	1
	Level 2	Explains at least one mitigation. The explanation may lack some clarity, depth and/or application.	2 – 3
	Level 3	Explains at least two mitigations. The explanation is mostly clear and applied.	4

SECTION 2			
Task (a): Explain the suitability of the new E-Trac Production Facility as a pilot for an ABC approach.			
Trait			
ABC	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of when ABC is suitable. The explanation lacks clarity and application to the scenario.	1 - 2
	Level 2	Demonstrates reasonable understanding of when ABC is suitable. The explanation may lack some clarity and/or application to the scenario.	3 - 5
	Level 3	Demonstrates good understanding of when ABC is suitable. The explanation is mostly clear and applied to the scenario.	6 - 7
Task (b): Explain the benefits for the E-Trac Production Facility of using a digital costing system.			
Trait			
Digital costing system	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one benefit to the business of using a digital costing system. The explanation lacks clarity, depth and application to the scenario.	1 - 3
	Level 2	Explains at least two benefits to the business of using a digital costing system. The explanation may lack some clarity, depth and/or application to the scenario.	4 - 6
	Level 3	Explains at least three benefits to the business of using a digital costing system. The explanation is mostly clear, comprehensive and applied to the scenario.	7 - 8

SECTION 2 (CONTINUED)			
Task (c): Explain how the right-of-use asset would be initially recorded and subsequently measured in the financial statements for the year ending 31 December 2023 if the equipment was leased. Please also explain how this would differ if the equipment were purchased outright.			
Trait			
Lease	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how to initially record and subsequently measure the right-of-use asset. The explanation lacks clarity and reference to the information given.	1 – 2
	Level 2	Demonstrates reasonable understanding of how to initially record and subsequently measure the right-of-use asset. The explanation may lack some clarity but does make some reference to the information given.	3 – 4
	Level 3	Demonstrates good understanding of how to initially record and subsequently measure the right-of-use asset. The explanation is mostly clear and references the information given.	5
Purchase outright	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains with some technical accuracy how the purchase of equipment will impact the financial statements for the year ending 31 December 2023. The explanation may lack clarity and is unlikely to comment on how this compares to the lease treatment.	1 – 2
	Level 2	Explains with reasonable technical accuracy how the purchase of equipment will impact the financial statements for the year ending 31 December 2023. The explanation may lack some clarity or may not comment on how this compares to the lease treatment.	3 – 4
	Level 3	Explains with good technical accuracy how the purchase of equipment will impact the financial statements for the year ending 31 December 2023. The explanation is clear and does comment on how this compares to the treatment for leasing the assets.	5

SECTION 3			
Task (a): Explain what each of the variances shown in Table 1 means and possible reasons for their occurrence, based on the information above and the KPI information in Table 2.			
Trait			
Raw material variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates technical understanding of one of the variances, but the explanation lacks clarity and application to the scenario.	1
	Level 2	Demonstrates technical understanding of both variances, but the explanation may lack some clarity. The reasons for and/or what the variances mean may not be clear or appropriate for the variance.	2 – 3
	Level 3	Demonstrates understanding of both variances. The reasons and what the variances mean are mostly clear and appropriate for the variance.	4
Direct labour variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates technical understanding of at least one of the variances, but the explanation lacks clarity and application to the scenario.	1 – 2
	Level 2	Demonstrates technical understanding of at least two of the variances, but the explanation may lack some clarity. The reasons for and/or what the variances mean may not be clear or appropriate for the variance.	3 – 4
	Level 3	Demonstrates understanding of all three variances. The reasons and what the variances mean are mostly clear and appropriate for the variance.	5 – 6

SECTION 3 (CONTINUED)			
Task (a): Explain what each of the variances shown in Table 1 means and possible reasons for their occurrence, based on the information above and the KPI information in Table 2.			
Variable on variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates technical understanding of one of the variances, but the explanation lacks clarity and application to the scenario.	1
	Level 2	Demonstrates technical understanding of both variances, but the explanation may lack some clarity. The reasons for and/or what the variances mean may not be clear or appropriate for the variance.	2 – 3
	Level 3	Demonstrates understanding of both variances. The reasons and what the variances mean are mostly clear and appropriate for the variance.	4
KPIs	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Provides some reference to the KPIs when explaining the variances, but this is limited and not necessarily related to the correct variance.	1 – 2
	Level 2	Provides reasonable reference to the KPIs when explaining the variances, but this may not necessarily relate to the correct variance.	3 – 4
	Level 3	Provides good reference to the KPIs when explaining the variances.	5

SECTION 3 (CONTINUED)			
Task (b): Explain the benefits to the managers of the E-Trac Production Facility of introducing a real-time KPI dashboard.			
Trait			
KPI dashboard	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one benefit, but the explanation is likely to lack clarity, depth or application to the scenario.	1 – 2
	Level 2	Explains at least two benefits, but the explanation may lack clarity, depth or application to the scenario if more than one benefit is suggested.	3 – 4
	Level 3	Explains at least three benefits and the explanation is clear and applied to the scenario.	5 – 6

SECTION 4			
Task (a): Explain how to determine, based on Graph 1, how many GPXs we might consider ordering from the alternative supplier and how we would decide whether this would be worthwhile.			
Trait			
Additional GPXs	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of binding constraints and shadow price to determine if it is worthwhile buying additional parts. Makes little attempt to explain how to use the graph to determine how many to order. The explanation lacks clarity and reference to the information in the scenario.	1 – 3
	Level 2	Demonstrates reasonable understanding of binding constraints and shadow price to determine if it is worthwhile buying additional parts. Makes some attempt to explain how to use the graph to determine how many to order. The explanation lacks some clarity, although there is an attempt to reference the information in the scenario.	4 – 6
	Level 3	Demonstrates good understanding of binding constraints and shadow price to determine if it is worthwhile buying additional parts. Makes a reasonable attempt to explain how to use the graph to determine how many to order. The explanation is mostly clear with good reference to the information in the scenario.	7 – 8

SECTION 4 (continued)			
Task (b): Explain how to account for the damaged equipment identified in Table 1. Please also explain whether any adjustments will impact our financial statements for the year ending 31 December 2023 or 31 December 2024, given that the 2023 financial statements have not yet been finalised.			
Trait			
Assets	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how to account for the damaged assets. The explanation lacks technical accuracy, clarity, depth and reference to the scenario.	1 – 2
	Level 2	Demonstrates reasonable understanding of how to account for the damaged assets. The explanation lacks some technical accuracy, clarity, depth and/or reference to the scenario.	3 – 4
	Level 3	Demonstrates good understanding of how to account for the damaged assets. The explanation is mostly technically accurate, clear, comprehensive and reference to the scenario.	5
IAS 10	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of adjusting and non-adjusting events. The explanation lacks clarity and technical accuracy.	1
	Level 2	Demonstrates reasonable understanding of adjusting and non-adjusting events. The explanation may lack some clarity and/or technical accuracy.	2
	Level 3	Demonstrates good understanding of adjusting and non-adjusting events. The explanation is mostly clear and arity and/or technical accuracy.	3

SECTION 4 (continued)			
Task (c): Explain the maximax, maximin and minimax regret decision criteria and how we should use each of these to decide which promotional campaign to choose. Please identify the campaign that would be chosen under each criterion.			
Trait			
Decision criteria	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates technical understanding of at least one of the decision criteria. The explanation lacks clarity, and the correct option may not be selected.	1 – 3
	Level 2	Demonstrates technical understanding of at least two of the decision criteria. The explanation may lack some clarity and the correct option may not always be selected.	4 – 6
	Level 3	Demonstrates technical understanding of all three decision criteria. The explanation may lack a little clarity or one of the correct options may not be selected.	7 – 9

Operational Level Case Study May 2023 & August 2023

Marking Guidance

Variant 5

About this marking scheme

This marking scheme has been prepared for the CIMA 2019 Professional Qualification Operational Case Study [May 2023 & August 2023].

The indicative answers will show the expected or most orthodox approach; however, the nature of the case study examination tasks means that a range of responses will be valid. The descriptors within this level-based marking scheme are holistic and can accommodate a range of acceptable responses.

General marking guidance is given below, and markers are subject to extensive training and standardisation activities and ongoing monitoring to ensure that judgements are being made correctly and consistently.

Care must be taken not to make too many assumptions about future marking schemes on the basis of this document. While the guiding principles remain constant, details may change depending on the content of a particular case study examination form.

General marking guidance

- Marking schemes should be applied positively, with candidates rewarded for what they have demonstrated and not penalised for omissions.
- All marks on the scheme are designed to be awarded, and full marks should be awarded when all level descriptor criteria are met.

- The marking scheme and indicative answers are provided as a guide to markers. They are not intended to be exhaustive and other valid approaches must be rewarded. Equally, students do not have to make all of the points mentioned in the indicative answers to receive the highest level of the marking scheme.
- An answer which does not address the requirements of the task must be awarded no marks. Markers should mark according to the marking scheme and not their perception of where the passing standard may lie.
  Where markers are in doubt as to the application of the marking scheme to a particular candidate script, they must contact their lead marker.

How to use this levels-based marking scheme

1. Read the candidates' response in full

2. Select the level

- For each trait in the marking scheme, read each level descriptor and select one, using a best-fit approach.
- The response does not need to meet all of the criteria of the level descriptor – it should be placed at the level when it meets more of the criteria of this level than the criteria of the other levels.
- If the work fits more than one level, judge which one provides the best match.
- If the work is on the borderline between two levels, then it should be placed either at the top of the lower band or the bottom of the higher band, depending on where it fits best.

3. Select a mark within the level

- Once you have selected the level, you will need to choose the mark to apply.
- A small range of marks may be given at each level. You will need to use your professional judgement to decide which mark to allocate.
- If the answer is of high quality and convincingly meets the requirements of the level, then you should award the highest mark available. If not, then you should award a lower mark within the range available, making a judgement on the overall quality of the answer in relation to the level descriptor.

Summary of the core activities tested within each sub-task

Sub-task		Core Activity	Sub-task weighting (% section time)
Section 1			
(a)	C	Analyse performance using financial and non-financial information	44%
(b)	B	Prepare budget information and assess its use for planning and control purposes	28%
(c)	B	Prepare budget information and assess its use for planning and control purposes	28%
Section 2			
(a)	A	Prepare costing information for different purposes to meet the needs of management	64%
(b)	C	Analyse performance using financial and non-financial information	36%
Section 3			
(a)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	28%
(b)	E	Prepare information to support short-term decision making.	32%
(c)	F	Prepare information to manage working capital.	40%
Section 4			
(a)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles.	36%
(b)	E	Prepare information to support short-term decision making.	40%
(c)	B	Prepare budget information and assess its use for planning and control purposes	24%

SECTION 1			
Task (a): Explain what each of the variances in Table 1 means and possible reasons for their occurrence.			
Trait			
Expenditure	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates understanding of the meaning of at least one of the expenditure variances. The explanation may lack some technical accuracy and clarity and the reasons given might not be appropriate for the specific variance.	1 – 2
	Level 2	Demonstrates understanding of the meaning of both expenditure variances. The explanation may lack a little technical accuracy or may lack some clarity. The reasons given might not always be appropriate for the specific variance.	3 – 4
	Level 3	Demonstrates understanding of the meaning of both expenditure variances. The explanation is technically accurate, clear and the reasons given are mostly appropriate for the specific variance.	5
Efficiency	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates understanding of the meaning of the efficiency variances. The explanation lacks clarity, and the reasons given are not appropriate for the variances.	1
	Level 2	Demonstrates understanding of the meaning of the efficiency variances. The explanation may lack some clarity, and the reasons given might not be appropriate for the variances.	2
	Level 3	Demonstrates understanding of the meaning of the efficiency variances. The explanation is mostly clear, and the reasons given are appropriate.	3

SECTION 1 (continued)			
Task (a) (continued): Explain what each of the variances in Table 1 means and possible reasons for their occurrence.			
Trait			
Capacity	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates understanding of the meaning of the capacity variance. The explanation lacks clarity, and the reasons given are not appropriate for the variances.	1
	Level 2	Demonstrates understanding of the meaning of the capacity variance. The explanation may lack some clarity, and the reasons given might not be appropriate for the variances.	2
	Level 3	Demonstrates understanding of the meaning of the capacity variance. The explanation is mostly clear, and the reasons given are appropriate.	3
Task (b): Explain whether it is appropriate to hold Bill Gomez, Main Assembly Manager, responsible for the fixed production overhead variances of the Main Assembly Department in May.			
Trait			
Responsibility	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of responsibility accounting. The explanation lacks clarity and is unlikely to be applied to the scenario.	1 – 2
	Level 2	Demonstrates reasonable understanding of responsibility accounting. The explanation may lack some clarity but does attempt to apply to the scenario.	3 – 5
	Level 3	Demonstrates good understanding of responsibility accounting. The explanation is mostly clear and applied to the scenario.	6 – 7

SECTION 1 (continued)			
Task (c): Explain the potential benefits and drawbacks of adopting a rolling budgets approach for our cash budget.			
Trait			
Benefits & drawbacks	**Level**		**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the potential benefits and/or drawbacks of using a rolling budget approach for the cash budget. There is a lack of application to the scenario, and the explanation lacks clarity.	1 – 2
	Level 2	Demonstrates reasonable understanding of the potential benefits and/or drawbacks of using a rolling budget approach for the cash budget. There may be a lack of application to the scenario and/or the explanation lacks clarity.	3 – 5
	Level 3	Demonstrates good understanding of the potential benefits and drawbacks of using a rolling budget approach for the cash budget. There is application to the scenario, and the explanation is mostly clear.	6 – 7

SECTION 2			
Task (a): Explain how an ABC approach would differ to our current costing approach for the Body Panel Production Department.			
Trait			
Current approach	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the current costing approach. The explanation lacks depth, clarity and application to the scenario.	1
	Level 2	Demonstrates reasonable understanding of the current costing approach. The explanation may lack some depth, clarity and/or application to the scenario.	2 - 3
	Level 3	Demonstrates good understanding of the current costing approach. The explanation is comprehensive, clear and applied to the scenario.	4
ABC approach	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of an ABC approach. The explanation lacks depth, clarity and application to the scenario.	1 – 3
	Level 2	Demonstrates reasonable understanding of an ABC approach. The explanation may lack some depth, clarity and/or application to the scenario.	4 - 6
	Level 3	Demonstrates good understanding of an ABC approach. The explanation is mostly comprehensive, clear and applied to the scenario.	7 - 9
Difference	**Level**		**Marks**
		No rewardable material	0
	Level 1	Provides some attempt to draw comparisons between the current approach and ABC.	1
	Level 2	Provides a reasonable attempt to draw comparisons between the current approach and ABC.	2
	Level 3	Provides a good attempt to draw comparisons between the current approach and ABC.	3

SECTION 2 (continued)			
Task (b): Suggest three KPIs that are appropriate to monitor the performance of this service provider. Please explain how each KPI would be measured and justify why it would be appropriate.			
Trait			
KPIs	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Suggests at least one KPI that is appropriate to monitor the performance of the service provider. The justification of the KPI(s) and the explanation of measurement is likely to lack clarity and depth.	1 - 3
	Level 2	Suggests at least two KPIs that are appropriate to monitor the performance of the service provider. The justification of the KPIs and the explanation of measurement may lack some clarity and depth.	4 - 5
	Level 3	Suggests three KPIs that are appropriate to monitor the performance of the service provider. The justification of the KPIs and the explanation of measurement is mostly clear.	6 - 9

SECTION 3			
Task (a): Explain how the expenditure associated with the new equipment will be initially recorded in our financial statements. Please also explain how the equipment asset will be depreciated in our financial statements for the year ending 31 December 2023.			
Trait			
Initially recorded	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains some of the recognition rules of IAS 16 but does not apply these to the scenario.	1
	Level 2	Explains the recognition rules of IAS 16 and applies these to explain recognition of the equipment as PPE and/or how each type of expenditure will affect the amount capitalised. There may be a lack of clarity in the explanation.	2 – 3
	Level 3	Explains the recognition rules of IAS 16 and applies these to clearly explain recognition of the equipment as PPE and how each type of expenditure will affect the amount capitalised.	4
Depreciation	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains the principle of depreciating over the UL of an asset but does not apply this to the scenario.	1
	Level 2	Explains the principle of depreciation and attempts to apply this to the scenario. Explanation of splitting the asset into its elements may be missing.	2
	Level 3	Explains the principle of depreciation and applies this to the scenario to clearly explain the splitting of the asset into its elements.	3

SECTION 3 (continued)			
Task (b): Explain the decision tree and how it can be used to decide which contract to choose, assuming we take a risk neutral approach.			
Trait			
Decision tree	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of what the decision tree is illustrating. The explanation lacks clarity and makes little reference to the information in the tree to aid the explanation.	1
	Level 2	Demonstrates reasonable understanding of what the decision tree is illustrating. The explanation may lack some clarity but does make some reference to the information in the tree to aid the explanation.	2
	Level 3	Demonstrates good understanding of what the decision tree is illustrating. The explanation is mostly clear with good use of the information in the tree to aid the explanation.	3
How to use	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how to use the tree to make the decision. The explanation lacks technical accuracy, clarity and reference to the information given.	1 – 2
	Level 2	Demonstrates reasonable understanding of how to use the tree to make the decision. The explanation may lack some technical accuracy, clarity and/or reference to the information given.	3 – 4
	Level 3	Demonstrates good understanding of how to use the tree to make the decision. The explanation is mostly technically accurate, clear and referenced to the information given.	5

SECTION 3 (continued)			
Task (c): Explain for both Robotics+ and Prestige Engineers, what the information contained in Table 1 indicates about its approach to working capital management, with reference to each element of the working capital cycle for each service provider.			
Trait			
Robotics+	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Provides sensible reasons for at least one of the working capital days compared to the industry average and is unlikely to comment that Robotics+ appears to be taking a conservative approach. The explanation lacks clarity.	1 – 2
	Level 2	Provides sensible reasons for at least two of the working capital days compared to the industry average and may not comment that Robotics+ appears to be taking a conservative approach. The explanation may lack a little clarity.	3 – 4
	Level 3	Provides sensible reasons for all of the working capital days compared to the industry average and does comment that Robotics+ appears to be taking a conservative approach. The explanation is mostly clear.	5
Prestige Engineers	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Provides sensible reasons for at least one of the working capital days compared to the industry average and is unlikely to comment that Prestige Engineers appears to be taking an aggressive approach. The explanation lacks clarity.	1 – 2
	Level 2	Provides sensible reasons for at least two of the working capital days compared to the industry average and may not comment that Prestige Engineers appears to be taking an aggressive approach. The explanation may lack a little clarity.	3 – 4
	Level 3	Provides sensible reasons for all of the working capital days compared to the industry average and does comment that Prestige Engineers appears to be taking an aggressive approach. The explanation is mostly clear.	5

SECTION 4			
Task (a): Explain how the testing equipment will be reflected in our financial statements for the year ending 31 December 2023.			
Trait			
Criteria	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates technical understanding of some of the criteria for reclassification as an asset held for sale. The explanation of these criteria lacks clarity, depth and application to the scenario.	1 – 2
	Level 2	Demonstrates technical understanding of many of the criteria for reclassification as an asset held for sale. The explanation of these criteria may lack some clarity, and application to the scenario may be limited.	3 – 4
	Level 3	Demonstrates technical understanding of most of the criteria for reclassification as an asset held for sale. The explanation of these criteria is mostly clear and applied to the scenario.	5
Financial statements	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some technical understanding of how the asset held for sale should be recorded and valued in the financial statements. The explanation lacks clarity and application to the scenario.	1
	Level 2	Demonstrates technical understanding of how the asset held for sale should be recorded and valued in the financial statements. The explanation may lack some clarity and may not be well applied to the scenario.	2 – 3
	Level 3	Demonstrates technical understanding of how the assets held for sale should be recorded and valued in the financial statements. The explanation is mostly clear and applied to the scenario.	4

SECTION 4 (continued)			
Task (b): Explain what Chart 1 indicates about the original budget for the A++ Power range of tractors for the year ending 31 December 2024. Please also provide an explanation of the impacts that the proposed changes will have on the budget as illustrated by the chart.			
Trait			
Original budget	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the multi-product profit-volume chart. The explanation lacks technical accuracy, clarity and makes little reference to the 2024 original budget.	1 – 2
	Level 2	Demonstrates reasonable understanding of the multi-product profit-volume chart. The explanation may lack some technical accuracy, clarity and/or reference to the 2024 original budget.	3 – 4
	Level 3	Demonstrates good understanding of the multi-product profit-volume chart. The explanation is mostly technically accurate, clear and makes good reference to the 2024 original budget.	5
Impacts	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of what the chart indicates about the impacts of the proposed changes on the budget. The explanation lacks technical accuracy, clarity and makes little reference to the chart.	1 – 2
	Level 2	Demonstrates reasonable understanding of what the chart indicates about the impacts of the proposed changes on the budget. The explanation may lack some technical accuracy, clarity and/or reference to the chart.	3 – 4
	Level 3	Demonstrates good understanding of what the chart indicates about the impacts of the proposed changes on the budget. The explanation is mostly technically accurate, clear and makes good reference to the chart.	5

SECTION 4 (continued)			
Task (c): Explain three benefits to our business of using a beyond budgeting approach			
Trait			
Beyond budgeting	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one benefit of using a beyond budgeting approach. The explanation is likely to lack clarity and application to the scenario.	1 – 2
	Level 2	Explains at least two benefits of using a beyond budgeting approach. The explanation may lack some clarity and application to the scenario.	3 – 4
	Level 3	Explains at least three benefits of using a beyond budgeting approach. The explanation is mostly clear and applied to the scenario.	5 – 6

Operational Level Case Study May 2023 & August 2023

Marking Guidance

Variant 6

About this marking scheme

This marking scheme has been prepared for the CIMA 2019 Professional Qualification Operational Case Study [May 2023 & August 2023].

The indicative answers will show the expected or most orthodox approach; however, the nature of the case study examination tasks means that a range of responses will be valid. The descriptors within this level-based marking scheme are holistic and can accommodate a range of acceptable responses.

General marking guidance is given below, and markers are subject to extensive training and standardisation activities and ongoing monitoring to ensure that judgements are being made correctly and consistently.

Care must be taken not to make too many assumptions about future marking schemes on the basis of this document. While the guiding principles remain constant, details may change depending on the content of a particular case study examination form.

General marking guidance

- Marking schemes should be applied positively, with candidates rewarded for what they have demonstrated and not penalised for omissions.
- All marks on the scheme are designed to be awarded, and full marks should be awarded when all level descriptor criteria are met.

- The marking scheme and indicative answers are provided as a guide to markers. They are not intended to be exhaustive and other valid approaches must be rewarded. Equally, students do not have to make all of the points mentioned in the indicative answers to receive the highest level of the marking scheme.
- An answer which does not address the requirements of the task must be awarded no marks. Markers should mark according to the marking scheme and not their perception of where the passing standard may lie.
  Where markers are in doubt as to the application of the marking scheme to a particular candidate script, they must contact their lead marker.

How to use this levels-based marking scheme

1. Read the candidates' response in full

2. Select the level

- For each trait in the marking scheme, read each level descriptor and select one, using a best-fit approach.
- The response does not need to meet all of the criteria of the level descriptor – it should be placed at the level when it meets more of the criteria of this level than the criteria of the other levels.
- If the work fits more than one level, judge which one provides the best match.
- If the work is on the borderline between two levels, then it should be placed either at the top of the lower band or the bottom of the higher band, depending on where it fits best.

3. Select a mark within the level

- Once you have selected the level, you will need to choose the mark to apply.
- A small range of marks may be given at each level. You will need to use your professional judgement to decide which mark to allocate.
- If the answer is of high quality and convincingly meets the requirements of the level, then you should award the highest mark available. If not, then you should award a lower mark within the range available, making a judgement on the overall quality of the answer in relation to the level descriptor.

Summary of the core activities tested within each sub-task

Sub-task		Core Activity	Sub-task weighting (% section time)
Section 1			
(a)	A	Prepare costing information for different purposes to meet the needs of management	52%
(b)	E	Prepare information to support short-term decision making	48%
Section 2			
(a)	B	Prepare budget information and assess its use for planning and control purposes	40%
(b)	C	Analyse performance using financial and non-financial information	36%
(c)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles	24%
Section 3			
(a)	B	Prepare budget information and assess its use for planning and control purposes	36%
(b)	B	Prepare budget information and assess its use for planning and control purposes	16%
(c)	F	Prepare information to manage working capital	48%
Section 4			
(a)	C	Analyse performance using financial and non-financial information	36%
(b)	D	Apply relevant financial reporting standards and corporate governance, ethical and tax principles	40%
(c)	E	Prepare information to support short-term decision making	24%

SECTION 1			
Task (a): Explain how to determine the full cost per download of the TractorPal app and the difficulties of doing so.			
Trait			
Cost per download	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how to determine a cost per download. Is unlikely to differentiate between types of costs (direct vs indirect, up-front vs ongoing). The explanation lacks clarity, depth and reference to the cost items given in the scenario.	1 – 2
	Level 2	Demonstrates reasonable understanding of how to determine a cost per download. May not differentiate between types of costs (direct vs indirect, up-front vs ongoing). The explanation may lack some clarity, depth and/or reference to the cost items given in the scenario.	3 – 5
	Level 3	Demonstrates good understanding of how to determine a cost per download. Does differentiate between types of costs (direct vs indirect, up-front vs ongoing). The explanation is mostly clear, comprehensive, with good reference to the cost items given in the scenario.	6 – 7
Difficulties	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one difficulty. The explanation lacks clarity, depth and application to the scenario.	1 – 2
	Level 2	Explains at least two difficulties. The explanation may lack some clarity, depth and/or application to the scenario.	3 – 4
	Level 3	Explains at least three difficulties. The explanation is mostly clear, comprehensive and applied to the scenario.	5 – 6

SECTION 1 continued			
Task (b): Explain how relevant costing should be applied to each item in Table 1, stating any further information you would need to determine and quantify the relevant revenue and costs of this decision.			
Items 1 - 3	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains the relevant and irrelevant elements for at least one of the items in Table 1. The explanation lacks clarity.	1 – 2
	Level 2	Explains the relevant and irrelevant elements for at least two of the items in Table 1. The explanation may lack some clarity.	3 – 4
	Level 3	Explains the relevant and irrelevant elements for at least three of the items in Table 1. The explanation is mostly clear.	5 – 6
Items 4 - 6	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains the relevant and irrelevant elements for at least one of the items in Table 1. The explanation lacks clarity.	1 – 2
	Level 2	Explains the relevant and irrelevant elements for at least two of the items in Table 1. The explanation may lack some clarity.	3 – 4
	Level 3	Explains the relevant and irrelevant elements for at least three of the items in Table 1. The explanation is mostly clear.	5 – 6

SECTION 2			
Task (a): Explain the sensitivity information shown in Table 2 and why the level of sensitivity differs. Please also explain the benefits and limitations of this analysis.			
Trait			
Sensitivity information	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the sensitivity information. The explanation lacks some technical accuracy, clarity and application to the scenario and does not address why the level of sensitivity differs.	1 – 2
	Level 2	Demonstrates reasonable understanding of the sensitivity information. The explanation may lack some technical accuracy, clarity and/or application to the scenario and may not address why the level of sensitivity differs.	3 – 4
	Level 3	Demonstrates good understanding of the sensitivity information. The explanation is mostly technically accurate, clear and applied to the scenario and does address why the level of sensitivity differs.	5
Benefits and limitations	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one benefit or limitation of this analysis. The explanation lacks clarity and application to the scenario.	1 – 2
	Level 2	Explains at least two benefits and limitations of this analysis. The explanation may lack some clarity and/or application to the scenario.	3 – 4
	Level 3	Explains at least three benefits and limitations of this analysis (with at least one of each). The explanation is mostly clear and applied to the scenario.	5

SECTION 2 (continued)			
Task (b): Suggest three KPIs that could be included on a digital marketing dashboard, explaining how each would be measured and why each would be appropriate.			
Trait			
KPIs	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Suggests at least one sensible KPI. The explanation of how it is measured and why it is appropriate is likely to lack clarity, depth and application to the scenario.	1 – 3
	Level 2	Suggests at least two sensible KPIs. The explanation of how they are measured and why they are appropriate may lack some clarity, depth and/or application to the scenario.	4 – 6
	Level 3	Suggests at least three sensible KPIs. The explanation of how they are measured and why they are appropriate is mostly clear, comprehensive and applied to the scenario.	7 – 9

SECTION 2 (continued)			
Task (c): Explain the adjustments that would need to be made to ensure compliance with transfer pricing regulations if AgRi applied the 100% mark-up when charging us. Also, please explain whether, if the transfer pricing regulations were not applied, this would be an example of tax evasion or tax avoidance.			
Trait			
Transfer pricing	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the impact of the international transfer pricing rules on tax payable and some general technical understanding of tax evasion and avoidance. The explanation of how the rules would be applied and whether non-application constitutes tax evasion or avoidance is likely to be missing. The explanation lacks clarity, technical accuracy and application to the scenario.	1 – 2
	Level 2	Demonstrates reasonable understanding of the impact of the international transfer pricing rules on tax payable and general technical understanding of tax evasion and avoidance. The explanation of how the rules would be applied and whether non-application constitutes tax evasion or avoidance may be limited. The explanation lacks some clarity, technical accuracy and application to the scenario.	3 – 4
	Level 3	Demonstrates good understanding of the impact of the international transfer pricing rules on tax payable and general technical understanding of tax evasion and avoidance. The explanation of how the rules would be applied and whether non-application constitutes tax evasion or avoidance is given. The explanation is mostly clear, technically accurate and applied to the scenario.	5 – 6

SECTION 3			
Task (a): Explain the ZBB process and how this would be applied to create a budget for agricultural shows for one of our Sales Offices for the year ending 31 December 2024.			
Trait			
ZBB process	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of how a ZBB process would be applied to create this budget. The explanation lacks clarity, some technical accuracy and application to the scenario.	1 – 3
	Level 2	Demonstrates reasonable understanding of how a ZBB process would be applied to create this budget. The explanation may lack some clarity, some technical accuracy and/or some application to the scenario.	4 – 6
	Level 3	Demonstrates good understanding of how a ZBB process would be applied to create this budget. The explanation is mostly clear, technically accurate and applied to the scenario.	7 – 9
Task (b): Explain the challenges of using a ZBB approach to determine this budget.			
Trait			
Challenges	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains at least one challenge of using a ZBB approach to determine this budget. The explanation lacks clarity and application to the scenario.	1
	Level 2	Explains at least one challenge of using a ZBB approach to determine this budget. The explanation is likely to lack clarity and application to the scenario if more than one challenge is given.	2 – 3
	Level 3	Explains at least two challenges of using a ZBB approach to determine this budget. The explanation is mostly clear and applied to the scenario.	4

SECTION 3 (continued)			
Task (c): Explain the inventory ordering approaches of the Sales Offices and the financial implications of the approach taken by the Teeland office compared to the European offices. Please also explain whether the EOQ model might be suitable as a method of managing the procurement of promotional items.			
Trait			
Ordering approaches	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the approaches taken and the financial implications. The explanation lacks clarity, depth and application to the scenario.	1 - 2
	Level 2	Demonstrates reasonable understanding of the approaches taken and the financial implications. The explanation may lack some clarity, depth and/or application to the scenario.	3 - 4
	Level 3	Demonstrates good understanding of the approaches taken and the financial implications. The explanation is mostly clear, comprehensive and applied to the scenario.	5 - 6
EOQ model	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the EOQ model and how its assumptions affect its suitability as a method of inventory management. The explanation lacks clarity, depth and application to the scenario.	1 - 2
	Level 2	Demonstrates reasonable understanding of the EOQ model and how its assumptions affect its suitability as a method of inventory management. The explanation may lack some clarity, depth and/or application to the scenario.	3 - 4
	Level 3	Demonstrates good understanding of the EOQ model and how its assumptions affect its suitability as a method of inventory management. The explanation is mostly clear, comprehensive and applied to the scenario.	5 - 6

SECTION 4			
Task (a): Explain what the sales variances in Table 1 mean and possible reasons why they have arisen			
Trait			
Sales variances	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Explains the meaning of at least one type of sales variance (price, mix or quantity) with technical accuracy. The explanation lacks clarity, and the reasons given might not be related to the correct variance.	1 – 3
	Level 2	Explains the meaning of at least two types of sales variance (price, mix and/or quantity) with technical accuracy. The explanation may lack some clarity, and the reasons given might not always be related to the correct variance.	4 – 6
	Level 3	Explains the meaning of all three types of sales variance (price, mix and quantity) with technical accuracy. The explanation is mostly clear, and the reasons given do mostly relate to the correct variance.	7 – 9

SECTION 4 (continued)			
Task (b): Explain the two alternative ways in which the lease from this laptop could be reflected in our financial statements for the year ending 31 December 2023.			
Trait			
Low value	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates recognition that laptops are potentially low-value items but gives little if any justification for this. The explanation of the accounting treatment lacks clarity and accuracy.	1
	Level 2	Demonstrates recognition that laptops are potentially low-value items and does attempt to justify this. The explanation of the accounting treatment may lack some clarity and accuracy.	2 – 3
	Level 3	Demonstrates recognition that laptops are potentially low-value items and makes a reasonable attempt to justify this. The explanation of the accounting treatment is mostly clear and accurate.	4
Other treatment	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the usual accounting treatment for leases. The explanation has omissions and lacks clarity, accuracy and/or application to the data in the scenario.	1 – 2
	Level 2	Demonstrates reasonable understanding of the usual accounting treatment for leases. The explanation will reference the scenario but may have some omissions or there may be some lack of clarity or accuracy.	3 – 4
	Level 3	Demonstrates good understanding of the usual accounting treatment for leases. The explanation references the scenario, is clear and accurate for the most part and contains no major omissions.	5 – 6

SECTION 4 (continued)			
Task (c): Explain how taking a risk neutral and a risk averse attitude would impact the SMT's willingness to pay for the perfect information, based on the information in Tables 3 and 4.			
Trait			
Perfect information	**Level**	**Descriptor**	**Marks**
		No rewardable material	0
	Level 1	Demonstrates some understanding of the value of perfect information. Explanation of how risk attitudes affect the willingness to pay lacks clarity, depth and application to the scenario.	1 – 2
	Level 2	Demonstrates reasonable understanding of the value of perfect information. Explanation of how risk attitudes affect the willingness to pay lack some clarity, depth and application to the scenario.	3 – 4
	Level 3	Demonstrates good understanding of the value of perfect information. The explanation of how risk attitudes affect the willingness to pay is mostly clear and applied to the scenario.	5 – 6