AICPA & CIMA
Together as the Association of International Certified Professional Accountants

November 2023 and February 2024
Strategic Case Study
2019 CGMA Professional Qualification
Full post exam support materials

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

Pre-seen material

November 2023 and February 2024 Strategic Case Study pre-seen.

Examiner's report

The November 2023 and February 2024 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.

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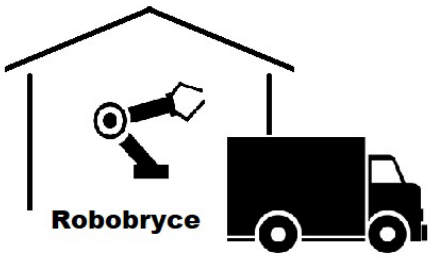
Strategic Case Study Examination

November 2023 – February 2024

Pre-seen material



Context Statement

We are aware that there has been, and remains, a significant amount of change globally. To assist with clarity and fairness, we do not expect students to factor these changes in when responding to, or preparing for, case studies. This pre-seen, and its associated exams (while aiming to reflect real life), are set in a context where current and on-going global issues have not had an impact.

Remember, marks in the exam will be awarded for valid arguments that are relevant to the question asked. Answers that make relevant references to current affairs will, of course, be marked on their merits.

Contents

Introduction

Robobryce is a quoted company that creates solutions for handling objects, primarily in warehouses and factories. Robobryce assists its clients by developing and installing the systems required to store and retrieve inventory. For example, Robobryce might support an online retailer by supplying a system that can pick goods from storage in response to customer orders.

You are a senior manager in Robobryce's finance function. You report directly to the Board and advise on special projects and strategic matters.

Robobryce is based in Tessland, a developed country that has an active and well-regulated stock exchange. Tessland's currency is the T$. Tessland requires companies to prepare their financial statements in accordance with International Financial Reporting Standards (IFRS).

Warehouse handling

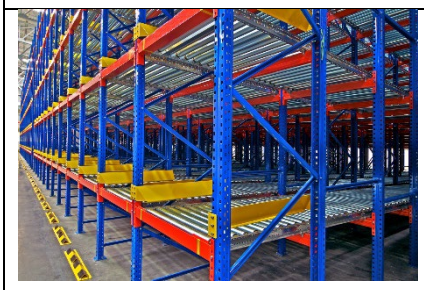
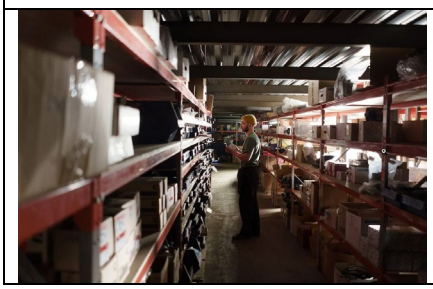
Many entities rely on warehouses for the storage and management of significant quantities of parts or goods. The average area of a warehouse in Tessland is 1,500 square metres. More than 40% of the country's warehouses exceed 9,300 square metres. Some organisations have warehouses of up to 95,000 square metres.

Larger warehouses can simplify inventory management by enabling large quantities of particular items to be stored together. Their size can, however, complicate the management of the warehouses themselves. The largest warehouses can require more than 1,000 staff, who may have to cover distances of hundreds of metres in order to retrieve each item required to fulfil a despatch instruction.

Warehouses often store many different item types that must be kept safe and accessible. The design and equipment of warehouses can have a significant impact on the efficiency of their operations and on the associated costs.

Storage options

 	Goods are often shipped on wooden pallets, which enable them to be lifted by forklift trucks. Pallets enable efficient loading and unloading of delivery vehicles and the movement of goods within warehouses. Pallets are a standard size, which simplifies the management of inventory. Goods that are transported in shipping containers are rarely shipped on pallets because the pallets themselves will typically require up to 10% of the available volume inside a container. Warehouses receiving such goods often load them onto pallets on arrival to enhance the efficiency of storage.
	Block storage is the simplest way to manage palletised loads within warehouses. An area of floorspace is designated for a particular item and pallets are stacked on top of one another. Block storage relies on the goods being strong enough to stack. They must also be held in sufficient quantities to make a stack worthwhile. The product must also have a long shelf life so that there is not a constant need to unstack pallets in order to use the oldest inventory first. Block storage is inefficient if products cannot be stacked because it wastes the overhead space. Warehouses generally have high ceilings, and it is desirable to make the best possible use of that height.

	Warehouses are often fitted with racks that enable pallets to be stored as single units and make full use of the available ceiling height. Each pallet has a specific location that is directly accessible. The aisles between racks are usually 3 metres wide, which permits forklifts to access them and insert or extract pallets. Wider aisles are sometimes used to enable larger and more powerful forklifts to operate, although that arrangement will reduce the number of racks that can be accommodated. It is possible to have narrow aisles, creating more space for storage, but that requires the use of narrow aisle forklifts that cost more to buy and require skilled operators.
	There are various specialised racking systems that can store pallets several units deep. These include racks with lanes that enable forklifts to drive into them and racks with rollers that enable forklifts to push additional pallets in from the front. These systems enable much more efficient use of space, but at a cost in terms of flexibility. Only the pallet at the front of the rack is immediately accessible. That should not be a problem if all pallets in a row contain the same product, but it could be necessary to extract a particular pallet because, for example, it has goods that are close to their expiry date. In that case, all of the pallets in front must be removed before it can be accessed.
	Some smaller items can be stored more efficiently in cartons that are stored on shelves. Shelves can be configured to store different combinations of weights and carton dimensions.

The organisation of warehouses can have a significant impact on their capacity. For example, a warehouse of 1,000 square metres could accommodate the following numbers of standard pallets, depending on configuration:

Levels of racking	Wide aisle	Narrow aisle	Full depth push racks
1	270	300	570
2	540	600	1,140
3	810	900	1,710
4	1,080	1,200	2,280
5	1,350	1,500	2,850
6	1,620	1,800	3,420

These are maximum capacities. It can be difficult to operate a warehouse efficiently if it is at 100% capacity. It may be preferable to aim for 90-95% capacity.

Warehouse picking – picker-to-goods (P2G)

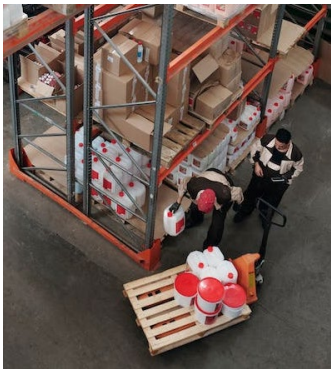
Picking is the process of obtaining goods from the warehouse and preparing them for despatch to the factory or to a customer. Picking is affected by the nature of the business. Goods may be picked as:

- entire pallets
- whole cartons
- individual items

In each case, picks may be multiples of pallets, cartons or items.

The nature of the business can also affect the number of items in a typical pick. Some warehouses may have to fulfil orders that consist of multiple items. An online retailer's customers may order several products, each located in different areas of the warehouse, at once. A supplier of vehicle parts could receive orders for 90-100 line items that are required urgently by car dealership workshops.

Picks can be organised in different ways:

Individual order pick 	A picker is given responsibility for a single order, collecting all of the items and returning to a workstation to prepare the order for despatch. This approach is simplest. It is likely to be the fastest way to prepare any given order. The picker is dealing with only one order at a time and so there is no risk of an item being added to the wrong order and sent to the wrong customer. It may be necessary to walk or drive a forklift over a significant distance if there are several items on the order that are stored at some distance from one another. That is a particular problem if orders comprise small numbers of items because pickers will have to return to their workstations frequently, creating a great deal of unproductive time. Sometimes, orders will consist of items that cannot be combined with anything else. Perhaps an entire pallet has to be picked and creates an entire load for a forklift or for a picker's trolley.
Cluster pick	A picker is given multiple orders at once and picks items for each from different racks and shelves. The picker can then fulfil several orders at once, increasing productivity through reducing walk times for each order. This approach may work well for an online retailer, whose customers tend to order a small number of products at once. There is an increased risk of errors, with items being placed in the wrong order when the picker returns to the workstation and prepares orders for despatch.
Batch pick	Items for a number of orders are picked and brought to a secondary handling area, where a further pick allocates items to individual orders. This approach might be suitable when certain products are ordered frequently, such as a retailer that has discounts on popular items.
Zone pick	Picking is subdivided into zones. For example, an online retailer of electrical goods may set aside separate zones for large kitchen appliances, small kitchen appliances and electronics. Each item in an order would be picked separately from its respective zone and the goods would be combined as appropriate in the despatch area.

These approaches are known as "picker-to-goods" because they involve pickers walking or driving round warehouses while collecting goods to be prepared for despatch. Items that are small and light may be carried in tote boxes or trays. Heavier items may be placed on trolleys, which can be driven by electric motors and steered by the picker. Pickers may use forklifts for even larger items.

Pickers can also be supported by collaborative robots (cobots) which carry goods that have been picked by the human picker. The cobot is a powered trolley that guides the picker to the location of the goods that are to be picked. The cobot displays the item to be picked on its

screen upon arrival at a location. The picker can then stack the item on the cobot before it departs for the next location. This system is suitable for medium to large items. It improves efficiency because the picker does not have to return to a workstation after picking each item.

Warehouse picking – goods-to-picker (G2P)/robot-to-goods (R2G)

Picking has traditionally been a labour-intensive process because it has proved difficult to automate the retrieval of goods that are different in terms of size and weight. There are, however, new technologies that enable goods to be collected and delivered to human operators for packaging and despatch. These technologies are often referred to as Automated Storage and Retrieval Systems (ASRS).

Automation offers a number of advantages:

- faster than human pickers
- less likely to drop or damage inventory through mishandling
- enhances security because fewer operators have access to stores
- reduces risk of injury by collecting and transporting items mechanically
- fewer picking errors

Picking can be automated in several different ways, in particular through the use of carousels and robots.

Carousels are used to store different products that can be brought to their operators' workstations to fulfil orders. Inventory is often held in storage bins that can be transported either vertically or horizontally, depending on the design of the carousel, to deliver the correct bins to operators' workstations. Goods required for orders are collected and the carousel delivers the next bin.

Horizontal carousels can be configured in a number of different ways. They can be a highly-efficient means of transporting goods around a warehouse and in facilitating picking of goods. Horizontal carousels can be adapted to store and present hanging garments or different types of container other than open bins.

Vertical carousels are essentially a type of industrial shelving that can be rotated so that the relevant item of inventory is brought to a convenient height. Pickers are less likely to be injured by having to bend or stretch in order to retrieve items. There is also no need to use ladders to retrieve items that are out of reach from ground level.

Some carousels have robotic picking arms that can collect goods, potentially increasing the speed of picking and reducing the need for human operators.

Robots are generally more flexible than carousels. Warehouse robots are electrically powered and can move independently. Some have the ability to lift items for picking. Warehouse robots that lack onboard intelligence are known as automated guided vehicles (AGVs). They can operate automatically but require guidance. Autonomous mobile robots (AMRs) are more flexible. They have the ability to map their environments and to plan their routes. One significant difference between AGVs and AMRs is that the latter can bypass an obstacle. An AGV that encounters an obstacle in its programmed path will simply stop until the way is cleared.

Robots can automate the goods-to-picker approach by collecting a pallet or bin containing goods from inventory and bringing it to a designated human operator's workstation. The picker will then pick the parts required for the order or orders that are being processed, before the robot returns the pallet or bin to its space in the warehouse. This system is more flexible than the carousel approach because several robots can be programmed to converge on any given workstation, with sufficient spacing to prevent bottlenecks in picking.

Some robots can pick items from inventory and deliver them to the next stage in processing the order. This is referred to as robot-to-goods (R2G).

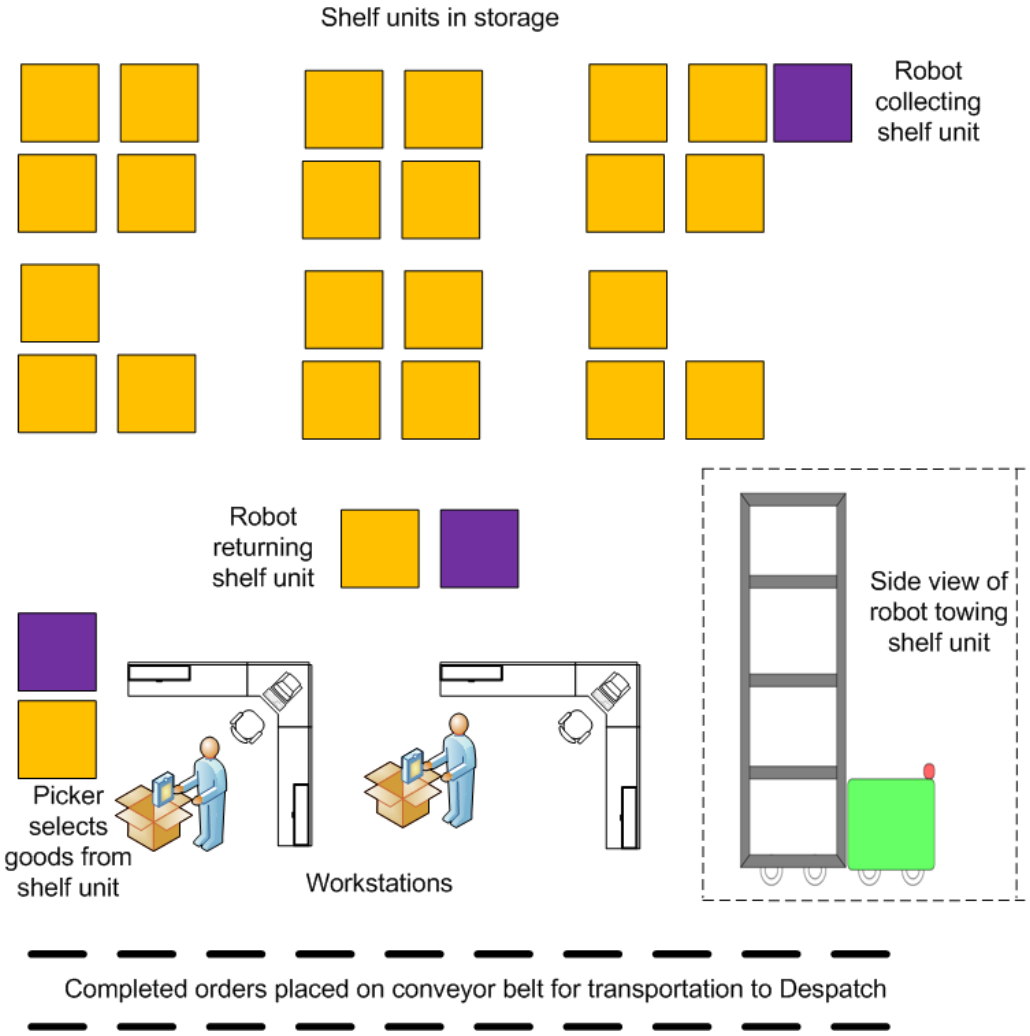
Mobile robots can be guided in various different ways:

- Linear route robots follow a path that is embedded in or placed on the warehouse floor. That can simplify navigation and reduce the risk of collisions. The routes can take the form of rails or wires.

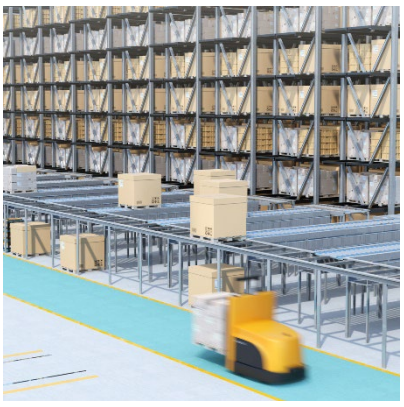
  Wires can generate a magnetic field that enables robots to draw electrical power by induction, which eliminates the needs for robots to return to charging points in order to remain operational.

  The flexibility of these robots is limited by the need to lay additional rails or wires in order to create new routes. They cannot bypass obstacles that have been left on their route, which suggests that they are better suited to AGVs rather than AMRs. AGVs are generally cheaper than AMRs, so that is not necessarily a disadvantage.

- Barcode-guided mobile robots can navigate flexibly, provided the environment they are operating in has the necessary barcodes in place. Lasers on the robots can be used to read labels and so to identify objects that have been mapped, such as shelves and doors. The robots use electronic maps to plan routes to shelves that are collected and transported to the relevant workstation.



- Laser-guided mobile robots navigate using lasers to determine their position relative to objects. The simplest systems use mirrors that enable robots to determine their location on the floor, which is mapped, and so enables them to plan and follow a route. More sophisticated systems can create their own 3D maps, enabling them to identify objects, determine locations and avoid obstacles.

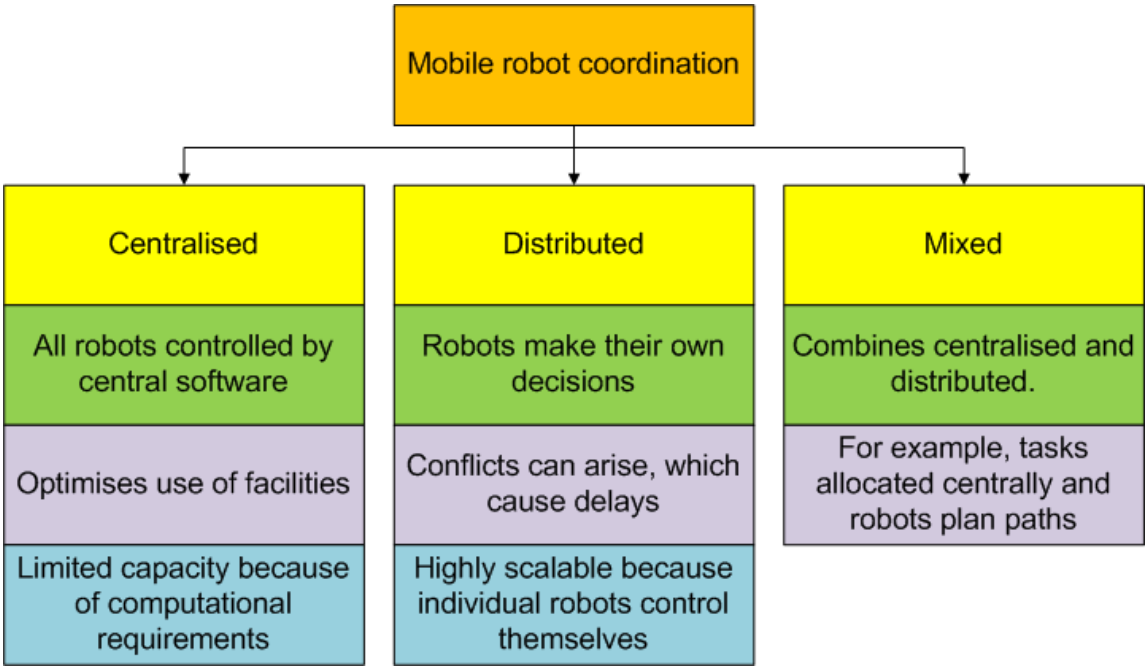


These systems are often used on relatively large and heavy robots, such as autonomous forklifts. They are often used for the transportation of heavy loads, such as full pallets. That often makes them better suited to putting incoming goods in storage rather than picking goods for despatch. That type of application requires robots to follow predefined routes and so they may be better suited to AGVs for the sake of minimising costs.

AMRs that rely on laser guidance can be dangerous if they fail to detect human traffic. That risk can be dealt with by designating zones that robots are programmed to avoid and restricting pedestrian traffic to those zones.

Coordinating movements of mobile robots

The nature of the application dictates the choice between AGVs and AMRs. AMRs are preferable when robots require significant onboard intelligence, including the ability to plan their own routes and avoid obstacles. AGVs are cheaper but are restricted in terms of onboard intelligence. They must be guided by a central system. Their sensors can detect unexpected obstacles in their paths, but they can then do no more than stop and transmit an error message to the control system. They cannot navigate a route around an obstruction.



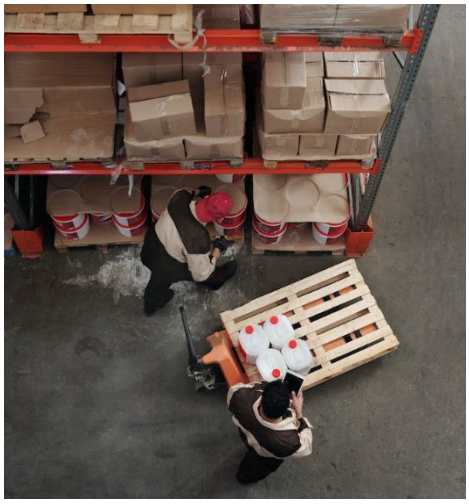
Centralised systems allow for the best possible use of robots and floor space. Software manages the operation of robots, allocating retrieval tasks to individual devices, setting paths and tracking locations. The software prevents collisions and avoids holdups by plotting paths and determining optimal routing. That could mean slowing a robot down or even making it stop briefly to permit another robot with a higher priority to pass.

Centralised systems become much more complicated as the scale of the operation grows and the number of robots increases. That constrains the number of mobile robots that can be operated simultaneously.

Distributed systems use AMRs that have been programmed to operate with a high level of autonomy. That relieves the pressure on the centralised control software because each robot determines its own path and manages conflicts independently.

Mixed systems can be faster than centralised systems. They relieve the central control software of some of the burden of managing individual robots. Most complex automated warehouses focus on mixed control systems.

Human-robot interactions



Some tasks can be carried out more efficiently by humans than by robots. For example, humans are better at removing plastic film from palletised goods or opening cardboard cartons and picking individual items from the resulting opened case.

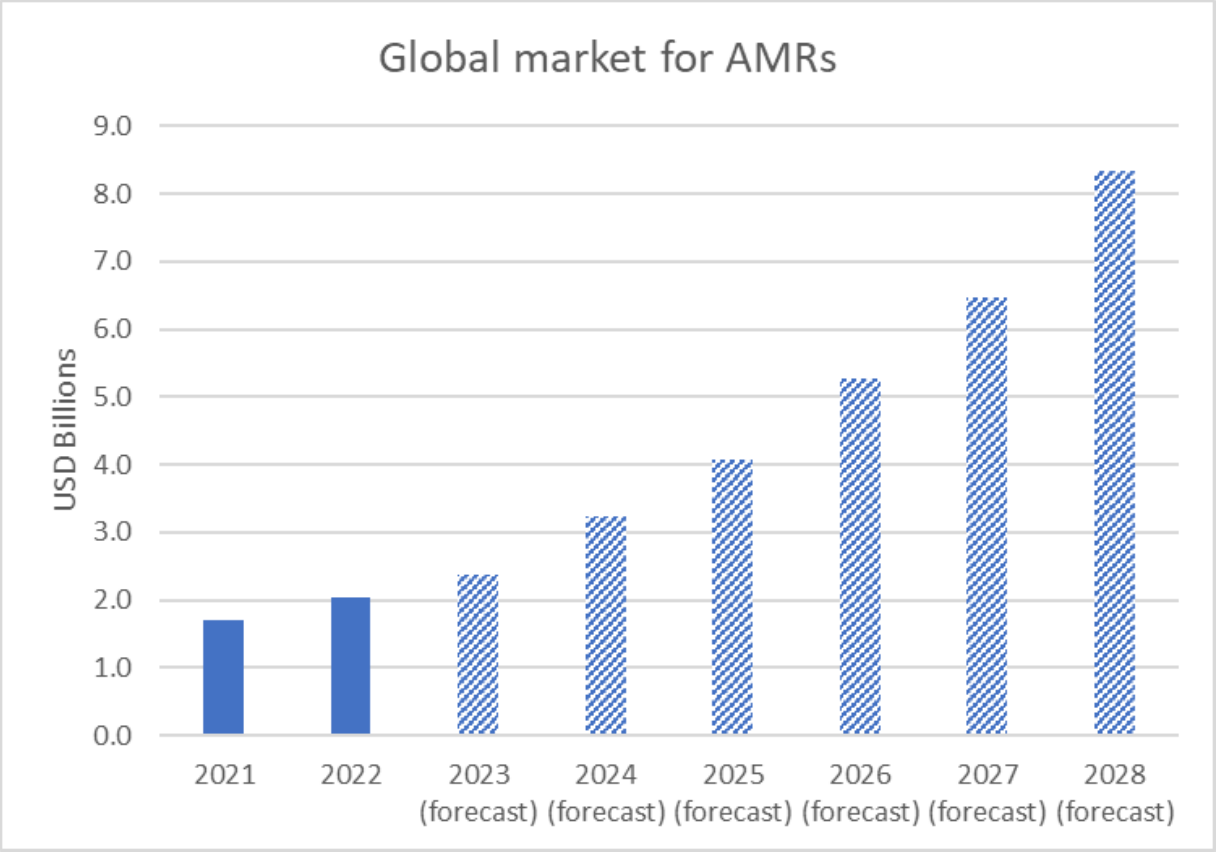
Humans may be required to work in collaboration with robots. A human might be directed to a particular aisle to pick items for collection by a robot. In that case, the sequencing of tasks for both humans and robots has to be managed so as to optimise the use of both, minimising both idle time and the total distance travelled in the course of each shift.

The design of robots should take account of the actions that will be undertaken by warehouse staff. For example, loading and unloading robots by hand can create the risk of accidents if the loading platform is at an awkward height or there is a risk of items falling and injuring employees.

Safety issues are also important when mobile robots and humans work in the same areas. Collisions and dropped loads can lead to serious injuries. Robots can be fitted with sensors that enable them to identify the presence of humans.

Market for automated warehouse equipment

The market for warehouse automation is growing, fuelled by wider changes such as the growth of online retailing. For example, the global market for AMRs is expected to increase as follows:



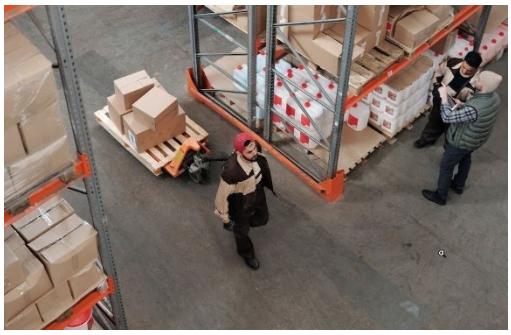
Warehouse management systems

A warehouse management system (WMS) consists of software that monitors movements of inventory within a warehouse and ensures that inventory is managed and used in an efficient and cost-effective manner. WMSs support tasks such as storing incoming inventory and picking items in order to fulfil orders.

Automated warehouse equipment, including carousels and robots, must be capable of integrating with users' WMS systems, both standard packages and bespoke systems written to meet specific requirements.

Robobryce

Robobryce was established in 1952 as a manufacturer of warehouse fittings and equipment. Developments in manufacturing and in traditional retailing, such as the introduction of supermarkets, encouraged the construction of large warehouses. The company has grown steadily since then, being quoted on the Tessland Stock Exchange in 1971.



Robobryce's initial product range focussed on carts and similar devices that could be used to transport goods. These were designed to be pushed or pulled by human operators. Over time, the product range was expanded, to include shelves and forklift trucks. All production took place at a factory in central Tessland.

Robobryce has always taken an innovative approach to product development. Its shelves are highly adaptable and can be assembled and configured in many different ways. They can also be supplied with specialised fittings that enable them to store unusual products such as rolls of carpet. It has several different models of forklifts, including conventional, high reach and narrow aisle designs. Robobryce works closely with clients, advising them on the design of their warehouses so that they can be optimised in terms of capacity and efficiency of operation.

Robobryce introduced its first autonomous products in 2005. These proved commercially attractive, despite the limited capabilities of the products that were available on the market. Warehouse operations were changing because of developments in logistics and, in particular, the growth of online retailing. Warehouse operators found themselves having to pick individual units instead of full pallets, as had often been the case before.

By 2008, demand for autonomous products had grown to the point where Robobryce decided to relocate production of its existing range of non-automated and non-autonomous products to a factory in Darrland. Darrland has a relatively weak economy and wages are low. Despite that, the country's educational standards are high, enabling Robobryce to recruit skilled production staff for less than would have to be paid in Tessland.

The Darrland factory continues to operate because there is a strong demand for its products. Warehouses vary in size, and it can be more efficient to use human operators rather than robots to run small warehouses, taking instructions from the WMS. Large warehouses may rely on mobile robots to facilitate inventory movements, but they often use traditional shelving for storage and low-technology devices such as conveyor belts for transportation.

Most of the production equipment at Robobryce's Tessland factory was shipped to Darrland. The Tessland factory was then re-equipped for the manufacture of high precision, autonomous equipment. The Tessland factory makes extensive use of industrial robots for manufacturing and assembly tasks and for handling of inventory and finished goods.

Robobryce currently employs 12,000 production staff, of whom 7,000 are based in Darrland and 5,000 in Tessland. The company is one of the world's largest manufacturers of automated warehouse systems. It designs warehouse solutions on a global basis, supplying hardware and software in order to implement its designs.

Products

Robobryce offers a wide range of products for use in warehouses.

Darrland factory	Tessland factory
• Forklift trucks – primarily optimised for use in warehouses (e.g., narrow aisle and high-reach designs). • Hand trucks – both open trucks and trucks with forks that can lift and transport pallets. Robobryce's hand trucks are electrically powered but require a human operator to steer them. • Shelving – modular shelving units that can be built into a variety of configurations that are suitable for the vast majority of warehouse layouts.	• Horizontal carousels – primarily suited to the storage and retrieval of limited quantities of goods that can be stored in bins or hung on rails (e.g. garments). • Vertical carousels – primarily suited to store and retrieve goods on shelves from floor to ceiling. Goods are always presented at a suitable height to be lifted safely. • Mobile robots – Robobryce offers a wide range of mobile robots, including both AGVs and AMRs. It has robots suited to G2P and R2G roles. Robobryce's robots are regarded as being amongst the most technically advanced on the market.

In addition to manufacturing warehouse hardware, Robobryce provides customers with extensive consulting support in the design and installation and ongoing support of warehouse systems. The company employs 800 business advisers who can assist at all stages of the design of a new warehouse or the upgrading of a new facility. That support is vital because of the need to integrate autonomous devices with warehouse management systems (WMS).

Robobryce has extensive research and development activities, focussed mainly on autonomous products:

- Mechanical engineers aim to develop the physical attributes of autonomous products. These include enhancing the precision with which products can be picked, without causing damage, and the capacity of autonomous products, enabling them to carry larger quantities safely.
- Electrical engineers are interested in powering products that rely on electric motors, whether they are autonomous or non-autonomous. Many of Robobryce's products are powered by batteries and must be recharged at regular intervals. Ideally, these products should operate for as long as possible between charges and the charging times should be as rapid as possible.
- Software engineers design software and write and test program code. Robobryce's software engineers focus on autonomous products, with a view to adding capability and

enhancing reliability. Hardware developments such as new sensors and more powerful processors create a need for software upgrades that can make use of these opportunities. Robobryce must also maintain its software to ensure that its products can continue to operate in conjunction with warehouse management systems.

Robobryce's research laboratory is located in a large building beside the Tessland factory. The company employs 900 research and development staff, split equally between mechanical, electrical and software.

Extracts from Robobryce's annual report

Robobryce's mission and values

Our mission

Robobryce's mission is to pursue the growth of our business in a manner that advances social wellbeing.

Our vision

Robobryce's vision is to enhance the efficiency of our customers and, in so doing, to add value to society.

Our values

- Robobryce aims to enhance social wellbeing and the quality of life.
- Robobryce aims to meet stakeholders' needs.
- Robobryce aims to innovate and to be at the forefront of the implementation of new technologies.

Robobryce's Board of Directors

Professor Sudhakar Pattanaik, Non-Executive Chair

Sudhakar is a mechanical engineer by training. He taught engineering at a prestigious university, rising to the rank of professor and Dean of Engineering at the University of Central City in Tessland. He served as Principal of the University before retiring from academic life and joining Robobryce's Board in 2021.

Sudhakar is a member of the Council of The Institute of Mechanical Engineers of Tessland.

Ewa Durska, Chief Executive Officer (CEO)

Ewa worked for a major retailer as a logistics manager, eventually reaching the position of Head of Logistics before leaving the company to join Robobryce as Director of Research.

She has served as Robobryce's Chief Executive Officer since 2021.

Eamonn McCauley, Chief Operating Officer (COO)

Eamonn studied electrical engineering at university. He joined Robobryce in 1998, initially as a member of Research and Development before moving into Production. He completed a part-time MBA degree during that period.

Eamonn managed Robobryce's autonomous products factory from 2014 until 2022, when he was promoted to COO.

Filiz Yildiz, Chief Finance Officer (CFO)

Filiz is a professionally-qualified accountant. She has had a varied career, working for several organisations in finance-related roles. She was Chief Accountant at a major manufacturer of construction equipment before she joined Robobryce as Head of Treasury.

Filiz was promoted to CFO in 2020.

Dr Hassan Khattaf, Director of Research

Hassan studied data science at Tessland's Capital City University and completed his PhD at the University of Central City, where he taught and researched until 2016. He left academic life to join Robobryce as a research manager.

Hassan was promoted to Director of Research in 2019.

Hou Xijin, Human Resources Director

Hou studied Human Resource Management at University. She worked in the Personnel Department of a major bank after graduating, during which time she completed the Tessland Institute of Personnel and Development qualification. Hou spent 5 years as Head of Human Resources at Robobryce's non-autonomous products factory in Darrland before returning to Tessland as Head of Human Resources.

Hou was promoted to Human Resources Director in 2023.

Didier Auroux, Senior Independent Director

Didier had a successful legal career, working for one of Tessland's largest commercial law firms. He was a partner of the firm and served as managing partner for 3 years before retiring.

Didier joined Robobryce's Board as Senior Independent Director in 2020.

Nina Isabel Coria, Independent Non-Executive Director

Nina worked as an economist at the head office of a major bank for much of her career. She was involved in policy development for much of her time, rising to Chief Economist. She retired from banking in 2016, spending 4 years as a Professor of Economics at Capital City University. She joined Robobryce's Board in 2020.

Nigel Taylor, Independent Non-Executive Director

Nigel spent most of his career working for a major management consulting firm. That involved significant overseas travel and gave him a broad experience of working with manufacturing companies on a consulting basis.

Nigel joined Roboryce's Board when he retired from the consulting firm in 2022.

Board responsibilities

Ewa Durska Chief Executive Officer			
Eamonn McCauley, Chief Operating Officer	Filiz Yildiz, Chief Finance Officer	Dr Hassan Khattaf, Director of Research	Hou Xijin, Human Resources Director
• Production • Marketing • Integration of strategic plans	• Financial reporting • Management accounting • Treasury	• Software maintenance and development • Physical product development • Product safety	• Staffing matters including recruitment, retention, remuneration and training • Factory health and Safety

	Board committees			
	Audit	Risk	Remuneration	Nomination
Professor Sudhakar Pattanaik, Non-Executive Chair	♦	♦		♦
Didier Auroux, Senior Independent Director		♦	♦	♦
Nina Isabel Coria, Independent Non-Executive Director	♦		♦	♦
Nigel Taylor, Independent Non-Executive Director	♦	♦	♦	

The Chief Internal Auditor reports to the convener of the Audit Committee.

Robobryce's Principal Risks

Risk impact	Risk mitigation
Customer demand within key business segments can be cyclical. Also, many customers are in industries that are highly competitive, which puts pressure on both investments and willingness to bear costs.	Robobryce pays close attention to all available information about customers and adapts plans and budgets accordingly. The company also aims to be flexible and adaptable, with a view to reflecting demand in managing capacity.
Customer projects can be significant and can take a long time to implement. That can lead to problems such as revisions to specifications by customers; difficulties in predicting costs accurately; penalties for late completion; and customers becoming insolvent during the project.	Robobryce assesses risks on a case-by-case basis and monitors progress closely throughout. Contracts are conducted in accordance with detailed specifications that allow for possibilities such as requests for changes in deliverables and the possibility of a supplementary charge for any additional costs.
Robobryce does business in many different countries, both as a supplier of warehouse products and systems and as a buyer of parts and materials.	Robobryce hedges currency risks as appropriate, focussing on the management of economic and transaction risks.
Robobryce faces significant IT risks, both in terms of its own operations and in respect of the design and installation of automated warehouse systems that rely heavily on software for the operation of autonomous products.	Robobryce has systems in place for the management of IT risks. Those systems are kept under constant review and are updated as necessary in order to minimise IT risks.
The company depends heavily on its technical and management staff to ensure that it remains at the forefront of product development and can ensure that there is capacity to maintain the design and installation of customers' systems.	Robobryce keeps staff salaries under constant review and ensures that they are competitive in comparison to rivals. The company also invests heavily in training and staff development, with a view to ensuring that skilled staff have a clear career path open to them.

Robobryce Group
Consolidated statement of profit or loss
for the year ended 31 December

	2022	2021
	T$ million	T$ million
Revenue	14,911	13,867
Operating costs	(11,631)	(11,024)
Operating profit	3,280	2,843
Finance costs	(1,100)	(1,100)
	2,180	1,743
Tax expense	(305)	(227)
Profit for the year	1,875	1,516

Robobryce Group
Consolidated statement of changes in equity
for the year ended 31 December 2022

	Share capital	Retained earnings	Currency reserve	Total
	T$ million	T$ million	T$ million	T$ million
Opening balance	800	9,296	(86)	10,010
Profit for year		1,875		1,875
Dividend		(426)		(426)
Loss on translation			(6)	(6)
Closing balance	800	10,745	(92)	11,453

Robobryce Group
Consolidated statement of financial position
as at 31 December

	2022	2021
	T$ million	T$ million
Assets		
Non-current assets		
Property, plant and equipment	8,141	7,653
Goodwill	5,815	5,815
Software development costs	5,428	4,939
	19,384	18,407
Current assets		
Inventories	2,154	1,757
Trade receivables	3,034	2,607
Bank	167	124
	5,355	4,488
Total assets	24,739	22,895
Equity		
Share capital	800	800
Currency reserve	(92)	(86)
Retained earnings	10,745	9,296
	11,453	10,010
Liabilities		
Non-current liabilities		
Borrowings	11,000	11,000
Current liabilities		
Trade payables	1,978	1,654
Tax liability	308	231
	2,286	1,885
Total equity and liabilities	24,739	22,895

Extract from competitor's financial statements

Robobryce is one of six major companies that compete for the design and implementation of automated warehouse systems. Its most direct competitor within this market is Pavrobot, which is also based in Tessland. Pavrobot's manufacturing interests are restricted to autonomous products such as carousels and mobile robots. The company does not manufacture non-autonomous products. Indeed, it sometimes specifies Robobryce shelves when it designs client warehouses.

Robobryce and Pavrobot frequently bid against one another for warehouse contracts.

Pavrobot Group
Consolidated statement of profit or loss
for the year ended 31 December

	2022	2021
	T$ million	T$ million
Revenue	18,788	17,097
Operating costs	(14,279)	(13,421)
Operating profit	4,509	3,676
Finance costs	(1,400)	(1,400)
	3,109	2,276
Tax expense	(435)	(296)
Profit for the year	2,674	1,980

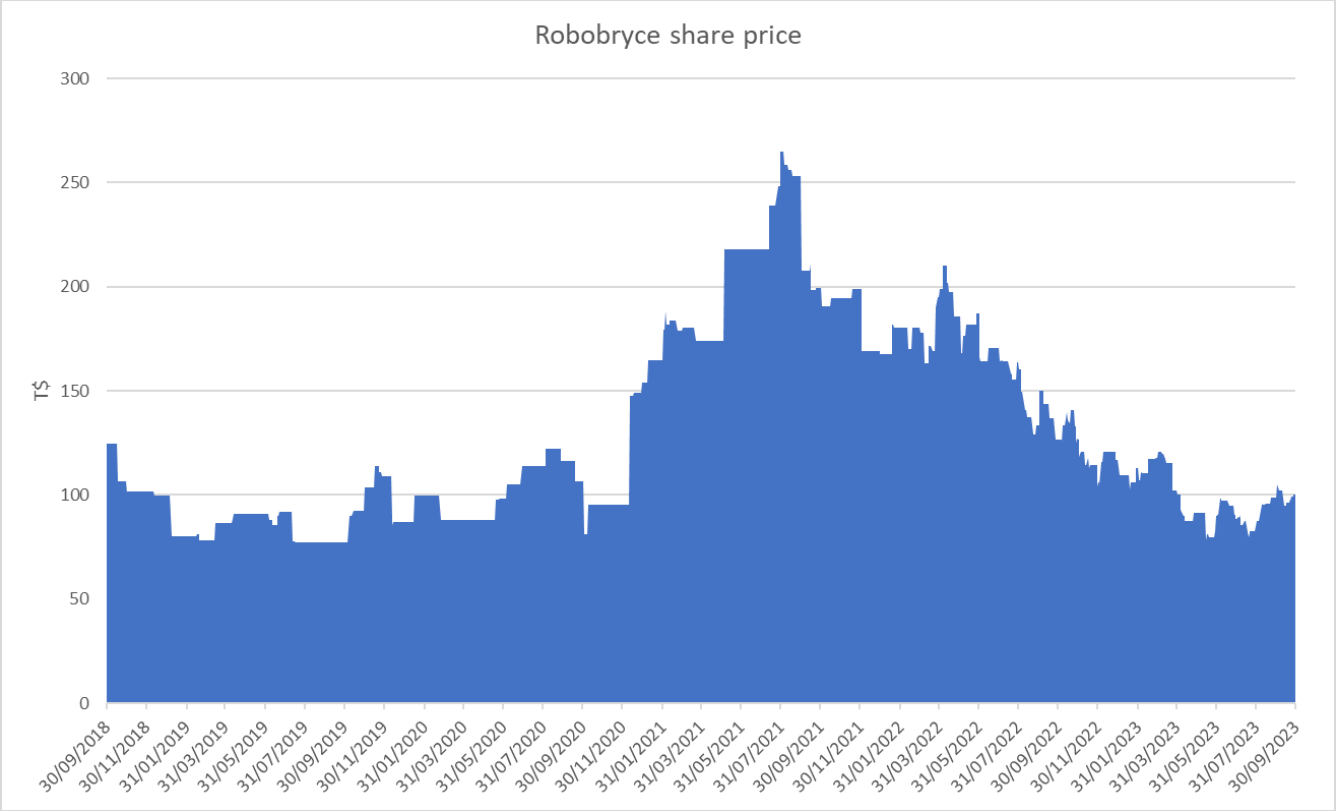
Pavrobot Group
Consolidated statement of changes in equity
for the year ended 31 December 2022

	Share capital	Retained earnings	Currency reserve	Total
	T$ million	T$ million	T$ million	T$ million
Opening balance	1,000	9,907	(103)	10,804
Profit for year		2,674		2,674
Dividend		(583)		(583)
Loss on translation			(9)	(9)
Closing balance	1,000	11,998	(112)	12,886

Pavrobot Group
Consolidated statement of financial position
as at 31 December

	2022 T$ million	2021 T$ million
Assets		
Non-current assets		
Property, plant and equipment	10,822	9,956
Goodwill	6,764	6,764
Software development costs	4,960	4,514
	22,546	21,234
Current assets		
Inventories	2,390	1,875
Trade receivables	3,570	3,077
Bank	928	682
	6,888	5,634
Total assets	29,434	26,868
Equity		
Share capital	1,000	1,000
Currency reserve	(112)	(103)
Retained earnings	11,998	9,907
	12,886	10,804
Liabilities		
Non-current liabilities		
Borrowings	14,000	14,000
Current liabilities		
Trade payables	2,111	1,765
Tax liability	437	299
	2,548	2,064
Total equity and liabilities	29,434	26,868

Share price history

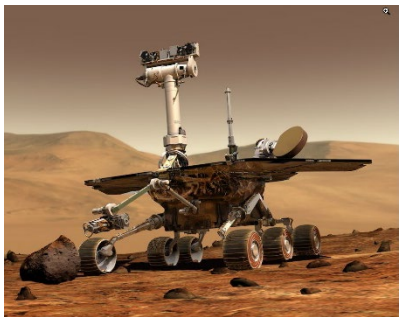


Robobryce's beta is 0.91.

News stories

Happy Comic

Readers' questions



Question: I watched a documentary about robots and was amazed that they can operate independently and still navigate without crashing into things all the time. How do robots do that?

Ivan, age 12

Answer: There are lots of different ways in which robots can avoid damaging collisions. The easiest is to use a bump sensor, which is a simple switch that is hidden behind a bumper. The switch is pressed if the bumper hits an object and the robot stops. The robot will then respond to the obstacle according to its programming. It could send a message that it has stopped and will await electronic instructions, or a human operator could reposition the robot and reset it, or the robot could be programmed to reverse a short distance and turn slightly, before setting off in a slightly different direction, hopefully avoiding the obstacle.

The most complex robots use LIDAR, which operates in a similar way to radar, but it uses laser light instead of radio waves to scan ahead and create an image. If a robot has a powerful enough processor, it can interpret LIDAR images and use them to avoid objects or to identify the destination for a journey. LIDAR has the advantage of being able to detect objects before a collision. With the right programming, robots can predict the course of moving objects and can take evasive action if there is a risk of a collision.

These are just two examples. Robots can be equipped with lots of different types of sensors that can be used to identify their locations, track objects and locate specific items.

Tessland Telegraph

Tessland Foods opens lights-out warehouse

Tessland Foods has opened its first lights-out warehouse. This will be used to manage materials used by the company to manufacture pies and ready meals.

The new warehouse uses horizontal carousels to store and transport sides of beef. The warehouse management system can select specific items to be picked within minutes of a request from the factory, so inventory can be selected on the basis of its age and its quality.

The warehouse was designed and installed by Robobryce.

The warehouse is referred to as lights-out because it does not require any staff to work alongside the automated equipment. That means that the warehouse does not have to allow for the needs of humans during routine operation. In a cold store environment, that means that there are fewer heat sources in the warehouse, which reduces operating costs because less must be spent on energy to power refrigeration. In theory, the warehouse could operate in complete darkness, with the lights being switched on only if a member of staff has to enter for maintenance purposes.

Tessland Telegraph

Supermarket price wars continue

Supermarket customers continue to enjoy price reductions as the five major supermarket chains continue to cut their prices in order to win market share. This is good news for customers, but less welcome for investors in supermarket shares. Industry experts believe that the retailers are making little or no profit on popular items. If the price cuts continue, then supermarkets might actually start to incur losses at the checkout.

Professor Marika Bogren, a leading economist, commented that the price war might appear illogical, but it is consistent with game theory. In game theory, each player's payoff is affected by the decisions of others. Game theory assumes that players act rationally and in their self-interest. Supermarket boards might cut their prices in order to maintain sales volume and retain market share. If a rival reduces prices still further, then it might be rational to cut prices even further in order to avoid being driven out of business.

Professor Bogren added that it would clearly be more rational for all supermarkets to set prices based on reasonable margins and for all to enjoy the benefits of a stable and profitable market. Sadly, game theory suggests that such outcomes are unlikely to remain stable in practice.

Tessland Daily

Mixed news for warehouse staff

Logistics work in warehouses has a reputation for being poorly paid and stressful. Workers often have to keep up with pressure to process orders quickly and accurately. They are also at risk because of the need to lift and carry goods.

Warehouse work is changing because of the increased emphasis on automation. Each new generation of robots adds capabilities with respect to their ability to conduct tasks that previously depended on human labour. Robots can pick items from shelves and transport them to workstations for processing. The processing might be carried out by a human, who can focus on packing and labelling goods for despatch. Alternatively, robots can carry out tasks that were previously too complicated for machines, including wrapping packages.

Automation need not replace staff entirely. Collaborative robots (or “cobots”) are designed to work alongside humans, using sensors to avoid accidents and injuries. Cobots can eliminate much of the heavy lifting that might have been required in some warehouses.

There is no doubt that automation will replace many of the workers required in large warehouses, but the jobs that remain will be potentially more interesting and better paid. There will be a greater need for staff trained in IT and for engineers to maintain and repair automated equipment.

Strategic 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	60	1	2	(a) 60% (b) 40%
2	60	1	2	(a) 50% (b) 50%
3	60	1	2	(a) 40% (b) 60%

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

You have received the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: Relocation of software engineering

Hi,

I have attached an extract from a proposal that has been circulated to the Board.

I am concerned that the proposal may be inconsistent with our mission "to pursue the growth of our business in a manner that advances social wellbeing" and our vision "to enhance the efficiency of our customers and, in so doing, to add value to society".

The Board is meeting tomorrow to discuss the proposal. I need the following from you:

- Firstly, evaluate whether or not the proposal is consistent with Robobryce's mission and vision.

[sub-task (a) = 60%]

- Secondly, evaluate whether it would be unethical for Robobryce to make existing staff redundant in order to employ replacements on lower salaries.

[sub-task (b) = 40%]

Regards

Filiz

The extract referred to by Filiz can be viewed by clicking on the Reference Material button above.

Proposed relocation of software engineering
Executive summary

Prepared by Douglas Findlay, Senior Manager in Research and Development

Robobryce presently employs 300 software engineers at our Research and Development Centre in Tessland. Their salaries and related employment costs, such as pension contributions, come to approximately T$31 million each year.

It would be possible to generate significant savings by relocating our software engineering activities to Darrland, which has hosted our non-autonomous products factory since 2008. We employ local staff at the factory, including the factory's management team and professionals such as engineers. It is easy to recruit high-quality Darrlandian graduates.

Salary expectations are much lower in Darrland. Relocating software engineering to a suitable site in Darrland would enable us to save T$22 million each year. The programmers and other staff based in Tessland would have to be made redundant.

It would not be a huge problem to supervise and manage software engineering remotely. Software can be uploaded to the Research and Development Centre for testing with hardware such as mobile robots. Senior managers based in Tessland will be able to hold meetings with project leaders in Darrland using video calls.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: RE: Relocation of software engineering

Paragraph

Reference Material Pre-seen

A week later, Filiz Yildiz stops by your workspace:

"I have brought you an extract from the minutes of this morning's Board meeting.

I need the following from you:

- Firstly, evaluate the advantages and disadvantages of seeking the T$750 million loan from a Darrlandian bank rather than a Tesslandian bank. All of Robobryce's existing bank loans are from Tesslandian banks.

[sub-task (a) = 50%]

- Secondly, identify the key stakeholders who will be affected by Robobryce's relocation to Darrland and recommend with reasons how Robobryce should manage its relationships with them."

[sub-task (b) = 50%]

The extract referred to by Filiz can be viewed by clicking on the Reference Material button above.

Extract from Board minutes
Proposed relocation of software engineering

The Board has discussed the proposal to relocate Robobryce's software engineering activities from Tessland to Darrland. Doing so would involve:

- 300 redundancies in Tessland.
- The purchase of suitable premises in Darrland and the acquisition of furniture and IT equipment.
- The recruitment and training of 300 programmers and a further 100 support staff in Darrland.

It is anticipated that the total cost of this relocation will come to T$750 million. The Board is considering financing this cost by means of a loan from either a Tesslandian or Darrlandian bank.

Robobryce already has a factory in Darrland, where it manufactures non-autonomous warehouse equipment. The Factory Manager has commented that there could be some opposition from local businesses because the new venture will put some strain on local infrastructure, particularly bandwidth for data transfer. Local businesses may also be concerned that Robobryce will attempt to recruit experienced programmers.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

Paragraph

Reference Material Pre-seen

Four months later, you receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Intellectual capital

Hello,

I have forwarded an email that I received from the Chief Executive Officer.

I need your advice on two matters:

- Firstly, evaluate whether or not it was realistic for Robobryce to assure its shareholders that it will preserve its intellectual capital in relation to software and software development.

[sub-task (a) = 40%]

- Secondly, recommend with reasons the ways in which internal audit might support the preservation of intellectual capital throughout this change.

[sub-task (b) = 60%]

Regards

Filiz

The email referred to by Filiz can be viewed by clicking on the Reference Material button above.

From: Ewa Durska, Chief Executive Officer
To: Filiz Yildiz, Chief Finance Officer
Subject: Intellectual capital

Hi Filiz,

Work will soon commence on the relocation of our software engineering activities from their current base in Tessland to a new site close to our existing factory in Darrland. We have already taken possession of a suitable building and have installed all of the necessary computer hardware. We are advertising for programmers and support staff and will start to interview suitable applicants soon.

The programmers who currently work for us in Tessland will be made redundant in 6 months. We will retain a small team of managers and supervisors who will remain in Tessland and who will maintain contact with staff in Darrland through email, video calls and occasional visits.

Software development is a crucial part of our business. We have assured the shareholders that we will not lose key intellectual capital because of this relocation.

Regards

Ewa

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: FWD: RE: Intellectual capital

Paragraph

Thank you for completing the Strategic 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.

Strategic 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	60	1	2	(a) 60% (b) 40%
2	60	1	2	(a) 50% (b) 50%
3	60	1	2	(a) 40% (b) 60%

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

Filiz Yildiz, Chief Finance Officer, invites you into her office:

"This news article has just gone online. Innoroab develops software for warehouses and industrial robots. Hassan Khattaf, our Director of Research, believes that Innoroab's new software will enable warehouses to operate more efficiently, even if they use cheaper and less sophisticated robots. Robobryce could eventually lose revenue because our software is not as sophisticated as Innoroab's new product.

Hassan says that it would be relatively easy for our programmers to reverse engineer Innoroab's software. That would involve buying a copy of the software and installing it in our autonomous devices. We would be able to observe the software in action and develop our own version that would have very similar features and would operate in the same manner. Reverse engineering would not breach Innoroab's copyright because we will be writing our own software and will not copy Innoroab's code.

I need the following from you:

- Firstly, identify and evaluate the implications of Innoroab's software for Robobryce's business ecosystem.

[sub-task (a) = 60%]

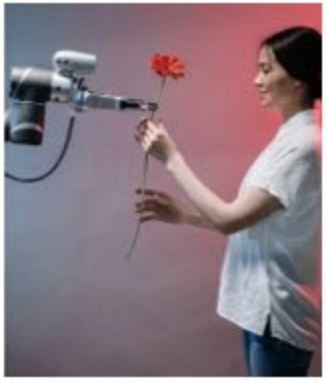
- Secondly, evaluate the arguments for and against it being unethical for Robobryce to reverse engineer Innoroab's software."

[sub-task (b) = 40%]

The news article referred to by Filiz can be viewed by clicking on the Reference Material button above.

Tessland Telegraph

Innoroab announces software breakthrough



Innoroab has revealed a new approach to programming industrial robots, equipping them with artificial intelligence that enables them to operate safely and effectively in a variety of different settings. The software is compatible with existing hardware platforms and offers to enhance their capabilities.

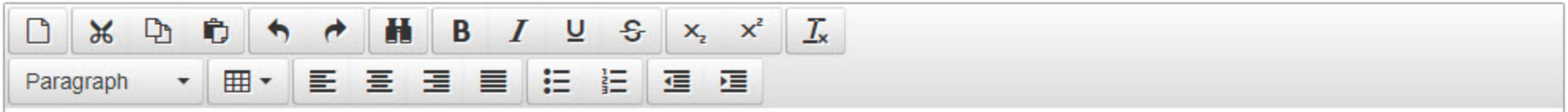
Innoroab's software interprets video images and can use that information to plan and complete tasks. For example, a robot using this software can pick irregular objects, such as pieces of fruit from a basket, and place them in a container without causing damage. Mobile robots can use the software to navigate safely, avoiding humans and negotiating conflicts with other robots.

The new software employs a new approach to programming robotic tasks. It simplifies the instructions that have to be processed by autonomous mobile robots (AMRs), allowing for faster execution without having to upgrade processors. It also enables robots to manage more complicated tasks, relying on video cameras rather than complicated sensors.

Innoroab is a consulting firm that develops software for autonomous equipment that is used in warehouses and factories. Its software can be written to be compatible with all makes of robots and other autonomous devices. Innoroab does not manufacture any hardware of its own.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.



Reference Material Pre-seen

A month later, you receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: Innoroab

Hello,

I have attached an extract from the minutes of this morning's Board meeting. The Board is considering the possibility that it might acquire Innoroab.

I need your help with two matters:

- Firstly, evaluate the arguments for and against Robobryce offering to buy Innoroab.

[sub-task (a) = 50%]

- Secondly, identify and evaluate the difficulties that Robobryce would face in valuing Innoroab and recommend responses to those difficulties, stating reasons.

[sub-task (b) = 50%]

Filiz

The extract referred to by Filiz can be viewed by clicking on the Reference Material button above.

Extract from Board minutes
Innoroab

Dr Hassan Khattaf, Director of Research, informed the Board that attempts to reverse engineer Innoroab's software had been unsuccessful. Innoroab's software is more sophisticated than had been expected.

Eamonn McCauley, Chief Operating Officer, warned the Board that some of Robobryce's clients were already considering using Innoroab's software to upgrade the capabilities of their existing warehouse equipment. Doing so would be more cost-effective than buying more sophisticated equipment. Other manufacturers of autonomous warehouse equipment are likely to face the same problem.

Innoroab is an unquoted consulting firm that develops software for autonomous equipment used in warehouses and factories. Its software can be written to be compatible with all makes of robots and other autonomous devices, including Robobryce's. Innoroab does not manufacture any hardware of its own.

Innoroab was founded 6 years ago by four engineers who own 80% of the company's equity. The remaining 20% is split equally between 40 senior programmers and engineering consultants, all of whom have worked for the company for at least 4 years. Innoroab employs a total of 110 technical staff, with skills in programming and in engineering.

Innoroab is based in Tessland. It operates from rented premises located 20 miles from Robobryce's Head Office.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: RE: Innoroab

Paragraph

Reference Material Pre-seen

Six months later, Robobryce has acquired 100% of Innoroab's equity by exchanging shares in Robobryce for Innoroab shares.

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Professional staff

Hello,

I have forwarded an email from Hou Xijin, the Human Resources Director.

I need your help with two matters:

- Firstly, the Board is concerned that the addition of 110 technical staff will complicate the reporting of human capital in Robobryce's integrated report. Identify and evaluate the difficulties associated with reporting human capital, assuming that the matters described by Hou Xijin will not be resolved before the integrated report is published.

[sub-task (a) = 40%]

- Secondly, evaluate the arguments for and against integrating the five internal audit staff employed by Innoroab into the Robobryce Group Internal Audit .

[sub-task (b) = 60%]

Filiz

The email referred to by Filiz can be viewed by clicking on the Reference Material button above.

From: Hou Xijin, Human Resources Director
To: Filiz Yildiz, Chief Finance Officer
Subject: Professional staff

Hello Filiz,

The acquisition of Innoroab has created some complications with the management of professional staff within the expanded Robobryce Group.

The first issue is that the 110 technical staff who are employed by Innoroab now work for the Robobryce Group. Before the acquisition, the Group employed 800 business advisers who assisted clients in the design, installation and ongoing support of warehouses. The Group also employed 300 software engineers in research and development to design software and write and test the resulting programs.

We plan to retain all of the 110 technical staff from Innoroab, using them to train our business advisers and software engineers in Innoroab's approach to writing software. It remains unclear whether we will require all of those business advisers and software engineers.

The second issue is that Robobryce had an Internal Audit Department comprising 50 audit staff before our acquisition of Innoroab. Innoroab's Internal Audit Department consists of five audit staff, all of whom are based at Innoroab's Head Office, which is 20 miles from Robobryce's Head Office. No decision has been taken concerning the organisation of internal audit.

Regards
Hou

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: FWD: RE: Professional staff

Paragraph

Thank you for completing the Strategic 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.

Strategic 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.

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1	60	1	2	(a) 50% (b) 50%
2	60	1	2	(a) 40% (b) 60%
3	60	1	2	(a) 40% (b) 60%

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

You have received the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: Innoroab

Hello,

I have attached a news report that has just gone online. The protest was organised using social media posts. It only lasted an hour, but we have been monitoring social media and it appears that longer and more disruptive protests have been planned within the next few weeks.

I need your advice on two matters:

- Firstly, evaluate the impact that the protests and associated events have had on Robobryce's relationships with society, the government and clients.

[sub-task (a) = 50%]

- Secondly, recommend with reasons the arguments that Robobryce might use to claim that it operates in a sustainable manner.

[sub-task (b) = 50%]

Filiz

The news report referred to by Filiz can be viewed by clicking on the Reference Material button above.

Tessland Daily

Protesters block roads in Central City

Protesters caused severe disruption to traffic in Central City when they marched along the main roads leading to Robobryce's factory. The march caused severe traffic jams that meant many people were late for work.

The protest's organisers claimed that they were acting to draw attention to the environmental damage that is being caused by online retailing, including enabling greater consumption of scarce resources and increasing emissions through the manufacture and transportation of consumer goods. Robobryce had been singled out as the target for this action because its robots are viewed as a key facilitator of online retailing. Images of its robots picking orders for immediate fulfilment have come to symbolise online shopping.

A government spokesperson commented that it was unfortunate that the action had disrupted motorists' travel plans but stressed that the protestors were entitled to conduct peaceful protests.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: RE: Innoroab

Paragraph

Reference Material Pre-seen

Two weeks later, you receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Cyber attack

Hello,

I have forwarded an email that I received from our Chief Operating Officer (COO).

Our annual report acknowledged that Robobryce faces significant IT risks:

Risk impact	Risk mitigation
Robobryce faces significant IT risks, both in terms of its own operations and in respect of the design and installation of automated warehouse systems that rely heavily on software for the operation of autonomous products.	Robobryce has systems in place for the management of IT risks. Those systems are kept under constant review and are updated as necessary in order to minimise IT risks.

I have spoken to the COO. It may cost up to T$550 million to repair our factory equipment and settle penalties owed to clients.

The Board will meet this afternoon to discuss the attack. I need your help with two matters:

- Firstly, evaluate whether or not the disclosure in relation to cyber risks in our statement of principal risks was adequate.

[sub-task (a) = 40%]

- Secondly, discuss the advantages and disadvantages of suspending the forthcoming dividend payment in order to finance the T$550 million costs arising from this cyber attack.

[sub-task (b) = 60%]

Filiz

The email referred to by Filiz can be viewed by clicking on the Reference Material button above.

From: Eamonn McCauley, Chief Operating Officer (COO)
To: Filiz Yildiz, Chief Finance Officer
Subject: Cyber attack

Hello Filiz,

I am emailing to inform you that Robobryce's factory suffered a major cyber attack during the night. Malware was loaded onto the server that controls production. The malware caused mobile robots to crash into other equipment and caused assembly robots to damage themselves by lifting excessive loads so that they were left bent or broken. Much of the factory's equipment will require extensive repairs or will have to be replaced before production can resume.

The factory closure will delay the completion of several important contracts. The terms of those contracts will require Robobryce to pay penalties to the clients whose systems will be delayed.

Our insurers have begun their investigation. At this early stage, it appears that the attack may have been perpetrated by an environmental protester who used a false identity to obtain a job in Roboryce's IT Department. Our losses may not be insured if it can be demonstrated that the attack succeeded because of negligence on our part.

Regards

Eamonn

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: FWD: RE: Cyber attack

Paragraph

Reference Material Pre-seen

A month later, Filiz Yildiz asks you to join her in a meeting room:

"I have brought you a copy of a report that has been prepared for the Board.

I need your advice on two matters:

- Firstly, evaluate the argument that it is unethical for the Board to resist the protesters' efforts to reduce the environmental damage caused by Robobryce's business practices.

[sub-task (a) = 40%]

- Secondly, recommend with reasons how Robobryce's Board might go about restoring its credibility with the shareholders."

[sub-task (b) = 60%]

The report referred to by Filiz can be viewed by clicking on the Reference Material button above.

Report on protesters' actions against Robobryce
Executive summary

Prepared by Necla Acik, Senior Manager in Operations

Over the previous several weeks, Robobryce has been subjected to three actions by protesters who object to the impact that our business practices have against the environment:

1. Roads leading to our Tessland factory were blocked by protesters who were carrying banners naming Robobryce as the target of the protest. The protest had been organised using social media.
2. A cyber attack caused massive damage to our factory and has disrupted production. The attack required the creation of malware and its upload to the server controlling our factory.
3. Most recently, Fabriktess, an online clothing retailer and a client of Robobryce, had its annual general meeting disrupted by protesters who had forced their way into the venue. The protesters shouted accusations that the retailer was using technology supplied by Robobryce to waste natural resources and cause unnecessary emissions. The disruption was reported on television and internet news outlets and in newspapers. All reports referred to Robobryce as the target of the protest.

Robobryce's share price did not respond to the first action, but it suffered a significant decrease after the second. The share price fell further after the third action, and major shareholders have expressed concern to the non-executive chair.

The identities of those responsible for these actions is unknown. No groups or individuals have claimed responsibility.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

Paragraph

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

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Strategic 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.

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1	60	1	2	(a) 60% (b) 40%
2	60	1	2	(a) 60% (b) 40%
3	60	1	2	(a) 50% (b) 50%

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

Reference Material Pre-seen

Filiz Yildiz, Chief Finance Officer, asks you to join her in a meeting room:

"I have brought an extract from the minutes of this morning's Board meeting.

No immediate decision was taken with respect to Foroneng.

I need your advice on two issues before the Board meets to discuss this matter further:

- Firstly, assuming the acquisition goes ahead, evaluate the arguments for and against the proposition that Robobryce would have the resources to successfully bring Retrayler to market.

[sub-task (a) = 60%]

- Secondly, identify and evaluate the political risks associated with the Graylandian Government that could arise from Robobryce's attempted acquisition of Foroneng."

[sub-task (b) = 40%]

The extract referred to by Filiz can be viewed by clicking the Reference Material button above.

Extract from Board minutes
Retrayler

Dr Hassan Khattaf, Director of Research, informed the Board that one of his senior managers had attended a robotics industry event at which companies were exhibiting their latest products. The exhibitors included Foroneng, a company based in Grayland. Foroneng was exhibiting a prototype of a new product called Retrayler.

Retrayler is an autonomous mobile robot (AMR) that has advanced sensors that can identify objects and obstacles and is programmed to navigate safely around them. Foroneng believes that this product will be of interest to the retail industry.

Supermarket customers could activate a Foroneng robot using a mobile phone app when they enter the store. The app would transmit the customer's shopping list to the robot which would then plan a route round the locations of the items that the customer wishes to buy. The customer would select items at each stop and would place them in the robot's basket. Once all items had been picked, the robot would follow the customer to their car, where the basket would be unloaded. The robot would automatically charge the cost of the shopping to the customer's credit card.

Retrayler differs from existing AMRs in the sophistication of its sensors and its ability to plan routes. Tests have shown that it is capable of operating safely within the confined spaces of a shop, predicting the movements of shoppers and other robots. It can also deal with open spaces and fast-moving vehicles in car parks.

Foroneng is quoted on Grayland's stock exchange. It develops and patents new technologies and sells licences for the production of commercial products, mainly to Graylandian manufacturers. Foroneng employs 1,800 people at its research centre in Grayland. It is based in an area that has a weak economy, where there are very few job opportunities for professionals such as engineers. The Graylandian currency, the G$, is weak.

Dr Khattaf recommended that Robobryce should consider acquiring Foroneng in order to obtain the rights to the Retrayler product.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

Reference Material Pre-seen

Two months have passed. You receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Bid for Foroneng

Hello,

I have forwarded an email that I received from Ewa Durska, Chief Executive Officer.

I need your advice on two matters:

- Firstly, evaluate the respective advantages and disadvantages of funding this acquisition of Foroneng through debt, a rights issue or the exchange of Robobryce shares for shares in Foroneng.

[sub-task (a) = 60%]

- Secondly, identify and evaluate the reputational issues for Robobryce that will arise in the event that we make a public bid to acquire Foroneng and the bid fails to secure control.

[sub-task (b) = 40%]

Regards

Filiz

The email referred to by Filiz can be viewed by clicking the Reference Material button above.

From: Ewa Durska, Chief Executive Officer
To: Filiz Yildiz, Chief Finance Officer
Subject: Bid for Foroneng

Hello Filiz,

Following many discussions concerning Foroneng with the Board, I have held one final meeting with Professor Sudhakar Pattanaik, our Non-Executive Chair. During that meeting, we agreed that Robobryce should attempt to acquire Foroneng as a 100% subsidiary.

Foroneng is quoted on the Grayland Stock Exchange. Its market capitalisation is T$7 billion, but that is likely to increase to T$8 billion when we announce our bid. Sudhakar and I have agreed that we should not pay more than T$8.6 billion.

I will speak to you soon.

Regards
Ewa

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: FWD: RE: Bid for Foroneng

Paragraph

Reference Material Pre-seen

Nine months have passed. Robobryce acquired 100% of Foroneng's equity 6 months ago. You receive the following email.

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Industrial espionage

Hello,

I have forwarded an email that I received from Eamonn McCauley, our Chief Operating Officer.

I have conducted some initial investigations. Access to the designs for Retrayler was restricted to trusted design engineers in Foroneng's robotics design team. One of those engineers admits allowing a colleague to use his password. The colleague was a newly-appointed IT technician who had offered to load some useful social media apps to the engineer's computer. The colleague was appointed 5 months ago and left within 2 weeks of joining the company.

We have been unable to contact this former employee since receiving news of the theft of files. It has now been discovered that the employee provided Foroneng with a false identity.

I need your advice on two matters:

- Firstly, evaluate whether or not Robobryce's Board would be justified in blaming the management team at Foroneng for any failure to safeguard the Group's intellectual property.

[sub-task (a) = 50%]

- Secondly, identify and evaluate the shortcomings that led to the theft of the files and recommend suitable responses.

[sub-task (b) = 50%]

Regards
Filiz

The email referred to by Filiz can be viewed by clicking the Reference Material button above.

From: Eamonn McCauley, Chief Operating Officer
To: Filiz Yildiz, Chief Finance Officer
Subject: Industrial espionage

Hello Filiz,

The designs of the new Retrayler product have been copied by a competitor. This is a serious problem because we acquired Foroneng largely because we wished to acquire the rights to Retrayler.

We asked one of our suppliers to review the designs to Retrayler and to quote for electronic components needed to make the product. The supplier had already seen an identical copy of the same designs after receiving a similar request 4 months ago from a manufacturer based in Sassland. It appears that the Sasslandian company had managed to obtain the design plans for Retrayler. As you know, Sassland's legal system does not permit the enforcement of patent rights.

Staff at Robobryce's Head Office did not receive access to the electronic design files until 2 weeks ago.

Regards
Eamonn

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: FWD: RE: Industrial espionage

Paragraph

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Strategic Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

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2	60	1	2	(a) 60% (b) 40%
3	60	1	2	(a) 40% (b) 60%

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

Reference Material Pre-seen

You have received the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: Heavybryce

Hello,

I have attached a news report that has just gone online.

Pavrobot announced their intention to launch Pavheev just days after we brought Heavybryce to market. They have offered no evidence that Pavheev is superior to Heavybryce and have not committed themselves to a firm launch date. I am beginning to doubt whether Pavheev really exists.

I need your advice on the following matters:

- Firstly, explain how we might use game theory to plan a response to Pavrobot with respect to Pavheev and evaluate the usefulness of game theory for achieving an optimum response.

[sub-task (a) = 50%]

- Secondly, evaluate the implications of Pavrobot's behaviour for Robobryce's share price and recommend with reasons the ways in which Robobryce might protect its share price in the short term.

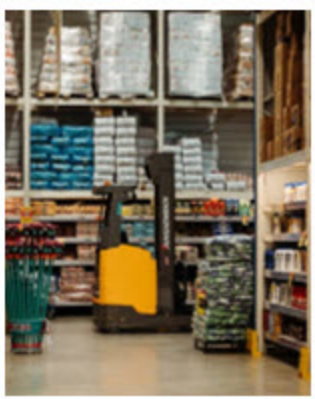
[sub-task (b) = 50%]

Regards
Filiz

The news report referred to by Filiz can be viewed by clicking the Reference Material button above.

Tessland Telegraph

Battle of the robots



Robobryce and Pavrobot are locked in a battle for control of a new market for mobile robots. Both companies are seeking buyers for robots that are designed to lift and transport heavyweight items in a retail setting. The robots are designed to assist customers with products such as self-assembly furniture, building materials in DIY stores and bags of stones in garden centres. Customers will be able to summon the assistance of a robot using a mobile phone app, have the robot collect their purchases and load them into their vans or cars.

This is a significant market segment that could create further markets for the same technology, such as patient transport within hospitals and restocking supermarket shelves during business hours. Robobryce and Pavrobot are keen to demonstrate that their robots can transport heavy loads safely in areas that are open to the public.

Robobryce launched its Heavybryce robot 6 months ago, but very few have been sold. That is partly because Pavrobot announced Pavheev, a rival product that will outperform Heavybryce in every way. Pavrobot continues to claim that it is on the brink of launching Pavheev, but no specific date has been announced and no prototypes have been made available for evaluation.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: RE: Heavybryce

Paragraph

Reference Material Pre-seen

A month later, you receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: Bribery allegations

Hello,

I have attached an extract from the minutes of this morning's Board meeting.

This is a potential disaster for us because we have several major clients in Triland. Furthermore, many of our clients are based in countries that have strict anti-corruption schemes.

A number of Board members have pointed out that there are some complicated ethical issues associated with interactions with potential buyers. For example, Robobryce arranges good accommodation and meals in excellent hotels for visiting buyers.

I need your advice on two matters:

- Firstly, recommend with reasons how we should manage the political risks associated with Ms Liqiong's allegations.

[sub-task (a) = 60%]

- Secondly, identify and evaluate the ethical issues associated with the level of hospitality we provide to visiting buyers.

[sub-task (b) = 40%]

Regards
Filiz

The extract referred to by Filiz can be viewed by clicking the Reference Material button above.

Board minute extract
Bribery accusation

Ewa Durska, Chief Executive Officer, informed the Board that Martin Anderson, one of Robobryce's senior sales managers, has been accused of attempted bribery. Martin was hosting a visit to Robobryce's research centre by Ms Shen Liqiong, a senior procurement official in the Trilandian Health Service. The Trilandian Health Service is keen to place a large order for a robot that can transport large loads of medical supplies and move patients through hospital corridors. Ms Liqiong was evaluating the new Heavybryce mobile robot for use in that role.

During the visit, Ms Liqiong mentioned that her daughter was an engineering student at Central City University in Tessland. Martin said that Ms Liqiong's daughter should apply for Robobryce's internship scheme for engineering students. Ms Liqiong was concerned that Martin was implying that her daughter's internship was conditional on Robobryce receiving a large order. She emailed her superiors that evening and was told to return to Triland immediately.

Martin denies offering Ms Liqiong any incentives to place an order but admits informing her that Robobryce has an excellent engineering internship programme.

The Trilandian Government has since contacted the Board to warn them that the bribery allegations would have to be investigated before Robobryce could be considered for any further contracts with Trilandian buyers.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: RE: Bribery allegations

Paragraph

Reference Material Pre-seen

A month later, Filiz Yildiz asks you to join her in a meeting room:

"I have brought you an extract from the minutes of this morning's Board meeting.

I need your advice on two matters:

- Firstly, evaluate the arguments both for and against extending Robobryce's values to specifically exclude bribery.

[sub-task (a) = 40%]

- Secondly, evaluate with reasons the advantages and disadvantages of Robobryce establishing an ethics committee comprising non-executive directors."

[sub-task (b) = 60%]

The extract referred to by Filiz can be viewed by clicking the Reference Material button above.

Extract from Board minutes

Trilandian Government corruption investigation

Ewa Durska, Chief Executive Officer, reminded the Board that Robobryce remains under investigation by the Trilandian Government after an accusation that a senior sales manager had offered an incentive to a senior procurement official in the Trilandian Health Service. The investigation will not be completed for several weeks, but it may be in Robobryce's interest to implement improvements.

Ewa reminded the Board that Robobryce claims the following values:

- Robobryce aims to enhance social wellbeing and the quality of life.
- Robobryce aims to meet stakeholders' needs.
- Robobryce aims to innovate and to be at the forefront of the implementation of new technologies.

The Board has four committees of non-executive directors:

- Audit
- Risk
- Remuneration
- Nomination

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

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Strategic Case Study Exam

Maximum Time Allowed: 3 Hours

Welcome, Candidate Name

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2	60	1	2	(a) 50% (b) 50%
3	60	1	2	(a) 40% (b) 60%

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

Reference Material Pre-seen

Filiz Yildiz, Chief Finance Officer, stops by your workspace:

"I have brought you a news report that has just gone online.

I plan to brief the Board soon, and I need your advice on two matters:

- Firstly, recommend with reasons whether or not Robobryce should treat the customers of our clients as stakeholders in terms of cyber security.

[sub-task (a) = 60%]

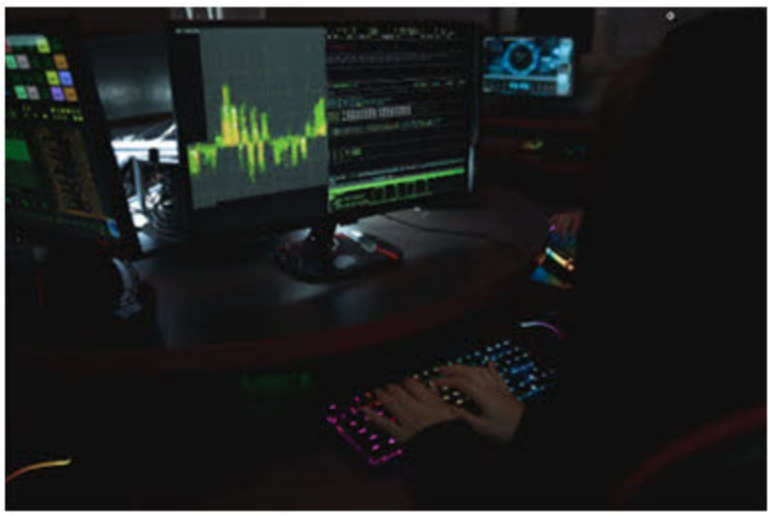
- Secondly, evaluate the arguments for and against the view that Robobryce cannot guarantee the absolute security of its systems."

[sub-task (b) = 40%]

The news report referred to by Filiz can be viewed by clicking the Reference Material button above.

Tessland Telegraph

Consumers advised to check their bank accounts after cyber attack



Neverwate, the online retailer, has warned its customers to check their bank accounts for unauthorised transactions after a recent cyber attack enabled hackers to access customer accounts, including payment details. The attack occurred at 01.00 this morning.

Neverwate's security staff suspect that the attackers exploited the interface between the company's online retailing systems and a recently installed robotic picking system supplied by Robobryce. The robots were operating in a test mode, which makes it relatively easy to gain access to their operating systems.

Video from security cameras shows the hackers entering Neverwate's staff carpark, pretending to be employees. They appear to have used a tablet computer to access the wireless data connection on a robot that was within range of the tablet's wireless network adapter. If that was the case, then data from the robot could have enabled them to access Neverwate's server.

A spokesperson for Robobryce commented that there was no proof that the hackers had exploited a vulnerability in its software. The spokesperson refused to comment on whether it would have been possible to use a tablet computer to access a robot's security settings.

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

Reference Material Pre-seen

A week later, you receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Cybwoll

Hello,

I am forwarding an email that I received from Hassan Khattaf, Director of Research.

The Board will meet soon to discuss Hassan's proposal.

I need your help with two matters:

- Firstly, recommend with reasons how an audit of key resources might help the Board to decide whether Cybwoll would be a suitable acquisition for the Robobryce Group.

[sub-task (a) = 50%]

- Secondly, recommend with reasons the approach that we should take to deciding on an acceptable purchase price for Cybwoll.

[sub-task (b) = 50%]

Regards
Filiz

The email referred to by Filiz can be viewed by clicking the Reference Material button above.

From: Hassan Khattaf, Director of Research
To: Filiz Yildiz, Chief Finance Officer
Subject: Cybwoll

Hello Filiz,

It will be some time before we know whether the cyber attack on Neverwate succeeded because of flaws in our security software, but I am concerned that it is a possibility. We recruit programming staff on the basis of their expertise in writing robotics software.

Ade Alabi, a former colleague of mine from Capital City University, has established Cybwoll, an unquoted cyber security consultancy. He employs 70 consultants, all of whom are expert programmers. I believe that we should consider purchasing this company. The consultants could be used to check and improve the security aspects of Robobryce's robotics software. Cybwoll could also continue to provide security consulting for external clients. That would generate revenue and would also provide consultants with experience of security threats and so maintain their skills in that area.

Regards
Hassan

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

Paragraph

Four months have passed. During that time, Robobryce acquired Cybwoll, a cyber security consultancy. Ade Alabi, Cybwoll's founder, has been appointed to Robobryce's Board as Director of Cyber Security. You receive the following email:

From: Filiz Yildiz, Chief Finance Officer
To: Senior Finance Manager
Subject: FWD: Integration issues for Cybwoll

Hello,

I am forwarding an email that I received from Ade Alabi, our new Director of Cyber Security.

I am interested in your opinion on two matters:

- Firstly, recommend with reasons three key non-financial objectives that might be set for Cybwoll and a suitable performance measure for each objective.

[sub-task (a) = 40%]

- Secondly, recommend with reasons the work that Robobryce's Internal Audit Department might undertake in order to ensure that robotics software engineers are reporting all security vulnerabilities to Cybwoll's consultants.

[sub-task (b) = 60%]

Regards
Filiz

The email referred to by Filiz can be viewed by clicking the Reference Material button above.

From: Ade Alabi, Director of Cyber Security
To: Filiz Yildiz, Chief Finance Officer
Subject: Integration issues for Cybwoll

Hi Filiz,

Cybwoll will have two main roles within the Robobryce Group:

- Cyber security

Cybwoll will review the security aspects of all software written by Robobryce's robotics software engineers, assisting in the creation of secure software code as required.

It will be necessary for the robotics software engineers to identify and report vulnerabilities in all software to enable Cybwoll's consultants to understand the risks that must be addressed.

- External consulting

Cybwoll will continue to provide consultancy services to external clients, partly to earn revenue and partly to maintain familiarity with a wide range of security threats.

It would be helpful if we could meet soon to discuss these roles.

Regards
Ade

Reference Material Pre-seen

Draft your response to Filiz's requests in the box below.

From: Senior Finance Manager
To: Filiz Yildiz, Chief Finance Officer
Subject: FWD: RE: Integration issues for Cybwoll

Paragraph

Thank you for completing the Strategic 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.

AICPA & CIMA
Together as the Association of International Certified Professional Accountants

STRATEGIC CASE STUDY

NOVEMBER 2023 & FEBRUARY 2024

EXAM ANSWERS

Variant 1

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

Requirement 1 – Mission and vision

It could be argued that the move is not directly consistent with the mission statement, which aims for growth and social wellbeing. Relocating the Research and Development Centre will not, in itself, create growth for Robobryce. The intention seems to be that Robobryce will cut costs, while remaining at the same size as before and so achieving no additional growth. The fact that Robobryce will make hundreds of staff redundant will harm social wellbeing, at least in Tessland. The redundancies will have an adverse impact on the wellbeing of the 300 engineers who will lose their jobs. The fact that they are all based in the same location means that they may have to move, uprooting their families in the process, because they will otherwise be competing for the same job vacancies in the vicinity of the Research Centre. The move may also damage the psychological contract with the staff in Tessland, who will not be directly involved in this move. They may, however, be concerned that their jobs are at risk and may suffer from stress because of this.

It could be argued that the move will have an indirect impact on growth because the savings could make Robobryce more competitive. Passing the savings on to clients will possibly enable the company to win more business and so enable the business to grow. There could also be an argument that social wellbeing need not be considered solely in relation to Tessland. The new jobs in Darrland will make a significant difference to the quality of life for those who are employed. They will benefit from having secure and well paid jobs, which will enable them to settle in their home country. The additional work will also act as a boost to the local economy in that region of Darrland, creating wealth for the wider community.

The move may also be inconsistent with Robobryce's vision. The relocation will not necessarily enhance the efficiency of customers because the savings are only T$22 million/T$11,631 million = 0.2% of operating costs. There is also the question of whether the replacement programmers will be as capable as the experienced staff

who will be replaced. The relocation could have unintended consequences for quality and customer efficiency. For example, engineers and production staff might become nervous that their jobs are at risk and they could seek alternative employment. There could also be an argument that reducing the cost of Robobryce's products is potentially harmful to society. This is an enabling technology that encourages consumption though cost savings in online retail. Robobryce is also replacing unskilled and semi-skilled warehouse jobs with autonomous machinery, which may also be detrimental to social wellbeing.

Viewed in context, the savings in software engineering could signal potential savings in other areas, which could enhance customer efficiency. The savings in software engineering amount to T$22 million/T$31 million = 71%. There could be similar opportunities elsewhere in the company that could create massive potential savings. It could be argued that reducing the cost of online retailing has positive social impacts, such as making goods more affordable and enabling less affluent consumers to enjoy a greater quality of life. Concerns about inexperienced replacement staff employed in Darrland could be addressed through the provision of training. Apart from reducing the risks of errors, the training would enhance the quality of the local workforce and could have the effect of attracting more multinational companies to Darrland in order to do business.

Requirement 2 – Ethics

This is a complicated argument because of the nature of the relationship between employers and employees. Employees are stakeholders who rely heavily on their employers to provide them with a means of earning a living. The principle of integrity requires Robobryce to be straightforward and honest in all of its relationships. In this case, it means that Robobryce should ensure that it honours all of the commitments that it makes to its staff. Presumably, Robobryce's employment contracts allow for redundancies. It would be unrealistic for a job contract to imply that employees will be guaranteed indefinite employment. In that case, it would be acceptable to make the engineers redundant, provided they receive the agreed notice and financial compensation.

Employment relationships can create conflicts between the rights and interests of shareholders and those of employees. That is clearly the case here because keeping the jobs in Tessland would reduce the shareholders' profits. The concept of objectivity prevents Robobryce's Board from compromising business judgements because of bias or conflict of interests. It should be borne in mind that the Board has a specific duty to maximise shareholder wealth. In this case, it would breach objectivity to keep the jobs in Tessland merely to protect workers' jobs out of a sense of loyalty. The shareholders would almost certainly object to the Board foregoing annual savings of T$22 million, especially given that the alternative is to create a total of 400 jobs in another country.

Companies are often judged on their social and economic contribution to their home countries. Robobryce was founded in Tessland and that is where its most important factory is based. The concept of professional behaviour focusses on the concept of maintaining a good reputation.

It could be argued that the proposed redundancies will lead to criticism that Robobryce is putting profits before the wellbeing of its staff. There may also be wider concerns that the much lower wages paid to Darrlandian staff is evidence of exploitation of foreign citizens who have little in the way of alternative employment. It may be possible to address those concerns by offering evidence that Robobryce has been a responsible and caring employer at its existing factory in Darrland, where it manufactures non-autonomous products.

SECTION 2

Requirement 1 – Loan

It might be easier to borrow from a Darrlandian bank because the assets that are available as collateral are located in Darrland. Local banks may be more comfortable in accepting such assets as collateral because they should be familiar with the markets and can offer a more realistic valuation. It will also be easier for Darrlandian banks to seize those assets in the event of default because they will be familiar with Darrland's legal system and will be dealing with a local subsidiary. It may prove quicker and cheaper to negotiate a loan with a Darrlandian bank if circumstances would make it easier for a foreign bank to obtain security. The fact that Robobryce has had a factory in Darrland since 2008 suggests that the company could have established a relationship with local banks, which should assist in the initial negotiations.

Robobryce has already raised large loans in Tessland. The value of its loans exceed the book value of its property, plant and equipment. The company's gearing ratio is high at 11,000 million/(11,000+11,453) = 49%. That may discourage Tesslandian banks from granting additional loan facilities and so it may make more sense to approach banks in Darrland. Robobryce could establish a new subsidiary in Darrland that could raise finance locally, giving local banks a clear indication of the entity with which they are doing business.

Much of the T$750 million will be invested in redundancies and in training, neither of which will create collateral against which to secure the loan. There is a limit to the extent to which the loan can be secured against assets located in Darrland. It may be easier to approach Tesslandian banks with whom Robobryce is already doing business. The fact that there is an established relationship might make it possible to negotiate a loan on the strength of Robobryce's past management of existing loans. It may be preferable to seek finance from a bank in Tessland than to raise a large loan from a foreign bank with whom there is no prior relationship.

Borrowing from a bank in Darrland could increase currency risks. Robobryce already has a factory there and now plans to build a software engineering facility, so the company already has significant exposure to strengthening of the Darrlandian currency. Adding financing costs in that same currency will further increase Robobryce's exposure to economic currency risk. It is unlikely that the Darrlandian market for Robobryce's products will be sufficient to create sufficient revenue against which to offset costs in that currency.

Requirement 2 – Stakeholders

Robobryce's clients will be affected by this development because the development of new products depends heavily on the creation of suitable software that can integrate with client warehouse management systems.

The relocation to Darrland will risk the possibility of an adverse impact on the quality of new software and so could affect clients' confidence in the capability of new and upgraded products. That could lead to clients choosing to work with rival suppliers such as Pavrobot, on the grounds that rivals may be perceived as offering a more reliable product. Robobryce should deal with this possibility by acknowledging that replacing the software engineers could be a risky move, but it is a risk that can be managed and mitigated through careful recruitment and excellent training. The software will, in any case, have to be checked by the business advisers whom Roboryce employs to design and install systems and those staff will not be replaced.

Tessland's government will be concerned that jobs are being lost to a foreign country, which could be viewed as an indication that Tessland is not a suitable country in which to invest. Robobryce was established in Tessland, but is now relocating a second major part of its business to Darrland, a country with which it had no prior dealings. The government could come under significant political pressure orchestrated by employees and trade unions who fear the loss of jobs in Tessland. Ideally, Robobryce should take whatever steps it can to reassure the Tesslandian public that it has no intention of relocating any more of its business to Darrland, or to any other country. That should reduce the political pressure on Tessland's government to protect jobs.

The tax authorities in Darrland and Tessland will take an interest in the operation of the new software engineering centre because there could be suspicions that Robobryce is manipulating its taxable profits. From the Darrlandian perspective, if the subsidiary reports nothing but costs, then there will be no profits on which to charge tax. That may be unacceptable because the centre will be creating a product for sale. Tessland's tax authorities may be concerned that any payments made to the overseas subsidiary will be intended to transfer taxable profit to Darrland in an artificial attempt to reduce tax payable in Tessland.The best way to deal with tax authorities is to base transfer process on market prices. That offers a defensible basis for charging tax.

Darrland's universities will be affected by the creation of professional jobs in software engineering. They will clearly be keen to ensure that as many of these jobs as possible are given to local graduates and may be prepared to accommodate Robobryce in the interests of mutual benefit. It would be possible for Robobryce to work with universities on matters such as curriculum development and student recruitment. Robobryce could encourage the development of degrees and other qualifications by creating opportunities such as internships and vacation placements to encourage students to complete their studies.

SECTION 3

Requirement 1 – Intellectual capital

Intellectual capital can take the form of intellectual property, such as the copyright in software, and organisational capital, such as knowledge, systems and procedures. Robobryce will almost certainly have records of the former, which makes those rights easier to control. Indeed, Robobryce's latest set of financial statements includes software development costs of T$5,428 million, which can undoubtedly be broken down into the book values of independent software packages. Those records enable Robobryce to demonstrate its ownership of intellectual capital in order to defend against theft, but that will not necessarily enable the company to maintain its value to the business. Robobryce's intellectual capital also includes the familiarity of its software engineers with the structure of the software and with the integration of programs with robotic hardware. It will be difficult for the company to preserve that capability, given that it plans to employ a completely new team of software engineers.

Robobryce plans to retain its managers and supervisors from software engineering and to enable them to maintain contact with the new team in Darrland. It should be possible for this management team to plan projects for the development of new software, providing detailed instructions and briefing development teams in the Robobryce approach to programming. Draft software can be uploaded to the research centre in Tessland and its operation can be tested in conjunction with hardware by the mechanical and electrical engineers in the centre. It may, however, be difficult to ensure the same level of efficiency in the completion of software development projects, given that the new programmers will face a steep learning curve.

Fortunately, Robobryce has allowed itself a 6-month period before the existing software engineers finally leave the company. That will permit an overlap, during which there will be an opportunity to brief the replacements in Darrland. The value of that transition period will require careful thought because outgoing staff may be keen to complete projects that they have initiated instead of briefing their replacements. The key to understanding the current approach to software development may not be fully documented because the "Robobryce approach" to developing software may be implicit in the interaction between colleagues. It may not be obvious to the outgoing engineers that important aspects of the software strategy should have to be explained.

Requirement 2 – Internal audit

Internal audit staff are experts in documenting systems and identifying internal controls withing those systems. One starting point would be for audit staff to conduct interviews with experienced software engineers at different levels in the existing team and documenting the approach to developing systems. Ideally, this should include a high-level overview of the approach that Robobryce takes to identifying a need, preparing code and testing the result.

The emphasis in these interviews should be in the documentation of how Robobryce actually does things rather than the formal rules. Where there is a divergence between the actual approach and the formal requirements, then the reasons should be documented and a view should be taken on whether the formal approach should be adjusted. The checks built into the approach system should also be documented and

highlighted separately so that there is a record of the controls that the new engineers should be expected to implement.

Internal Audit should document a detailed list of the software packages that are either in use or under development. Each entry in the list should have comments concerning the need for upgrade or further development for each package. Some of this information should be known and understood by the managers and supervisors who will remain in Tessland, but they will not necessarily be aware of all of the facts that are known to the software engineers. Documenting priorities in this way will ensure that information concerning issues is not lost once the outgoing engineers actually leave. There is no guarantee that the departing staff will create such a list on their own initiative, possibly because they may resent the fact that they are losing their jobs and possibly because they may take it for granted that someone else will do it. Audit staff can use their interviewing skills to ensure that they have a clear and comprehensive list of the matters that must be addressed for each software package owned by Robobryce.

Internal Audit should check whether Robobryce has an induction programme for newly-appointed engineers to ensure that they understand the approach that they will have to follow in developing software. Internal Audit should review the content of the programme in consultation with senior staff and a sample of the engineers who will be leaving in 6 months to check that the programme covers everything that is required. Any gaps should be assigned to qualified individuals for correction. That should reduce the risk that the new team in Darrland receive inadequate induction and training before they start work on developing software. Internal Audit should then ensure that newly-appointed staff in Darrland are completing the induction programme, checking that adequate time is being taken by course participants and that any assessments are being completed to a satisfactory level. The audit team should seek feedback from the participants to check that they are satisfied with the quality of their induction. It may be easier for staff who rely on the induction programme to areas for improvement.

Internal audit should review all correspondence and documentation for a sample of software projects completed by the newly-appointed software engineers in Darrland. This should be a detailed compliance audit, which is an area at which internal auditors usually excel. The audit team should check that there has been satisfactory communication between the engineers and the supervisors based in Tessland and that appropriate action has been both taken and documented with respect to any review comments given. The audit team should check that all required tests on the operation of the software have been completed and have yielded satisfactory results.

These compliance tests will motivate both the engineers, who have not worked for Robobryce before, and the supervisors, who may be busy with other aspects of integrating the new software centre and may neglect routine checks. The results of the compliance tests may also identify ways in which testing might be improved.

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NOVEMBER 2023 & FEBRUARY 2024

EXAM ANSWERS

Variant 2

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SECTION 1

Requirement 1 – Ecosystem

Robobryce could consider its ecosystem in terms of the network of organisations that are involved in the delivery of the company's product. The biggest change that will be brought about by Innoroab's software is that it will have an impact on the expectations of customers for autonomous warehouse products. The new software will increase the capabilities of robots by enabling them to carry out tasks that would previously have been difficult to program or expensive to add. Customers may be keen to upgrade their warehouses by investing in this new software, which may be compatible with the robots that they already have. Robobryce will have to consider how to respond to this possibility. If it develops its own version of the Innoroab software through reverse engineering, then it could generate revenue through collaboration with customers. It would be preferable to sell software upgrades than to lose sales of new hardware designs. Robobryce could also collaborate with customers to design and develop updated hardware that makes the best use of this new software. For example, not all mobile robots will be equipped with video cameras and those that are may not have them located in the best position to implement this new software.

Robobryce faces a new form of competition as a result of this development. It may lose business to Innoroab itself, which may design and install software solutions for the enhancement of warehouse operations. Alternatively, competing hardware manufacturers could adopt Innoroab software and use it to enhance the capability of their products, which could cost Robobryce competitive advantage in terms of the quality of its robots. If several manufacturers adopt the Innoroab software (or develop their own versions), then competition may be driven by price or build quality rather than capability, which could be to Robobryce's disadvantage. Presumably, rival manufacturers will develop their own responses to this change and so Robobryce will have to consider how best to compete with them. It will be sensible to analyse the

strengths and weaknesses of rivals in specific areas so that their use of this new software can be predicted and suitable strategies developed in response.

Roboryce currently keeps software development in house, but Innoroab has developed an innovative new approach that requires a decision to be made as to how Robobryce will respond in order to remain competitive. Innoroab is a consulting firm and so it may be possible to buy exclusive rights to this new approach in return for a generous payment. Having said that, if Hassan Khattaf is confident that the software would be easy to reverse engineer, then there is unlikely to be any great benefit to paying for exclusive rights. It may be preferable to recruit additional software engineers or to train existing staff to develop code using the new approach so that Robobryce can be at the forefront of developing new applications. It may be sensible to wait and see how rival companies proceed. It may not be in the interests of the industry to compete aggressively with regard to this new software language.

This development could prove unsettling for Roboryce's suppliers. The new software seems to rely on less sophisticated sensors and processors than those that are currently incorporated into Robobryce's products. Suppliers of electronics may be concerned that orders will switch to simpler devices such as video cameras and less powerful processors. That could put some suppliers out of business if they feel that it is no longer cost effective to support the warehousing industry. There could be further issues, such as a reduction in research and development activities because of a perceived lack of interest in newer and more powerful components. That could lead to significant opportunity costs for the industry as a whole because Robobryce and its rivals will be unable to buy advanced components that enable them to enhance their products further.

Requirement 2 – Ethics of reverse engineering

It could be argued that it is unfair to Innoroab to buy licenced copies of its software with a view to creating a copy that can be sold in competition to the original. The principle of integrity suggests that Robobryce should be straightforward and honest in professional relationships. It could be argued that Robobryce is in breach of that principle because it is hardly going to admit its interest to Innoroab when it places its order. It could be argued that Robobryce is exploiting a loophole in the sense that it is copying Innoroab's software without actually stealing the code. That could be viewed as a breach of the principle of professional behaviour because stakeholders might believe that Robobryce's behaviour is bringing discredit to the company. Reverse engineering could be viewed as harmful to the industry or to society as a whole. It is a clear disincentive to develop new products if rivals can obtain the benefit of development by creating their own versions. Innovators could be pushed out of business because they cannot benefit from their inventions.

It could be argued that Robobryce has a duty to maximise shareholder wealth. The principle of objectivity would require it to discharge that duty without bias. If the company chooses to forego a business opportunity out of a sense of duty to Innoroab, then the shareholders could claim that their interests are being prejudiced. Presumably, other manufacturers will also consider reverse engineering this new software and so Robobryce could find itself at a disadvantage to the whole industry if it refains from the opportunity created by reverse engineering.

It could be argued that applying a competitor's ideas to the development of a rival product is acceptable provided no patents or copyright have been breached. In that case, Robobryce would be in breach of its duty to its shareholders if it refrained from adapting ideas that are effectively in the public domain. These ideas do not enjoy any legal protection. Innoroab will still benefit from its new software even if it is reverse engineered. It will be the only company selling that product while rivals are creating their own versions. The fact that it is being copied will also underpin its reputation as an innovator.

SECTION 2

Requirement 1 – Acquisition

Acquiring Innoroab would give control over this new software, which could open up a number of commercial opportunities to Robobryce. If Robobryce moves quickly, then it will be able to earn revenue from selling its clients software upgrades. At present, there appears to be a possibility that sales of autonomous equipment could be interrupted and revenue from software sales will go to Innoroab. Robobryce will also be able to sell software upgrades to clients whose warehouses were equipped by rival hardware manufacturers, which suggests that there could be a significant revenue stream.

The acquisition would give Robobryce access to whatever new projects that Innoroab has under way. The new software enhances the capability of relatively simple hardware, but that could imply that combining this approach to software development with more sophisticated sensors and mechanical components might yield major commercial advantages. For example, it could enable autonomous devices to operate without human support and so reduce warehouse operating costs.

Controlling this software will give Robobryce much greater flexibility in responding to client needs because it adds new functions to existing products. It may be possible to adapt equipment to carry out tasks that would otherwise require human staff, such as picking fruit according to size and condition. It will be less expensive to add such capabilities to hardware that already exists, with new code being cheaper to create than new hardware.

Acquiring Innoroab may leave Robobryce vulnerable to the loss of programming staff to rivals, which could enable them to reverse engineer software. The principles of reverse engineering would remain a threat and a rival who employs some of the 40 senior programmers could have them recreate the software. The fact that the founders have rewarded 40 programmers with shares in the company suggests that there are technical staff whom the company wishes to retain. It might be more difficult for Robobryce to encourage those programmers to stay with the company once it becomes a small part of a larger group.

This acquisition could also create uncertainty for Robobryce’s existing software engineers. There are 300 software engineers engaged in research and development and they may feel threatened by the influx of 110 staff who are being employed on the basis of their programming skills. The company also employs 800 business advisers, whose jobs will change because Robobryce plans to progress with a new approach to writing software. They may feel that their skills are no longer valued. Unless Robobryce is very careful, it could find itself suffering the loss of a significant number of these staff, even if it has no immediate intention of dispensing with them.

Requirement 2 – Valuing Innoroab

It would be difficult to value Innoroab on the basis of historical measures such as dividends or free cash flow because those will not reflect the prospective profits and cash flows that will be generated from the sale of the new software. Innoroab's founders will almost certainly expect Robobryce to reflect the likelihood that the new software will increase profits, cash flows and dividends in its purchase price. The founders will have no reason to take a conservative view of any such predictions because the worst case is that they will keep their company and profit from the sale of their products.

In response, Robobryce should estimate the value of the software as a piece of intellectual property and incorporate that valuation into the negotiations with the founders. The software can augment mobile robots, which will be of interest to a limited number of potential customers. It should be possible to estimate the potential revenues as a starting point. There may also be a limited window in which this software will have value because it is likely that competitors will find a way to develop their own versions, even though that may take a period of years. Robobryce could assume that the cash flows will last for, say, 5 years.

There are 40 senior programmers who own 20% of the Innoroab's equity between them. Those programmers may be reluctant to sell their shares. Technology companies frequently give key employees shares in the early years of their lives as an incentive to retain them in the long term. If the company prospers, then even a small percentage will have a significant value. The programmers may be disgruntled that they will lose the opportunity for a massive capital gain if Innoroab is absorbed into the Robobryce Group. They could be demotivated and might resign, which could have an adverse effect on the company's ability to maintain and develop this software.

It may be possible to negotiate a separate agreement with the programmers to ensure that they do not suffer any lost opportunity because of this acquisition. Robobryce could offer a substantial cash payment for the shares that will enable the programmers to realise the capital gain that they had hoped for. It may also be possible to offer shares in Robobryce in exchange for Innoroab shares. That would enable the programmers to remain in post and to see the value of their shares increase, in part as a result of the sale of the software that they have created.

There are four founders who own 80% of the shares. Presumably, each of the founders had a significant role in the creation of the company and each will have an important role in ensuring its future. In that case, all four will have to agree to sell. It would be possible to acquire control with the agreement of only three of the founders, but that would leave the company with one disgruntled shareholder who might be unwilling to participate in the management of Innoroab within the Robobryce Group. The loss of a founder could undermine confidence in the software and could cost the Group future revenue.

Care will have to be taken during the negotiations to ensure that all four founders are satisfied with the offer. That may require Robobryce to pay more than it wishes for the company. It may also be necessary for Robobryce to consider non-financial aspects of the acquisition, such as offering the founders a significant amount of freedom with regard to the management of their company, subject to the needs of the Group as a whole.

SECTION 3

Requirement 1 – Human capital

Robobryce's Board is faced with a dilemma with regard to the impact of this acquisition on human capital because there could be a concern that existing human capital has been rendered largely obsolete as a result of the purchase of Innoroab. The company has 800 business advisers and 300 software engineers who will require training in the new programming approach. The value of their existing skills may be compromised through the change. If the Board recognises the significance of the acquisition, then the shareholders may be concerned that existing human capital has lost much of its value. If the Board plays this acquisition down, then the shareholders may be left wondering whether the investment in Innoroab represents value for money.

The acquisition of an additional 110 software engineers could create uncertainty in the minds of the 300 software engineers currently engaged in software development. If existing professional staff are nervous about their job security or their promotional prospects, then they might start looking for alternative employment, which could lead to resignations. If the Board uses the integrated report to assert its commitment to the existing employees, then the company could subsequently be embarrassed if those employees choose to leave the company in significant numbers. If the Board does not make such an assertion, then it could undermine confidence and accelerate the loss of key staff.

It remains to be seen how important the change in the approach to software design will actually be. Robobryce believes that it will have a major impact on the development of warehouse systems, but there is no guarantee that this will be the case. Clients may be reluctant to rely on the new software rather than continuing to specify more advanced hardware. If that turns out to be the case, then any claims that Robobryce makes about the acquisition of additional professional staff may prove to have been reckless if the new software proves to be unpopular. The shareholders will, however, expect to see some reference to the impact that the acquisition of the new subsidiary has had on human capital.

Requirement 2 – Internal audit

Integrating the two Internal Audit Departments will enhance auditor independence at Innoroab. The company will have administrative and other staff to support the 110 technical staff, but it is unlikely that there will be many of those. Each of the five internal audit staff will probably know most of Innoroab's staff and so may struggle to maintain a professional distance. The small Internal Audit Department may also mean that members of audit teams visit the same departments frequently and risk becoming over familiar with systems and their operations. Combining the two internal audit teams would create a much larger pool of staff to carry out audits at Innoroab. That could also be beneficial in terms of reassuring the members of the audit committee that they are receiving a clear and unbiased report on the findings of audit teams at Innoroab.

The five auditors who are currently based there may identify with the Innoroab management team and so may be unwilling to report any compliance problems. Auditors from Robobryce's Audit Department would be far less likely to identify in that manner.

The audit staff recruited from Innoroab will have their own ideas and experience that could offer their counterparts from Robobryce some new ideas. Innoroab's audit staff may have skills that can fill gaps in Robobryce's Audit Department and integration would assist with sharing those skills. Innoroab has quite a large Audit Department relative to the size of the company and so could have some good ideas to share with Robobryce about how best to use internal audit resources. The intention behind the acquisition of Innoroab appears to be to emulate its approach to software design and product development. Integrating the Audit Departments should enable Robobryce's audit staff to better understand the changes that will be made across the Group and so provide a better service to the Board.

Integrating the two departments could create tensions in both teams, which could lead to the loss of audit staff. The significant difference in the sizes of the two departments suggests that Innoroab's auditors will feel as if they have been taken over by the larger Robobryce department. They may resent the associated loss of autonomy in designing audit programmes and in supporting senior management in the process. A larger department is likely to operate in a much more structured manner. The integration could also lead to concerns within the Robobryce Audit Department if any of the senior staff from Innoroab are given promoted posts in response to their seniority or qualifications. There could be resignations from both teams because of any integration, which could undermine the overall efficiency of audit across the Group.

Innoroab's audit team will increase internal audit for the Group as a whole by 10%. That is a significant increase which could raise questions about efficient governance. Increasing the overall size of internal audit in this way could prove a distraction for the chief internal auditor if it becomes a challenge to ensure that all staff are fully occupied. Too many audit staff could lead to Auditee Departments receiving additional attention simply to justify staffing and that could undermine confidence in internal audit. It would be possible to ensure continuity by retaining the most senior of Innoroab's auditors, who would be able to brief audit staff from Robobryce on systems and on audit risks. That arrangement might also assist the members of the Audit Committee to argue that internal audit is providing a cost-effective service to the Group as a whole.

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SECTION 1

Requirement 1 – Relationships

Robobryce's relationship with society has changed in two possible ways. The protesters have chosen Robobryce as a target because it provides an enabling product for online retailing. Robobryce is one of many possible targets, but the protesters' strategy appears to be to designate a single target in order to clarify their message. It is debateable whether Robobryce has done anything more to deserve this status than any other company that manufactures autonomous warehouse equipment. If that is the case, it may be difficult for Robobryce to offer an effective response to its treatment at the hands of the protesters. It may be necessary to simply bear the effects of the protests until the protesters move on to another target. Robobryce is also being associated with the disruption to traffic and the associated inconvenience caused to motorists and bus passengers. It could be argued that the protesters are responsible for this disruption, but they would claim that their intention is to publicise their cause and draw attention to the environmental damage caused by online retailing. These actions could mobilise votes in favour of political parties and individual politicians who support the protesters' interest in reducing consumption, which could have an adverse impact on Robobryce and other companies in the industry.

It may be a matter of concern that the government spokesperson appears to have supported the protesters' right to disrupt access to its factory in this way. It could be argued that the protesters were committing a criminal act by organising a march along a public road and that Robobryce should have been entitled to request the support of the police to clear access to their factory. It would appear that the authorities will not support Robobryce in its dealings with the environmental protesters, which could undermine the company to a large extent. The fact that the government has asked Robobryce to enhance its reputation with regard to sustainability could be a concern because it is further evidence that the government is not supportive. Robobryce is clearly complying with all relevant legislation, otherwise the authorities would be enforcing the rules.

The government's request to work on the company's reputation could signal a tightening up of the laws affecting sustainability.

In some respects, the fact that Robobryce is being blamed for emissions created by clients is a matter of some concern because Robobryce has no direct responsibility for their behaviour. The protesters claim that Robobryce's products make it easier for clients to sell large quantities of consumer goods, which is damaging to the environment, but there is little that Robobryce can do to prevent this. Robobryce's products are designed to be flexible and to manage a wide range of products, so clients could change their product ranges or grow in volume after taking delivery of a Robobryce system. There is very little that clients can do to rid Robobryce of enabling their operations with its technology because that link has already been made by the protesters. It would be unlikely to benefit Robobryce if clients decided to reduce their sales volumes through increased prices or greater selectivity in terms of product ranges.

Requirement 2 – Sustainability

Robobryce's factory operations are a sensible starting point because the company has direct control over those and so can be held accountable for them. The Tessland factory is heavily automated, using robots both to manage inventory and in assembly. Robobryce should indicate how that equipment affects factors such as energy consumption and emissions. The question of having a single factory for the manufacture of automated products should be considered in the context of distribution because products are exported around the world. Robobryce will have to consider the extent of the carbon footprint associated with shipping goods overseas, particularly if it wishes to claim that it operates in a sustainable manner. The need for shipping may be offset to some extent by the fact that operating from a single factory may permit efficiencies in terms of emissions and energy consumption.

The impact of operating warehouses designed and equipped by Robobryce should be considered, particularly in the light of the protesters' concerns that clients were a source of emissions. One issue that will have to be considered is the potential energy saving associated with autonomous warehouse equipment. Having goods brought to an operator for picking and packing avoids the need for using forklifts to carry a driver as well as a load of goods for picking, presumably reducing power consumption. The equipment operates using electricity, which means that robots and other autonomous equipment could be powered by sustainable sources to recharge batteries and to operate carousels and conveyors. The equipment is designed to operate efficiently, further saving energy. For example, mobile robots navigate using software to minimise distances travelled and aim to pick as many items as possible before returning to a work bench, minimising the number of empty journeys. Lights-out warehouses could potentially offer further savings in energy consumption because they eliminate the need to maintain a comfortable environment in which humans must work and reduces the need for robots to navigate around humans.

Robobryce should acknowledge the extent to which the manufacture of rechargeable batteries consumes heavy metals and other materials. The company's efforts with regard minimising such consumption can also be discussed.

Robobryce's association with online retailing should be acknowledged and the extent to which online retail is sustainable should be discussed. While Robobryce is not directly engaged in online retailing, the recent protests have been prompted by accusations that the company encourages retailers to operate in this way. It should be noted that online retailing can eliminate the need for consumers to drive to shops to make purchases. Online retailers can arrange to deliver many customers' purchases using an efficient distribution network. Even the final delivery can be conducted using a single vehicle to make a large number of drops. Robobryce's software enables multiple items to be picked and amalgamated into a single package, further increasing the efficiency of the final delivery. The growth of online retail has also had an impact on the number of traditional shops. Fewer shops means fewer large spaces that have to be heated and lit in order to provide consumers with attractive places to shop.

SECTION 2

Requirement 1 – Risk disclosure

It could be argued that the Board has warned the shareholders that a cyber attack was possible simply by acknowledging that the company is heavily dependent on its IT systems. The possibility that an attack might succeed is acknowledged by the fact that the systems in place to defend against attacks are said to minimise IT-related risks. Robobryce's shareholders have been warned that the company is at serious risk in the event that its IT systems can be breached by a determined attacker.

The Board might argue that a more detailed warning could be counter-productive because it could alert cyber attackers to possible areas of vulnerability if too much detail was provided. The risks associated with cyber attacks are complicated and difficult to predict because attackers are always working to develop new approaches to infiltration and the exploitation of any such breaches. It would be difficult to establish a realistic limit to the risks to IT systems because threats are always evolving and the tools available to attackers are always improving in their effectiveness.

There is an argument that the reference to "significant IT risks" in the risk impact statement is unduly open-ended and so fails to give the shareholders an adequate indication of the potential loss. Robobryce's IT system controls hardware, including managing the safeguards that prevent damage to the equipment. It is not clear from the disclosure that a determined cyber attack could cause irreparable physical damage to Robobryce's factory. The shareholders could argue that Robobryce has not been sufficiently forthcoming about the extent to which its operations are open to cyber attack.

The shareholders could also argue that they expected Robobryce to enjoy at least some protection from insurance and so it is disappointing that the insurance company is threatening to reject any claim. There are always possible gaps in insurance cover, but this insurance policy appears to leave Robobryce liable for losses even though it was subject to a potentially sophisticated identity fraud. That creates a possibility that Robobryce should have been more forthright about the limitations of its staff vetting policies.

Requirement 2 – Suspending dividend

Robobryce's gearing ratio is T$11,000m/(T$11,000m + 11,453m) = 49%, which is quite high. If the company takes out a loan instead of using equity, then gearing will increase to T$11,550m/(T$11,550m + 11,453m) = 50%. The increase is only one percentage point, but that could still be significant if the company's existing loans are protected by debt covenants that require gearing to remain below 50%.

The company's debt capacity already seems restricted by the fact that borrowings exceed the book value of property, plant and equipment. It would be difficult for Robobryce to persuade lenders to advance a further T$550 million because it is unlikely that the company has assets available against which to secure the additional loans. The fact that the assets have been seriously damaged by cyber attackers, who may repeat their attack, could further undermine Robobryce's ability to pledge adequate security for further loans. Raising finance through equity, either by issuing additional shares or by suspending the dividend, may be the only way forward.

Suspending the dividend payment will have the same effect as injecting equity into the company, which means that the gearing ratio will decrease. The company has, presumably, been setting aside cash to pay next year's dividend, but that does not commit the Board to use the cash for that purpose. There are, therefore, no formalities that would have to be completed. Suspending the dividend will enable Robobryce to fund the shortfall immediately and so speed up the repairs to return the factory to full capacity. The alternative approach to raising equity would be a rights issue, which would take longer to complete. There would also be issue costs that might add to the total cost of recovery from the cyber attack.

The suspension of the dividend could send a very strong signal to the capital markets that Robobryce is in financial difficulties. The fact that the directors do not believe that the company can afford to pay a dividend could imply that there are deep concerns about the company's ability to survive this attack without taking drastic action. The markets might also be concerned that the suspension is a sign that the Board anticipates further attacks and that dividends could be affected in the longer term. If Robobryce pays the dividend and raises equity by means of a rights issue, then the disclosures in support of the issue will provide the shareholders with additional assurances. Shareholders are also less likely to interpret a rights issue as a sign that the Board is panicking over the cyber attack.

Sudden changes in dividend policy could confuse the capital markets because shareholders often base their portfolios on tax considerations. Robobryce paid out 426/1,875 = 23% of its profits for the year ended 31 December 2022 as a dividend. Shareholders are used to managing dividends and their possible income tax implications. A sudden change in dividend policy could lead to shareholders selling their shares in order to invest in companies that meet their needs for income. The sale of shares for whatever reason could depress the share price and create further uncertainty in the minds of remaining shareholders, which could depress the share price still further.

SECTION 3

Requirement 1 – Board ethics

The Board has an explicit duty to maximise shareholder wealth. The principle of objectivity suggests that the Board should not allow itself to be distracted from that duty by bias or self interest. Robobryce would probably have to shut down production completely in order to satisfy the protesters, whose complaint is that the company's products make online retailing more affordable. The protesters are fully entitled to their beliefs, but they have simply selected Robobryce as one example of a business that is engaged in online retailing. Robobryce is not doing anything wrong. Robobryce is fully compliant with all legislation in its operations and it is proving a service that many members of society value.

The principle of integrity requires behaviour that is straightforward and honest. There is a clear lack of integrity in the relationship between the protesters and the company. The protesters are acting anonymously, using social media to organise their actions without taking any direct responsibility for them. They are disrupting legitimate business and social activities and have even caused criminal damage to Robobryce's factory. If Robobryce permits itself to be led by those demands, then it could be argued that the Board is in breach of this principle because it is giving legitimacy to a group that has no real right to be identified as a stakeholder.

Professional behaviour requires the Board to comply with relevant laws. Granting these protesters a legitimate right to influence the company's behaviour could be viewed as a breach of the underlying principles of common and criminal law. The protesters are clearly motivated by strongly held beliefs concerning the importance of sustainability. It is legitimate for them to hold those beliefs, but that does not give them the right to damage property or interfere with otherwise acceptable activities. Robobryce and the companies whose warehouses it equips are not breaking the law and they should defend their rights to go about their businesses without interference. The protesters could, if they wished, work with politicians to change the law if they feel strongly that companies are causing excessive damage to the environment.

Requirement 2 – Restoring credibility

The share price did not fall because of the first protest, which suggests that the capital markets were aware that Robobryce is open to criticism by environmental protesters and that the criticism itself is not expected to affect Robobryce's cash flows. The share price has only fallen in response to continuing protests that appear to be exploiting opportunities to cause lasting harm to the company, in these cases through damage caused by the cyber attack and the disruption of a customer's general meeting. The share price will remain depressed because Robobryce remains exposed to the possibility of further actions by the protesters. The Board will have to attempt to restore the market's belief that it has taken effective action to prevent further damage, both in terms of past attacks and future protests.

The cyber attack was a clear case where a third party managed to cause serious damage, requiring costly repairs to Robobryce's equipment and interrupting production. It could be argued that there was a failure of governance in the form of weak controls that enabled a third party to take control of sophisticated and expensive equipment. Robobryce should already have taken steps to prevent any further attacks, ensuring that systems and safeguards are in place to prevent unauthorised access to systems. The Board should consider actions that can be announced publicly without encouraging or informing the protesters in committing future intrusions. Engaging a leading cyber security consultancy to review Robobryce's systems would be a good starting point. Incurring fees for such a service would demonstrate the Board's commitment to ensuring security. It would also be worth considering having the consultancy conduct penetration testing to ensure that any remaining gaps in security are identified. The results of such an exercise could also be made public if they indicate that the system is secure.

The intrusion at Fabriktess's annual general meeting caused Robobryce's share price to fall, which may be partly due to concerns that clients will be targeted on the basis of their association with Robobryce, which could lead to a loss of business if contracts are awarded to rival companies. The Board should contact as many past and potential future clients as possible in order to seek their support. Ideally, it will be possible to negotiate a willingness to work with Robobryce. It could be argued that if the protesters manage to put Robobryce out of business, then the protesters will probably move onto a new target in the online retail industry. That target could be a retailer. If retailers make a public commitment to supporting Robobryce, ideally by awarding further contracts, then it may discourage the protesters form continuing this approach to publicising their objections. It will also reassure the shareholders if they can see that the Board has taken a successful strategic action against the protestors and generated revenue in the process. The industry as a whole will be stronger if companies take a collective stand against the protesters and all will benefit from the reassurance that it will bring to the capital market.

The protests so far have benefitted from the fact that the protesters have acted anonymously and have not been the subject of any action by the police. The Board should lobby Tessland's government to argue that the disruption of traffic and the intrusion into Fabriktess's annual general meeting could both be considered to be criminal acts. If the government could be persuaded that the protesters broke the law in blocking the roads and in using force to trespass on the meeting, then protesters may be discouraged from participating in further actions because they do not wish to face criminal charges. The cyber attack clearly was a criminal act and the Board should do everything in its power to identify the perpetrators and should provide the police with any evidence that is collected. If the company can establish that the protesters are breaking the law, then it will be easier to persuade social media providers to block accounts that are used to coordinate attacks. The capital markets will be reassured that Robobryce is applying its resources to combat the actions of the protesters, who will not have the ability to carry out a prolonged campaign if they are faced with fines and compensation costs.

AICPA & CIMA
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STRATEGIC CASE STUDY

NOVEMBER 2023 & FEBRUARY 2024

EXAM ANSWERS

Variant 4

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

Requirement 1 – Resources

Hopefully, the Robobryce Group will have the necessary human resources to complete the development work on this new robot and put it into production. Retrayler is still at the prototype stage, but the acquisition should enable the Group to retain the engineers who have got the product to this stage. They should be able to complete the development work. Robobryce has experience of developing and manufacturing autonomous warehouse equipment, including mobile robots, so its senior management team should be capable of overseeing the remainder of this project. Foroneng does not have a background in manufacturing, which could raise concerns about putting Retrayler into production. The new design could require engineering or assembly skills that Robobryce does not possess. The use of new sensors could require specific skills in the design of industrial processes and in the manual aspects of building and testing robots. Hopefully, the fact that Foroneng is used to developing new products for clients means that it has the ability to develop training programmes for its clients to enable any skill gaps to be bridged.

Robobryce's factory should be equipped for the manufacture of Retrayler because it is equipped with advanced industrial robots. This will have to be confirmed with Foroneng before a commitment is made because the design work to date has not been carried out in the expectation that Robobryce will bring the product to market. Foroneng tends to work with Graylandian manufacturers, who could place more emphasis on human assembly rather than automated. Robobryce will also have to check that it can obtain all of the parts and components that are required by Retrayler. Part suppliers may be reluctant to ship goods to Tessland. There could also be security concerns about the final destination of advanced electronics, even to countries such as Tessland. Foroneng will have to provide a breakdown of the components in its plans.

There are intangible factors such as the presence of a market for this product and Robobryce's credibility in that market. Retrayler is designed for retailers who wish to deploy the robot on the shop floor to assist customers. That raises questions about whether retailers would be willing to invest in such a product. There may be safety concerns about acquiring robots to fulfil a task that is not a major concern for most supermarket customers, namely pushing a shopping trolley. Retailers may associate Robobryce with the supply of mobile robots for warehouse operations, but not with customer support in their shops and adjoining car parks. There could be concerns about whether Robobryce can deliver a product that is safe in that more complex environment, where shoppers safety could be endangered.

There is also a potential concern over the financial resources that are required to complete this product and bring it to market. Foroneng's approach to business is to develop a product and sell the designs to a manufacturer, so there is no reason to believe that it will have the necessary resources to commence manufacturing. Robobryce is already faced with the need to fund the acquisition of Foroneng and so it may be short of cash. It also has very little experience of working with Foroneng, so it has no understanding of whether it can provide reliable designs that can form the basis of accurate costings. It may prove more expensive than expected to complete the work required at Robobryce's factory and to bring the product to market.

Requirement 2 – Political risks

The Graylandian government may object to this acquisition on the grounds that Foroneng provides 1,800 jobs in an area where professional employment opportunities are in short supply. The government may be concerned that Robobryce may close the research centre in Grayland and take Foroneng's files to Tessland. That is likely to be an unpopular move with Grayland's voters and so the government will come under pressure to protect the local economy. There could be a risk that the government will attempt to interfere with the acquisition, either by forbidding the bid to proceed or by imposing conditions on the Group's freedom to manage the company, its staff and its intellectual property after the acquisition. These concerns could undermine the confidence of Robobryce's shareholders in the wisdom of this acquisition, which could put the share price under some pressure. Mitigating this risk may be difficult, unless the Board takes the initiative and gives formal assurances that Foroneng will be allowed to continue largely as before.

Foroneng facilitates manufacturing activities in Grayland by selling licences for the use of its intellectual property for the manufacture of the products that it sells. The Graylandian government may be concerned that Robobryce will be keen to exploit the patents for its own use and may not permit the renewal of licences when they expire. There may also be concerns that new patents will not be opened for licensing to Graylandian manufacturers. If those concerns are valid, then the government may impose restrictions on Robobryce's freedom to protect its patents in Graylandian courts. Robobryce could find itself faced with legislation that requires Retrayler to be licenced to manufacturers in Grayland, meaning that much of the profit from this product may not be kept within the Group.

It would be an extreme action by the Graylandian government to treat a foreign company that is making an inward investment in this manner, but it may be necessary to appease voters. There is also a possibility that the government will take more subtle action, such as conducting tax investigations or withholding export licences for components sourced from local factories.

SECTION 2

Requirement 1 – Financing acquisition

The cheapest way to raise the finance would be to borrow the cost of the acquisition. That may not be practical in this case. Robobryce's present gearing ratio is 11,000/(11,000 + 11,453) = 49%, which is quite high. Borrowing T$8,000 million would increase the ratio to (11,000 + 8,000)/(11,000 + 8,000 + 11,453) = 62%, which is a significant increase. It is unlikely that the financial markets would be willing to expect that Robobryce could afford to service a gearing ratio at that level. There are further concerns, such as the likelihood that Robobryce would be unable to provide security for a loan of that size. The existing loans already exceed the book value of the company's tangible assets, which suggests that existing lenders may already have rights to any assets in the event of a default on existing loans. Robobryce plans to use the funds to invest in a foreign company that owns mainly intangible assets that would be difficult to liquidate in the event of a crisis. These problems indicate that it is necessary to fund this acquisition primarily through equity rather than debt.

The traditional way to raise funds from equity is to arrange a rights issue, which is relatively easy to organise for a quoted company such as Robobryce. Issuing shares to the value of, say, T$8,000 would reduce the gearing ratio to 11,000/(11,000 + 11,453 + 8,000) = 36%. That is a significant decrease, which would open up the freedom to raise additional debt in the future if circumstances demanded. It would also create scope for raising any additional funding that was required for the acquisition through borrowing. The company could then arrange the rights issue to fund most of the purchase, but then use a small amount of debt capacity to borrow any outstanding balance in the event that it has to pay, say, T$8,600 million for the company. The documents issued in support of the rights issue will hopefully give the shareholders sufficient information to reassure them that the acquisition of Foroneng would be a worthwhile addition to the Group. The only significant downside would be the professional fees that would have to be incurred in support of the issue.

The simplest and most flexible way to finance the acquisition would be to negotiate a share-for-share exchange between Robobryce and Foroneng's shareholders. The biggest advantage of doing so would be to ensure flexibility, given the range of possible outcomes for the negotiations. The least that Foroneng's shareholders would accept is the market value of their shares, which values the company at T$7,000 million, but it is common for company shares to increase in value when a bid is announced and the share price could increase. Robobryce can deal with any fluctuations in negotiations by simply issuing additional Robobryce shares, taking account of the company's own market capitalisation. The Board has decided to limit its bid to T$8,600 million, which raises a further concern because it may prove necessary to withdraw the bid in the event that Foroneng's shareholders insist on more. In that case, a share exchange would provide the flexibility to withdraw without having to pay a penalty to providers of finance to compensate them for arranging funding. The downside would be that this would represent quite a substantial dilution of Robobryce's equity and its shareholders would be disturbed in the event that the acquisition was not viewed as value for money.

Requirement 2 – Reputational issues

The failure of the bid could leave the capital markets with the impression that Robobryce's Board is over confident in its ability to manage a larger group of companies. The expectation in a takeover is that the target company can be managed more successfully by the directors of the new parent company and so they can add value to the investment. Robobryce's Board plans to offer a premium of up to T$1,600 million over the current market capitalisation of Foroneng or 1,600/7,000 = 23% of the current market capitalisation. If that offer is rejected by Foroneng's shareholders because they would prefer to remain with their existing management team, then confidence in Robobryce's Board is effectively being criticised in a very visible manner. Failed bids can also focus attention on self interest on the part of the bidders' directors. For example, the desire to manage a larger group or the increased rewards that would be paid if the group expanded. Such allegations might not be made in the aftermath of a successful bid, but a failed bid will have left the bidding company with the professional fees associated with the work. Also, the bidder's shareholders will have invested time and effort in assessing the validity of the arguments in favour of the bid.

These concerns may be mitigated by the fact that Robobryce's Board may not have been fully aware of facts that were divulged during the bid for Foroneng. The target company's directors may wish to remain on the board of an independent entity and so may release information that has a positive impact on the share price. They may also be reluctant to see the company acquired at a bargain price that understates its value and so leads to the shareholders being underpaid, again creating some pressure for them to release positive news that was being kept back for reasons of commercial confidence. It may also be that the target company directors can offer arguments based on ethics and other non-eceonomic factors in defending a bid, such as presenting their shareholders with an emotive argument that the acquisition could damage the job security of employees. The reason underlying the failure of a bid can be difficult to unravel, but there can be an argument that the bid's failure does not imply any lack of competence on the part of the bidder's management team.

SECTION 3

Requirement 1 – Blaming management team

The theft of the files occurred at least 4 months ago, which suggests that the theft could have occurred either before or after Foroneng joined the Robobryce Group.

If the theft occurred before the acquisition, then the question of blame is largely a matter of what Robobryce was entitled to expect of Foroneng's Board in terms of internal controls, which include IT security. Foroneng was a quoted company based in Grayland. Most countries have governance rules in place that cover important matters, including the need to ensure that internal controls are adequate. It would have been reasonable to have expected that Foroneng was compliant with the local governance regulations, which would make the management team responsible for protecting the company's assets. Having said that, Robobryce's Board should have conducted its own due diligence investigation of Foroneng before making its bid and should have sought confirmation that the company's systems were secure. It would have been reckless of the Robobryce Board to have taken it for granted that all of Foroneng's systems were secure and that all valuable assets were safe.

If the theft occurred after the acquisition, then Foroneng's systems would have fallen under the responsibility of Robobryce's Board. It would have been appropriate for Robobryce to have conducted a detailed evaluation of Foroneng's systems so that they could have been integrated with Robobryce's in a secure manner. It seems strange that the acquisition took place 6 months ago and yet Robobryce's Head Office staff did not have access to the plans for Retrayler until 2 weeks ago. It would be unacceptable to blame Foroneng for any security breach that occurred after the acquisition if Robobryce's Board had made no effort to investigate the controls that were in place. It could be argued that Robobryce's intentions for Retrayler altered the need for security over the files and so Foroneng's management team should have been briefed on the need for additional security. Having said that, Foroneng's directors were responsible for the management of a quoted company and should have been able to take some initiative in identifying vulnerabilities in IT security and initiating changes.

It is debatable whether it would be constructive to blame Foroneng's management team for any breach of security. A determined intruder will always be able to circumvent systems. The technologies that can be used to bypass controls are always evolving and so there is always a limit to the reliability of security software. Systems must be maintained and company directors can ensure that procedures are in place, but there can never be a guarantee that patches and updates will always be installed immediately. Controls are also dependent upon human inputs, which creates a further vulnerability. Staff can make mistakes despite controls that are in place to prevent them from doing so.

Attributing blame to Foroneng's directors could be discouraging because they could have taken all reasonable precautions over the design of systems and could still have fallen victim to a sophisticated breach. Blaming the Board should only be considered in the event of gross negligence on the part of the directors.

Requirement 2 – Shortcomings

All staff should never reveal their passwords to anyone and for any reason. That should be a key element of staff training and should be repeated at regular intervals. Having someone's password makes it possible to log into the system with that person's identity. That can grant access to sensitive files and can enable fraud prevention measures such as segregation of duties to be circumvented. Employment contracts should make staff members responsible for safeguarding their passwords, with penalties for failing to protect them. A broad view should be taken of protecting passwords, including taking care not to write a password down, to use a password that can be guessed easily or leaving a computer switched on and logged in while unattended. Staff should be held responsible for any dishonest transactions perpetrated using their passwords in order to discourage carelessness.

All staff should be forbidden from loading any form of software onto a company computer unless it has been formally authorised by the IT management team. Apps, games and other personal software are a particular concern because they can contain malware that enables security to be breached. In this case, the apps could have contained a key logger or could have emailed files opened on the engineer's computer to an external address. This threat could be managed by setting up staff computers so that software cannot be installed without specific access that requires separate passwords that are available only to senior members of the IT staff. Operating systems and security software can be set so as to intercept any attempt to download or install executable files and those settings should be activated by default. Break rooms can be equipped with computers that enable staff to access personal email accounts or social media. Those computers can be connected to the internet but should have no access to company systems.

It is a major concern that anyone could be appointed to the company's staff on the basis of forged documents. Any job that gives access to workspaces and to legitimate members of staff puts any sensitive materials at risk. An intruder can listen to conversations about work, observe ongoing projects by looking at computer screens or steal data held on removable drives. Staff identities should be checked carefully, even if they are being considered for junior posts, in order to make them accountable for their actions. Photographic ID such as driving licences and passports should be checked and copied, but those are insufficient in themselves because they can be faked. References from past employers should always be requested and should be followed up, requesting written assurances to be posted directly from the employer to reduce the risk of being misled by a forgery.

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STRATEGIC CASE STUDY

NOVEMBER 2023 & FEBRUARY 2024

EXAM ANSWERS

Variant 5

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SECTION 1

Requirement 1 – Game theory

Game theory can be applied to situations where two or more entities are interacting in a rational manner where each person's payoff is affected by the action of others. In this case, we have two businesses that are competing with one another for control of an important new market segment. Game theory involves basing decisions on the anticipated response of the competitor. Robobryce has already launched its new mobile robot and must decide how to better Pavrobot's claims that it will soon launch a superior product. Robobryce could attempt to address Pavrobot's disruption in a number of ways. It could, for example, accuse Pavrobot of faking claims that it has a superior new robot under development or it could reduce the selling price of its existing robot. Game theory could assist in the evaluation of each option by considering Pavrobot's most likely response. For example, Robobryce's Board would consider Pavrobot's most logical response to an accusation that it has been exaggerating claims for its new product.

Game theory assumes that players will react in a rational manner, so it should be possible to make realistic assumptions about responses. Pavrobot will, of course, be assessing how Robobryce will act and will be considering a range of responses. It will probably have predicted the possibility that Robobryce will accuse it of making false claims and will be ready to counter that move. Game theory usually involves thinking several moves ahead, allowing for the optimal actions and responses from each player. Game theory can also assist in the development of strategies to address the worst possible impact that an opposing player can inflict. It should be possible for Robobryce to develop a strategy that will deal with the possibility that Pavrobot will continue to disrupt the market for this new type of robot. Reducing its selling price so that customers will regard Robobryce's robots as offering better value than Pavrobot's, regardless of the additional features that Pavrobot adds to its product, would be a practical response to the worst possible outcome of the status quo continuing.

Game theory is often based on mathematical models that enable players' behaviour to be modelled in a credible and defensible manner. That can, however, lead to players becoming concerned that they will be too predictable if they constantly behave in accordance with the algorithms that might be used to model a business interaction. From time to time, the players may behave in a manner that is not entirely within the rules of the model that is being used, simply because they wish to keep their rivals guessing. There is also the distinct possibility that the models being used by the players are not entirely consistent, which could lead to a divergence between actual and predicted behaviour.

Game theory often leads to outcomes that are suboptimal for all players because it often works on the basis that players work together, either because of an inability to cooperate or a lack of mutual trust. In this case, it would probably benefit both companies to allow one another a reasonable share of the market for these new robots, thereby avoiding confusing potential buyers. Game theory usually predicts that such positive outcomes will not occur, even though they are known by both players, because each player will act independently on the basis of personal interest. The algorithms suggest that an outcome that relies on cooperation will not be stable and so it will not occur in practice.

Requirement 2 – Share price

During the past few months, Robobryce's share price has increased and then has been subject to increases and decreases. That is consistent with the possibility that the stock market believed that the announcement of Heavybryce signalled a positive net present value investment, and so the share price increased as news of the product was published. The increase could have been spread over some time because each stage in the product's launch would eliminate some uncertainty about the cash flows, and so their present value would increase and so add to market capitalisation.

The stock market would have anticipated a response to the launch of the new robot and would have factored that into the share price. However, the market would not necessarily have foreseen such an effective response by Pavrobot, which has clearly stalled sales of Heavybryce while potential customers decide whether or not to place orders. The share price will reflect the possibility that Heavybryce will not sell in expected quantities.

The longer the uncertainty over sales of Heavybryce continues, the less confident the stock market will be about Robobryce's ability to take the lead in this new category of robots, which could lead to further reductions in the share price. A prolonged delay could also lead to further setbacks in the share price if the stock market starts to lose confidence in Robobryce's ability to take advantage of its research and development activities. The stock market will have taken future projects that are in development into account when setting the price, but fears that competitors might outsmart Robobryce could depress the share price still further.

Robobryce should focus on managing the share price in the short term. In the long term, the share price will reflect the outcome of the commercial battle with Pavrobot.

In the short term, the most effective response is to provide the stock market with credible information that can reassure market participants, particularly those with some influence. Robobryce could arrange a demonstration of Heavybryce for financial journalists or investment analysts employed by institutional investors. During that demonstration, it should be possible to demonstrate the technical advantages of the product. Robobryce could also inform the participants of its intended response to Pavrobot. It is important that any such briefing should consist of credible information that could enable participants to have a better understanding of the commercial issues.

Robobryce should take care to be truthful in any information that it releases to the stock market. That is partly because any dishonesty could undermine the Board's credibility, which could prove harmful in future cases. It will also be easier to persuade the stock market by releasing information that can be shown to be true, or is at least open to verification. That could force the Board to consider a trade-off between supporting the share price in the short term and preserving commercial confidence in order to avoid assisting competitors.

SECTION 2

Requirement 1 – Political risks

The Board should start by identifying the political risks that might arise so that it can develop a response to mitigate each risk. If the Trilandian Government finds that the case against Robobryce is valid, then it might ban Robobryce from receiving any contracts from Government agencies, not just the Trilandian Health Service. Other potential customers might be reluctant to do business with Robobryce in case their managers are accused of having been bribed to grant a contract. The immediate priority in managing these risks would be to agree to investigate the allegations in secret, at least until they have been properly investigated. If the accusations prove to be unfounded, then neither party's reputation will have been damaged needlessly. It will also be easier to carry out an effective investigation under conditions of confidentiality, without concerns about the press speculating about the outcome and pressuring both sides to reveal facts that have not yet been fully studied.

The Board should take ownership of the events that led to Ms Liqiong's concerns and should inform the Trilandian Government that it will cooperate with its investigation. That cooperation will include making Martin and any other witnesses to the conversation available to answer questions and/or provide statements. It seems unlikely that Martin intended to influence Ms Liqiong because she was the one who first referred to her daughter's interest in engineering, but the Board should not offer such an argument because it may sound dismissive of the bribery allegations. Martin should be suspended on full pay in the meantime, partly to demonstrate how seriously Robobryce's Board takes the allegations. If the Board offers a neutral tone in its initial response, then it may reduce the risk of accusations that it is attempting to cover up misbehaviour by a senior sales manager.

Robobryce's Board should inform the Trilandian Government that it will commission its own investigation and will share the findings from it before any decision is made concerning publication. The investigation should be conducted by a credible and independent third party, such as a partner in a major law firm with which Robobryce has had no prior dealings. The team conducting the investigation should be asked to take statements from Martin and from anyone else who was present during Ms Liqiong's visit and, in particular, during the conversation that referred to the internship programme. If the Trilandian Government is informed that Robobryce will prepare a thorough report of its own, then it may take greater care to be objective in its own investigation of the matter. The Trilandian Government will not wish to be seen as overreacting or making a false accusation because doing so could discourage foreign companies from dealing with Trilandian officials.

Robobryce should engage the services of public relations consultants in both Tessland and Triland, briefing them in strictest confidence about the ongoing investigations. The consultants should be prepared to advise and assist in the event that information about Ms Liqiong's accusation should be made public through a leak or, indeed, that the results of the investigations are published in the interests of transparency.

Managing the press coverage in both countries will be important because it is likely that the reaction will be different in each case. It will be preferable to have consultants with contacts in each country to handle the likely coverage that will emerge in each case. Maintaining control over the press coverage will help reduce the likelihood that Robobryce will be the victim of serious reputational damage, which could prove costly. The wrong type of press comment could force the Government into taking unnecessarily harsh action against Robobryce, perhaps restricting its eligibility to bid for contracts.

Requirement 2 – Ethics

The principle of integrity requires Robobryce to be straightforward, honest and truthful in professional and business relationships. In the context of hospitality, that means that the company should not attempt to influence the behaviour of business contacts by overspending on hospitality. It is reasonable for a business to arrange accommodation and to entertain potential customers who are visiting from overseas. Failing to do so would pass those costs onto potential customers and could discourage them from travelling to evaluate Robobryce's products, potentially costing sales. It is important for the quality of the accommodation to reflect the visitors' seniority. A cheap hotel could insult a visitor and might make it difficult to conduct business. A hotel that is more expensive than the visitor's position would justify could be viewed as a bribe. Robobryce should ensure that the accommodation and hospitality that it provides are pleasant and would meet the reasonable expectations of the guests.

As an alternative to applying the ethical principles, Robobryce might consider the threats that might arise with respect to their application. The Board should consider whether there could be a self-interest threat arising from the possibility that business contacts could wish to do business with Robobryce in order to enjoy hospitality that it offers. Again, there is a need for compromise. Decision makers who may have endured a long journey and who may be away from home for an extended period may need to have an opportunity to relax during a business trip. It will also be easier to do business if some time is set aside for informal meetings over meals. It is important to ensure that Robobryce allows for the needs and realistic expectations of business travellers when booking accommodation and hospitality, but that the results are not excessive.

There could also be an intimidation threat that should be considered in this context. One way to set a benchmark for business hospitality is to decide whether either the company or its guests would be open to criticism if shareholders or the public were made aware of spending on these activities. This could also be considered in the context of the principle of objectivity, as in whether a stakeholder would regard the treatment of potential customers as capable of causing bias in their decision making. Arguably, Robobryce should consider whether it would cause embarrassment if its arrangements were published. It would help if the company had a policy for entertaining, using hotels and restaurants that are known to offer good value for money.

SECTION 3

Requirement 1 – Values

Values guide the behaviour of managers and staff at all levels within the organisation, so the statement of values is extremely important. It could be argued that the inclusion of a value in relation to bribery would be useful because there is nothing in the current set of ethics that deals explicitly with bribery. The current focus of Robobryce's values is really on the technology implicit in its products and the impact of those profits on the quality of life. It could be argued that the senior sales manager would have had no real guidance concerning the provision of an incentive to the official, but would have been encouraged to maximise the commercial success of the new type of robot. That decision might also have been influenced by the fact that the robot was being considered for use in hospitals and so prompting the sale could have been consistent with enhancing social wellbeing. Inserting an additional value that forbids bribery might have made the sales manager think more carefully about his choice of words when talking to the procurement official. The new value might also demonstrate a commitment to avoiding such misbehaviour, which could help restore Robobryce's reputation.

An explicit reference to bribery in Robobryce's values might have negative implications for the company's reputation, including the possibility that the company may be drawing attention to any accusations of bribery that emerge when the Trilandian Government's report is published. Stakeholders reading that value might question why such an obviously unacceptable act must be expressly forbidden by the company's values. The wording of the statement might not refer directly to bribery, setting out broader ethical principles for dealing with stakeholders. Such a wording might avoid drawing attention to past misbehaviour, but it could also create the impression that Robobryce is reluctant to make a clear rejection of bribery as an approach to doing business. It would be far more effective to create a company policy on the whole question of bribery and to provide training for all staff in its implementation. That would allow staff to have a better appreciation of the problems that can be faced in avoiding accusations of bribery and in behaving in an acceptable manner.

Requirement 2 – New Board committee

The creation of an ethics committee would give the non-executive directors a clearer role with regard to oversight of potentially problematic areas in strategic management. If the executive directors or senior managers are unsure whether a particular decision would be acceptable, then the matter could be referred to the ethics committee. Robobryce's non-executive directors are experienced in business and other areas and their advice would be credible. Giving them this additional role would enable the company to derive additional benefit from their employment.

Ethical dilemmas often involve a choice that could prove financially costly if a particular ethical principle is upheld. Requiring such matters to be referred to the Ethics Committee would ensure that sufficient weight is given to the principles because the non-executives have no direct interest in the company's financial performance.

Senior managers would be able to refer difficult decisions to the Ethics Committee in circumstances where they have been asked to behave in a manner that they believe to be unethical by the executive director whom they report to. Such support could help to highlight cases of mismanagement by executive directors and so reduce the extent to which managers at lower levels might be intimidated.

The existence of the ethics committee could reassure stakeholders that Robobryce is keen to address problems with the behaviour of management, such as the alleged provision of an incentive to order robots. The committee could review the relationship between Robobryce and individual customers, which should reassure customers' boards and their shareholders that everything is in order. Potentially contentious matters, such as the question of offering a relative of a procurement official a job with Robobryce, could be referred to the ethics committee, which could communicate the facts to all interested parties. That might reassure the non-executive directors as a body that everything is in order.

There could be a serious overlap between the ethics committee and the existing committees. Most, if not all, of the committees deal with matters that raise ethical dilemmas. For example, the Audit Committee focusses on the relationship between the company and its external auditors with a view to protecting their independence in the event of a dispute over financial reporting. There could be problems if it is unclear which committee should deal with a particular issue because decisions could be delayed while it is being decided who should take responsibility. In some cases, arguments over jurisdiction could lead to aspects of ethical concerns being overlooked.

Each of Robobryce's non-executive directors already sits on three committees, which is a significant commitment. Staffing a fifth committee might require the appointment of additional non-executives, which could prove expensive. The new directors will also require an induction programme, which will create further work in the short term.

Giving the non-executives a wide remit to consider ethics could lead to disagreements over strategic management. The need to refer problems to the ethics committee could slow down decision making by the executive directors. There could be serious disagreements whenever it is necessary to modify or reject proposals on ethical grounds. The executive directors could feel that they are being undermined by the committee.

AICPA & CIMA
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STRATEGIC CASE STUDY

NOVEMBER 2023 & FEBRUARY 2024

EXAM ANSWERS

Variant 6

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

Requirement 1 – Stakeholders

The Neverwate event indicates that client customers have an interest in Robobryce's IT security because they appear to have been affected by a vulnerability in the software supplied to Neverwate. Robobryce sells automated products that are integrated with client systems. The company is aware of the extent of that integration because it employs 800 business advisers to assist with the installation of its systems. Online retailers such as Neverwate depend on their customers being confident enough in their systems to input their personal information, including payment details. If Robobryce does not ensure that its software and associated systems are secure, then clients may be reluctant to be associated with the company because they may be afraid of alienating important contacts, including customers. Failing to recognise customers' need for IT security as legitimate could lead to a loss of clients, who will award contracts to Robobryce's rivals and will publicise their belief that doing so enhances their security. It would be beneficial for Robobryce to be more proactive and to identify clients' contacts as having a legitimate interest in the security of its systems in order to minimise reputational damage.

It could be argued that Robobryce has an ethical duty to safeguard the confidentiality of the alterations that it makes to clients' systems so that they can address the need to protect customers. Robobryce has a duty to inform its clients that its systems could put customers security at risk and, at the very least, it should inform and advise its clients of the vulnerabilities and steps that could be taken to address them. For example, each automated device provided by Robobryce can exchange data with the client's warehouse management system and so creates a possible vulnerability. Robobryce has a duty to ensure that access to those devices is as secure as necessary and that clients are aware of vulnerabilities. In this case, it appears that robots were not particularly secure because they were operating in test mode, which

appears to leave them more easily accessible. Robobryce should have taken care to ensure that Neverwate's IT staff were aware of that.

It could be argued that Robobryce does not have sufficient knowledge about its clients' IT security to enable it to accept a responsibility for the security of customer data. There are potential vulnerabilities that it cannot be expected to control. The company's business advisers work with clients in order to ensure that their warehouse management systems are compatible with the software that operates automated products. They are not responsible for wider issues, such as the security implications of being able to gain access to a warehouse management system. It could be argued that clients, including Neverwate, should address whether any security issues arise from the interfaces between systems. Neverwate should have been aware that Robobryce's robots had a wireless data connection and should have taken whatever precautions that required. Robobryce should have answered any questions that Neverwate's IT staff had about the security of the access to the robots and left any problems to Neverwate to address. It could be argued that it would be inappropriate for Robobryce to have detailed knowledge of clients' security systems. Clients should restrict access to such knowledge on a "need to know" basis.

Robobryce does not have a direct relationship with client customers and so it could be argued that there is a limited extent to which it can be expected to accept a responsibility towards safeguarding their personal data. For example, Robobryce does not necessarily know what third-party data will be collected and stored on a client's systems. It would be unrealistic to expect the company to accept responsibility without knowledge of the data that is held. Similarly, Robobryce does not have control over the commitments that clients make to their customers. Neverwate's terms of business could change and leave Robobryce exposed to greater responsibility if it acknowledges customers as stakeholders. It would be unacceptable to impose an unlimited responsibility on Robobryce without first consulting the company on the needs and interests of all potential stakeholders.

Requirement 2 – Ensuring security

Robobryce is at a disadvantage because its systems rely heavily on wireless connections. Those are necessary because mobile robots must be able to communicate to exchange data in real time. Wireless connections are inherently less secure because they can be accessed without the need for close proximity. For example, the hackers who broke into Neverwate's system did so from outside the building.

Security may be compromised by the fact that Robobryce's systems comprise hardware and software that is operated by clients, who may permit shortcuts in order to speed up operations or reduce costs. The security at Neverwate was not tight enough to prevent intruders from entering the staff car park and downloading data from the wireless network. Neverwate's security should have prevented this intrusion, even if it was simply to protect staff using the car park.

IT security always depends to some extent on the honesty and reliability of staff who use systems. Security at any of Robobryce's clients could be accessed through phishing or bribery. Many of the automated products will use the same software

regardless of where they are based and so knowledge taken from one client could expose vulnerabilities at others.

Ensuring security should not necessarily require that it is impossible to obtain unauthorised access. There is a limit to the resources that are available to intruders who wish to hack into a system. There are cost-effective safeguards that can be taken to restrict access that can reduce the risk of a breach to a realistic and acceptable level. For example, phishing attacks can be discouraged by simple measures such as briefing all staff on the importance of protecting their usernames and passwords. Those briefings can be reinforced by having security staff carry out their own “white hat” hacking to alert staff to the possibility that they might suffer disciplinary action.

There would be a serious commercial cost to refusing to accept any responsibility for the security of software. Clients would be discouraged from doing business with Robobryce. It would be more realistic to offer a commitment to support and update software as necessary in the light of problems as they arise and to work with clients in addressing any specific concerns. For example, if Robobryce’s mobile robots are more vulnerable when they are in test mode, then the company’s software engineers should update the security in test mode and all clients who use those robots should be issued with a patch to load that update.

SECTION 2

Requirement 1 – Audit of key resources

There would be little point in acquiring Cybwoll unless doing so was expected to add key resources that Robobryce lacks and cannot access in an efficient and cost-effective way. Robobryce's current complement of programmers were hired because they were good at writing control software for robots. That does not necessarily mean that they know nothing about cyber security, but they may have limited expertise in that area. Acquiring Cybwoll would give Robobryce access to the 70 consultants that it employs, all of whom are experts in the area where Robobryce is weak. It would be possible to engage Cybwoll, or any similar firm, on a consultancy basis to advise on Robobryce's security needs, but that could prove expensive and might be inefficient over time if new teams of consultants have to be briefed each time advice is sought. Acquiring an in-house consulting firm would enable Robobryce to develop a relationship with a team of security consultants. This would be cheaper and more effective that hiring external consultants from time to time.

If Robobryce keeps cyber security activities in-house, then its cyber security experts may find it more difficult to remain up-to-date on developments, other than those that are reported in the news and specialist press. Acquiring Cybwoll will provide Robobryce with access to the resource of the experience that Cybwoll's consultants will develop from continuing to work with other third-party clients. Cyber security is constantly evolving, partly because criminals are constantly developing new techniques. Cyber attacks are not necessarily made public because victims may not wish to risk being criticised for failing to prevent a breach. Consultants who serve a range of clients will be aware of the issues that have affected their systems and will be able to share the benefits of such knowledge, while maintaining client confidence.

Robobryce will have to consider whether it has the ability to maintain Cybwoll's reputation as an effective consulting firm in cyber security. Clients could be put off by the fact that the company has become a subsidiary of a group that has no other interest in this industry. Robobryce would have to ensure that it can manage this new subsidiary at a strategic level. It would be ideal if the founder of the company could be persuaded to stay on as Cybwoll's chief executive. His input would be an effective way to demonstrate that the company continues to be managed in such a way as to provide an effective service. Alternatively, Robobryce could consider promoting one or more of Cybwoll's more senior consultants to senior roles so that it can demonstrate that the company is managed by experts in cyber security.

It will also be necessary to consider whether Robobryce will have the ability to retain Cybwoll's consultants after the acquisition. At present, the consultants are a key asset of a large and successful cyber security consultancy. Their contribution is valued and the company is large enough to offer career progression. Robobryce's Board will have to find a way to demonstrate that nothing will change in that regard, otherwise staff will seek alternative employment and much of the company's value to the Group will be lost. Robobryce's Board should be able to confirm that consultant's career progression will not be adversely affected by announcing a realistic business plan that recognises the importance of continuing to do business as before, perhaps even expanding.

Requirement 2 – Purchase price

Cybwoll is not quoted, so the company has no observable market value. The value of the company is a matter of negotiation between Robobryce and Ade Alabi and may not be a matter of objective calculation. The starting point would be to estimate the market value that could be obtained for Cybwoll because it would be foolish for Ade Alabi to accept any less than the amount that would be obtained if the company was made available for sale on the open market. That value would, however, have to be a starting point because there is nothing in Hassan's email to indicate that he actually wishes to sell the company. It may be necessary to offer more than an objective economic value to motivate Ade Alabi to sell, partly because there may be emotional ties to the company and partly because Ade Alabi could have plans to expand the company. Ade Alabi will also be aware that Robobryce has a particular reason for the acquisition of Cybwoll, so it would be reasonable to expect a premium in return for the synergies that Cybwoll will bring to the Robobryce Group.

The most meaningful basis for the valuation of Cybwoll would be on the basis of earnings. The company's assets are unlikely to drive its value because it is unlikely to own many assets of any significant value. As a relatively small and unquoted business, dividends are a matter of choice for Ade Alabi and would not provide a meaningful basis for analysis. Profits reflect Cybwoll's ability to create wealth and can be used in valuation models.

Robobryce could attempt to identify quoted companies in the cyber security industry, preferably consultancy businesses that are broadly comparable to Cybwoll. Any such companies will have observable price/earnings ratios. Cybwoll's earnings per share can be calculated on the basis of the company's latest financial statements and that figure can be multiplied by the quoted company's price/earnings ratios. The result would produce a defensible valuation, based on the argument that the stock market is prepared to pay a given multiple of the comparable companies' earnings. It would be necessary to consider whether the result is a realistic valuation. The different companies could have different expectations for future growth and so the market-based price/earnings ratios may not be appropriate to Cybwoll.

The purchase price would also have to take account of the continuity of the business, ideally under Ade Alabi's leadership. In theory, Robobryce could buy 100% of the company and it could then be rendered effectively worthless by the resignation of Ade Alabi and the 70 consultants, who are the real reason for making the purchase. Both sides of the negotiation might prefer to have Ade Alabi retain a significant stake in the company, so that he has an incentive to stay and to work on maintaining its reputation. It may be possible to reach an agreement along the lines of an offer for Robobryce to pay 75% of the earnings-based valuation in return for 51% of Cybwoll's equity. Ade Alabi could then retain 49% and possibly have an option to repurchase the remainder after, say, 5 years.

SECTION 3

Requirement 1 – Non-financial objectives

There should be a deadline in place for the completion of Cybwoll's initial review of all of Robobryce's software and there should be a measure in place to track progress toward completion of that review. Care should be taken in devising this deadline because the Board would not wish to encourage the review to be completed so quickly that it failed to identify issues. Progress should be measured against a list of software packages that Robobryce has created, along with the number of lines of code in each. The Board should receive monthly updates that indicate the number of packages reviewed and the projected completion date so that the directors can tell whether progress is being made.

The number of advisory points raised by Cybwoll consultants when reviewing software packages should be listed and summarised for the Board. The provision of such feedback will demonstrate the value of the acquisition of Cybwoll into the Group. The advisory points should be summarised in language that can be understood by non-experts so that the Board can determine whether there are serious weaknesses in the software. The language of such summaries should not attribute blame or criticism of the original programmers. Before the acquisition of Cybwoll, all of Robobryce's software was written by programmers whose expertise was in another area.

The number of third-party contracts should be reported, indicating whether they are with new or established clients. Apart from earning revenue, this will enable the Board to see whether Cybwoll is maintaining its reputation in the market for cyber security services. External clients may be in a better position to judge that rather than Robobryce's board. Rather than simply list new clients, the Board should receive a breakdown of their industries and the nature of the work required. That will give an indication of whether consultants are obtaining relevant experience to support Robobryce's need for credible review of its software.

Requirement 2 – Internal audit

Internal Audit should start by ensuring that the robotics software engineers have been properly briefed on the ways in which security vulnerabilities can be identified and reported. Ideally, Cybwoll's consultants should have offered training and all relevant staff should have participated. Internal Audit should check attendance records to ensure that staff were present, or that they completed any online courses that had been devised. Internal Audit staff should seek the opinions of the robotics software engineers in their initial meetings with them to determine whether they felt the training that they have received was adequate. These discussions should be open ended and should be designed to enable audit staff to form an opinion of whether the engineers fully participated and also whether they demonstrate confidence in their ability. This review should occur at an early stage, possibly before Cybwoll has reviewed much software, because there is little point in having the review unless all of the relevant software is listed properly for investigation. An early investigation will also demonstrate that the Board takes this review process seriously and so it is to be hoped that the audit will motivate all staff.

Internal Audit should review a selection of the reports of vulnerabilities prepared by the software engineers. These should be checked to ensure that they are in the prescribed format and that all information required by Cybwoll's consultants is present. A sample should be reviewed early in the process as a check that the communication between the two groups of software experts is effective and that the resulting information can facilitate an effective review. Subsequent reviews will help to motivate the robotics software engineers and to ensure that they do not cut corners in reporting vulnerabilities. Audit staff should discuss a sample of reports with the engineers who prepared them, seeking feedback on the approach taken and the confidence of the engineers in their results. Open-ended questions about areas of uncertainty and problems in feeding back on weaknesses will help the Audit Team to form an opinion on the quality of the work in preparing Cybwoll.

Internal Audit should also schedule meetings with the Cybwoll consultants engaged in the review. Those meetings should start by working through a sample of software packages and the associated lists of vulnerabilities. The consultants should be asked to explain whether they are satisfied that all vulnerabilities were being highlighted for investigation and action. If there are any gaps, then the reasons for that should be noted and fed back to the robotic software engineers. The likely extent of the changes to software packages in order to make them secure should be addressed during these meetings. It would be helpful for Internal Audit to have an understanding of the scale of the work that is required, if only to ensure that adequate time and resources are being set aside for that work.

Internal Audit could carry out penetration testing on the updated packages and associated hardware. The penetration tests should focus on the IT aspects of the system rather than the human parts of the system. If the attacks are successful, then there are, unfortunately. Gaps in security that have not been addressed and further review will be required. This could include setting up a test system in Robobryce's research laboratory and Internal Audit could attempt to gain unauthorised access using the tools and techniques used in previously successful attacks. It would be preferable to use internal audit staff rather than Cybwoll consultants because of concerns about independence. The consultants might be reluctant to find faults in their own work. The auditors could, however, consider seeking the support of Cybwoll consultants who were not involved in the review to provide specialist technical support and software tools.

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Strategic Level Case Study – Examiner's report

Nov 2023 – Feb 2024 exam session

This document should be read in conjunction with the examiner's suggested answers and marking guidance.

General comments

The Strategic Case Study examinations for November 2023 and February 2024 were based on a pre-seen scenario which provided information about Robobryce, a quoted company that creates solutions for handling objects.

Robobryce specialises in the creation of products that can be used to store and retrieve inventory and other items. These can be complicated by the need to retrieve numerous items at once. For example, an online retailer might have to make up customer orders comprising several items quickly and accurately, without picking an incorrect item or including an item in the wrong order.

A total of six variants were set on Robobryce. The focus for each variant was as follows:

- Variant 1: The Board is considering relocating software development to a low wage country.
- Variant 2: The acquisition of a company that owns valuable patent is under consideration.
- Variant 3: Robobryce is being accused of enabling online retailers and so the consumption of scare resources.
- Variant 4: The company is considering the development of devices that can operate safely in public spaces.
- Variant 5: Senior marketing staff have been accused of bribing customers in order to obtain large contracts.
- Variant 6: A customer's system has been breached using a vulnerability in a Robobryce robot.

All six variants complied with the published blueprint and covered the core activities in the prescribed weightings. Each variant consisted of three tasks and each task was further subdivided into separate requirements. The weighting attached to each requirement was stated and candidates were advised to allocate the time available for each requirement on the basis of those weightings. Markers were instructed to adopt a holistic approach to marking, which meant that the answer to each requirement was read and judged on its merits. Markers were provided with specific guidance as to the characteristics of level 1, level 2 and level 3 answers for each separate requirement.

As always, the key to achieving a passing mark or better is to answer the question as set. Failure to do so is one of the main reasons candidates fail the case study. Read the questions and the scene setting pages carefully before attempting the questions. It is also vital that the candidates understand the pre-seen material. Candidates should apply their judgement to answering the requirements as fully as possible. Scenario-based questions often allow scope for differences of opinion and markers are instructed to mark different approaches on their merits.

To achieve a level 3 in most traits, it was expected that a candidate would demonstrate good technical understanding of the topic being tested through clear and logical application to the circumstances described in the scenario. It may also help to develop an argument by offering justification for any recommendations made. One way to formulate an answer to a typical requirement would be to imagine it as a task that had been set by a director who was delegating an important task.

Level 1 answers generally demonstrate either poor exam technique or fail to offer a logical response to the circumstances in the scenario (or both). Poor exam technique is generally due to a failure to answer the question. Poor logic generally suggests that the candidate has misunderstood the scenario. For example, the specific issues arising in the case of Robobryce include:

- New technology is constantly being developed to address concerns such as the need for humans to support robots with simple tasks, such as opening a carton of product and extracting a single item in order to make up an order.
- The company is multinational, making sales in many different countries and manufacturing on more than one site.
- Robobryce provides IT support for customers and designs systems for handling. It is not just a manufacturer.

While each attribute may not necessarily inform every requirement, level 1 marks tended to be associated with a failure to appreciate the specifics of the business.

Variant 1 Comments on performance

Task 1

Robobryce is considering the relocation of its software engineering function to a developing country where salaries are low but educational standards are high.

The first sub-task asked whether this proposal is consistent with Robobryce's mission and vision. The mission and vision statements were provided in the preseen material to assist candidates. Level 3 answers were generally structured to show the implications of moving these jobs to the developing country, highlighting the fact that there are potentially conflicting arguments both for and against consistency. Candidates at this level generally highlighted those conflicts in a manner that would enable the Board to reach an informed decision. Level 1 answers often lacked structure, with a jumble of arguments that made little or no attempt to separate arguments for or against consistency or arguments relating to mission from vision.

The second sub-task asked whether it would be unethical to make staff redundant in order to reduce salary costs. Most candidates based their arguments on CIMA's ethical principles, which was perfectly acceptable. Level 3 answers identified relevant principles and discussed their application to the task. Candidates at this level offered coherent and justifiable arguments in relation to Robobryce's proposed actions. Level 1 answers tended to focus on summarising the principles themselves rather than by applying them to the scenario. Such answers did not really address the requirement. There was also a tendency to identify principles that were, according to the candidate, irrelevant to the decision. Making such points was unhelpful and wasted time that might have been put to better use by expanding on more relevant principles.

Task 2

Robobryce's Board is still considering the relocation of software engineering. The Board requires guidance on two matters that have emerged.

The first sub-task asked about the advantages and disadvantages of borrowing the funds required to cover the cost of relocating from a bank in the host country rather than from Robobryce's home country. Candidates generally offered a number of issues, ranging from the potential impact on the cost of debt, to currency risks and the implications of borrowing a large sum from a bank that the company has had no prior dealings with. Level 1 answers tended to be distinguished by covering fewer issues and/or developing the issues covered in less depth. Some answers at this level focussed on the gearing implications of borrowing, although it should be noted that the impact on gearing would be the same regardless of the bank from which the loan was taken. Level 3 answers were generally better developed in terms of offering more content.

The second sub-task asked for the identification of key stakeholders who would be affected by the move to the host country and for a recommendation of the approach to be taken to manage relationships with those stakeholders. Again, most candidates addressed the requirement in a logical manner. Level 3 answers offered more development in terms of justifying the inclusion of each stakeholder and/or a more detailed explanation of how best to manage relationships. Level 1 answers generally offered less detail or restricted themselves to listing stakeholders without advising on managing relationships.

Task 3

Robobryce will proceed with the move to the host country. One issue raised is whether the company will be able to protect and retain its intellectual capital in relation to the software that has been developed by the existing software engineers.

The first sub-task asked whether the Board could assure Robobryce's shareholders that it could preserve this intellectual capital. Level 3 answers generally offered a qualified response, pointing out that a number of potentially effective precautions had been taken but that there could be no guarantee that those precautions would be entirely effective. Level 1 answers were generally less detailed, with a lack of clarity concerning the potential effectiveness of those precautions.

The second sub-task asked for recommendations as to how internal audit might support the preservation of intellectual capital. Level 3 answers generally focussed on compliance, which is consistent with the primary role of internal audit, and recommended ways in which the internal auditor might support the Board in safeguarding internal audit. Level 1 answers often ignored the requirement and went into some detail in defining internal audit, with little or no direct discussion of the manner in which audit tests might be conducted in this context.

Variant 2 Comments on performance

Task 1

Level 3 responses showed a good understanding of Robobryce's ecosystem and identified the implications for customers, competitors and suppliers. They provided a well justified evaluation of the implications, for example, discussing the impact on customer expectations of the new software and the potential responses of competitors. Level 2 answers also identified an appropriate range of issues but did not provide detailed evaluation. Level 1 answers identified some issues but often did not focus sufficiently on the ecosystem, with some looking in very general terms on the impact on Robobryce.

In the second part of this task, level 3 responses applied ethical principles with well justified arguments, for example, identifying that Robobryce could be failing to be straightforward and honest by buying copies of the software with the intention of copying them, and also that the behaviour could discredit the company if it is seen to be acting unprofessionally. On the other hand, there is also the argument that Robobryce has a duty to maximise shareholder wealth. Level 3 answers presented arguments both for and against the reverse engineering being unethical. Level 2 answers identified and applied some ethical principles but also discussed the arguments for and against copying the software in more general terms, rather than focussing on the ethical arguments. Level 1 answers identified ethical principles but did not apply them well to the specific scenario.

Task 2

In task 2, candidates were informed that attempts to reverse engineer Innoroab's software had not been successful. Some of Robobryce's clients are considering using the software, so the Robobryce Board is considering acquiring Innoroab.

Candidates were first asked to evaluate the arguments for and against offering to buy Innoroab.

Level 3 responses evaluated a balance of arguments for and against the purchase, including the commercial opportunities it could open up for Robobryce, the danger that the Innoroab staff could choose to leave and the impact on Robobryce's own staff.

Level 2 answers correctly identified arguments for and against the purchase but were less well developed and lacked depth and detail.

Level 1 answers identified some arguments but did not provide evaluation.

Secondly, candidates were asked to identify and evaluate the difficulties Robobryce would face in valuing Innoroab and then recommend responses to these difficulties.

Level 3 responses correctly evaluated a number of difficulties, the lack of historical measures such as dividends, the difficulty in estimating the value of software, and the fact that the programmer's own equity which they may be reluctant to sell. Answers showed technical knowledge and provided appropriate responses to the difficulties identified.

Level 2 answers often identified a narrower range of difficulties and did not provide sufficient justification for recommended responses.

Level 1 responses often lacked technical detail, with some only identifying the lack of a quoted share price as a difficulty. Responses were described but were often quite generic methods of valuing shares and were not well tailored to the specific information presented by the case study.

Task 3

Level 3 answers showed good technical knowledge of integrated reporting and correctly identified issues such as the fact that the existing human capital may have been rendered obsolete by the purchase, that staff are likely to be concerned about job losses and that the impact of the change in approach to software design is still very uncertain. They provided sound evaluation, for example, explaining that downplaying the impact of the purchase could leave shareholders dissatisfied but emphasising it could encourage staff to leave. Level 2 answers were less well developed but still showed understanding of the issues. Level 1 responses correctly described some difficulties but did not provide evaluation or discuss them in any depth.

Finally, candidates were asked to evaluate the arguments for and against integrating the 5 internal audit staff employed by Innorab into the Robobryce Internal Audit.

Level 3 responses correctly identified that integrating the two departments would enhance the independence of the internal audit function and allow for the pooling of ideas and experience. On the other hand, it could lead to loss of audit staff if they feel they have lost autonomy and the increase in size of the internal audit function may not be justified. Candidates evaluated these arguments and provided well justified conclusions. Level 2 answers were less well developed and sometimes overly focussed on the fact that the internal audit offices are currently 20 miles apart. Level 1 answers described some arguments but did not provide evaluation.

Variant 3 Comments on performance

Task 1

The first task asked candidates to evaluate the impact that the protests and associated events have had on Robobryce's relationships with society, the government and clients**.**

This part of the task was answered well by most candidates, with many achieving a high level 2 or level 3 score. These answers focussed specifically on the extent of the impact on the relationship (both positive and negative), with all three stakeholders mentioned. The strongest answers were logical and well structured, with a strong focus on evaluating the potential impact of these protests on the stakeholder groups and therefore their interaction with Robobryce.

Weaker level 2 and level 1 answers were often brief and failed to adequately evaluate the impact on the relationship of stakeholders and Robobryce. These answers focussed more on the power and interest of the stakeholders, which was not specifically and directly answering the question. Alternatively, weaker answers considered the impact on the stakeholders rather than the impact on the relationship with Robobryce. Candidates are reminded to read the requirements carefully to avoid answering the wrong question. For example, some candidates discussed road blockages resulting in clients receiving orders late but then failed to elaborate on how this would impact on the relationship with Robobryce.

The second part of the task was answered well by most candidates, with a large percentage achieving a high level 2 score. The strongest candidates made good use of the reference material to support their arguments and also fully justified the recommendations made. For example, level 3 responses presented a wide range of well applied and well-argued recommendations to support Robobryce's claim to operate in a sustainable manner, including reference to the lights out factory, Robobryce's extensive use of robotics and the sustainability impact of its role in online retailing, such as the impact in reducing customer emissions. High level 2 answers also presented a good range of relevant examples of Robobryce's sustainability activities, but the level of explanation and application was lower. Weaker level 2 and level 1 answers were often brief, and some candidates did not address the requirement asked.

Task 2

The first part asked candidates to evaluate whether or not the disclosure in relation to cyber risks in Robobryce's statement of principal risks was adequate.

Very few candidates presented level 3 answers, although there were some reasonable level 2 responses to this task. Level 3 answers were those that presented a well-balanced assessment of the adequacy of the cyber risks presented in the principal risk statement in that they considered the reasons for and against the adequacy of the risk statement in relation to its IT risks. Level 1 answers often failed to answer the question set and instead focussed more on recommending alternative risk mitigations or trying to apply the TARA framework unnecessarily. Candidates are again reminded to focus specifically on the question that has been asked and avoid application of pre-learned models and theories.

The second part asked candidates to discuss the advantages and disadvantages of suspending the forthcoming dividend payment in order to finance the T$550 million costs arising from this cyber-attack.

This question was well answered by most candidates. Level 3 and strong level 2 responses made comprehensive use of the reference material when considering the advantages and disadvantages of suspending its dividend. The strongest answers were directly applied to the case context, for example, assessing the impact that alternative debt funding would have on the current gearing level or assessing Robobryce's ability to secure such levels of additional debt with its available assets. Level 3 answers were also well balanced and considered a good range of points both for and against the dividend suspension.

Weaker level 2 and level 1 responses were often thin and often were not well applied to the case context. Many weaker answers relied on theoretical concepts of signaling and the clientele effect but without any real direct application to this context.

Task 3

The first task in Section 3 asked candidates to evaluate the argument that it is unethical for the Board to resist the protesters' efforts to reduce the environmental damage caused by Robobryce's business practices.

This task was not well answered, with very few candidates presenting a level 3 or a strong level 2 response. Most candidates focussed their answers only on the ethicality of the response to the road blockage but failed to consider the appropriate response to the criminal damage caused by the cyber-attack. Most candidates neglected to consider the illegal actions of the protestors and therefore presented an incomplete and unbalanced assessment of Robobryce's response to these events. Candidates that did achieve a strong level 2 score did so because they correctly assessed all the actions of the protestors (not just the road blockage) and then clearly evaluated the correct ethical response for Robobryce. Those candidates who presented a balanced answer, without assuming that the protestors themselves had not acted unethically, scored well.

The second part of task 3 asked candidates to recommend with reasons how Robobryce's Board might go about restoring its credibility with the shareholders**.**

Level 3 and strong level 2 responses were well applied and addressed how the Board should respond to all the recent actions carried out by the protestors, with particular focus on the impacts of the cyber-attack. These answers offered a good range of well explained actions that would specifically address the concerns of its shareholders.

Weaker level 2 and level 1 answers most often presented very generic actions or actions which were not specifically focussed on restoring credibility with the shareholders. For example, some candidates mentioned holding discussions with staff or employing the protestors but made no credible explanation as to how this would restore credibility. The question clearly asked candidates to make reasoned recommendations and level 1 answers often made recommendations but with no attempt to justify or explain why these would restore credibility with shareholders.

Variant 4 Comments on performance

Task 1

Robobryce is considering the acquisition of Foroneng, an engineering design company that is developing an innovative new product.

The first sub-task deals with Robobryce's ability to bring the new product to market. Candidates were required to identify the issues that would affect Robobryce's ability to manufacture and sell this new product. Level 3 answers were realistic in their identification of constraints and in their evaluation of those constraints. Candidates tended to focus on potential problems that Robobryce would have to overcome and demonstrated a reasonable understanding of the company's ability to overcome those. Level 1 answers tended to ignore the requirement and discussed the advantages of investing in Foroneng, with little attention being paid to the question that was asked.

The second sub-task asked about political risks associated with acquiring Foroneng, which is located in Grayland. Candidates were required to identify the issues that might arise because of the actions of the host government. Level 3 answers addressed the motives that might drive the behaviour of the Graylandian government. Candidates often argued that the government might have an incentive to manage exchange rates and interest in order to strengthen the economy. There were also legislative and political matters, such as a desire to protect jobs. Again, candidates at level 1 often ignored the requirement and wrote in very general terms about foreign exchange risks and their mitigation, with no real discussion of political risk.

Task 2

Robobryce intends to acquire Foroneng as a 100% subsidiary.

The first sub-task asked for an evaluation of three specific methods of funding the acquisition. Many candidates answered this question well, earning level 3 scores simply by addressing the requirement and considering the suitability of each form of funding in turn, paying close attention to the scenario. For example, many good answers considered the possibility that Foroneng's shareholders would be reluctant to exchange shares in a company that is quoted in their home country for equity in a foreign parent company. Level 3 scores offered arguments that were generic and that often missed the point of the requirement. For example, the significance of diluting control through the issue of additional shares was frequently exaggerated.

The second sub-task asked about the reputational issues that might arise in the event that an attempt to acquire Foroneng fails. This was generally answered well, with level 3 answers addressing the implications for the market's understanding of Robobryce's financial position and shareholder confidence in the competence of the board. Level 1 answers were generally brief and failed to address the reasons why a bid might fail and the implications that such a failure might have.

Task 3

Robobryce has acquired Foroneng, only to discover that a third party has been able to steal the files containing the design of the subsidiary's new product. This loss occurred while Foroneng was a member of the Robobryce Group.

The first sub-task asks whether the management of the subsidiary can be held responsible for the theft of the files. There were many good attempts at this question. Level 3 answers generally focussed on both the duties of the parent company board to manage and safeguard all assets. Some candidates also discussed the extent to which the Robobryce Board should have been entitled to rely on Foroneng's directors and senior managers. Level 1 answers often ignored the requirement and wrote about issues such as the manner in which the company should respond to the company that took the files.

The second sub-task asked for an identification and evaluation of the shortcomings that led to the theft of the files by the third party. Level 3 answers made sensible use of the information in the scenario, identifying control weaknesses that were potentially the cause of the theft of the data. Level 1 answers often offered suggestions that made little real sense and so scored poorly. For example, some candidates argued that Foroneng should have had the fraudulent employee sign a nondisclosure agreement, despite the fact that the employee appeared to have been intent on committing a criminal act and had supplied a fake identity.

Variant 5 Comments on performance

Task 1

Level 3 candidates were able to give good insight into the theory and practice of game theory. The best candidates displayed a knowledge of the need for anticipation of several possible paths to take going forward addressing best and worst outcomes. Level 2 candidates understood and displayed knowledge of the basic principles involved but tended to be single dimensional in anticipating a basic simple response to the scenario presented. Level 1 candidates gave simple response to the elements presented without displaying any understanding of the need for further anticipation. There were a significant number of candidates who failed to display any knowledge or understanding of game theory.

In the second part of the task, level 3 candidates showed good understanding of market efficiency and were able to explain possible impacts of Payrobot's actions and announcements to date on the current share price. Many candidates were able to give good descriptions of multiple credible actions to be taken to bolster and boost share price in the short term and looking forward to medium term with the developments of outcome of actions with and against Payrobot.

Level 2 candidates generally displayed reasonable awareness of market efficiency and made some linkage with Payrobot's actions and announcement. Level 2 responses tended to be somewhat narrower in their ideas of responses to protect the share price.

Level 1 answers were often patchy with implied not demonstrated knowledge of market efficiency and also tended to be very vague.

Task 2

In the first part of this task, level 3 candidates gave clear definitions and identification of the elements of political risk and the consequences of these going unmanaged. Level 3 candidates also identified the need for parallel internal and collaborative investigation with Robobryce making their findings fully available. The best candidates highlighted the need to engage trusted arbitration agents as a neutral party to carry out detailed investigation. Again, the best level 3 candidates highlighted the need to monitor and manage communications strategies in both countries on a cross cultural basis for press and all media handling, including social media channels. Level 2 candidates picked up on many of these points but with less depth and discussion. Level 1 candidates tended to be vague about what constitutes political risk and were often off topic on exchange rate and international trade issues.

In the second part of the task, level 3 candidates recognised the possibility of different interpretations of actions based on differing cultural norms. Transparency is key, honest and truthful professional conduct is perfectly acceptable so standard facilities and reasonable hospitality can be made available. Good candidates recognised that careful judgement is needed so that enabling discussions over dinner is seen as normal.

Level 2 candidates were able to make much of the same types of comment but in less detail. Level 1 candidates' answers lacked depth and detail and generally showed little awareness of the ethical implications of providing hospitality of any sort. Many candidates failed to answer the question and dealt instead with the ethical implications of the alleged bribe carried out by the senior sales manager.

Task 3

In the first sub-task, level 3 candidates were able to evaluate both sides of this discussion well. Level 2 candidates were generally in agreement with the inclusion of an explicit statement without consideration of the need to evaluate the counter points. Level 1 candidates gave short answers that usually showed agreement without much discourse. Very few gave good discussion of any points against inclusion; those that did were generally elevated to level 2.

The second sub-task goes on to ask candidates to evaluate, with reasons, the advantages and disadvantages of Robobryce establishing an ethics committee comprising non-executive directors.

This, on the whole, was quite well answered, with many candidates highlighting advantages and disadvantages of establishing an additional committee to deal explicitly with ethics. Level 3 candidates highlighted the capability of NEDs to deliberate such questions without the financial pressures that are on executive members. However, they also highlighted the degree of overlap with existing committee activity and the general workload on the Board, particularly NEDs emphasising the need to recruit further. Level 2 answers usually covered the same discussion as level 1 but lacked depth.

Variant 6 Comments on performance

Task 1

The first requirement was quite explicit in stating “whether or not”, so the expectation was that candidates would take a balanced approach in answering this task.

This part of the task was answered well by most candidates, with many achieving a high level 2 or level 3 score. The strongest answers were logical, well-structured and well balanced, considering a range of applied points both in favour of and against treating Neverwate’s customers as Robobryce’s stakeholders. Level 3 and strong level 2 answers often included reference to Robobryce’s eco-system and to its mission statement when considering reasons for treating Neverwate’s customers as stakeholders. Stronger answers also countered this in arguing that Robobryce does not have sufficient knowledge about its clients’ IT security to enable it to accept a responsibility for the security of customer data. There are potential vulnerabilities that it cannot be expected to control and therefore cannot take such levels of responsibility for stakeholders.

Weaker level 2 and level 1 answers were often brief and, in most cases, were not well balanced or applied. This level of answer often described the level of power and interest of Neverwate’s customers rather than specifically focussing on answering the question from the perspective of Robobryce. Alternatively, some weaker answers failed to read the question carefully and instead considered the answer from the perspective of Neverwate as a stakeholder and not its customers. Candidates are reminded to read the requirements carefully to avoid answering the wrong question.

The second task required candidates to evaluate the arguments for and against the view that Robobryce cannot guarantee the absolute security of its systems.

This part of the task was reasonably well answered by those candidates that took a more comprehensive approach to this section, with the majority presenting arguments in support of and against guaranteeing security. Level 3 and stronger level 2 responses presented a range of well applied and well-argued points, with many recognising that there would be a serious commercial cost to refusing to accept any responsibility for the security of software and that clients would be discouraged from doing business with Robobryce without significant guarantees of security. Weaker level 2 and level 1 answers were often brief an unbalanced, with many such answers only considering why Robobryce could not guarantee absolute security. Some candidates did not address the requirement asked. For example, some focussed on examples of cyber security which was not relevant to the question set and therefore these achieved level 1 scores.

Task 2

The first task asked candidates to recommend with reasons how an audit of key resources might help the Board to decide whether Cybwoll would be a suitable acquisition for the Robobryce Group.

This question was well answered by many candidates, with a good proportion of answers scoring level 3 or high level 2 marks. These answers presented an assessment of a good range of potential resources associated with the acquisition, including those belonging to Cybwoll and those belonging to Robobryce. Some candidates used the 5M's approach to structure their answers, which allowed them to present a wide analysis of potential resources. The strongest answers made good use of the reference material to support the points they made.

Weaker level 2 responses were often focussed only on the assessment of Cybwoll's consultant and what they would add to the business, which, although relevant, did not cover a sufficient range of resources. Alternatively, weaker level 2 and level 1 answers often presented a SAF analysis and were thus swayed into answering a different question, in that they looked at the SAF aspects rather than considering which "key resources" to examine.

The second task in Section 2 asked candidates to recommend with reasons the approach that Robobryce should take to deciding on an acceptable purchase price for Cybwoll.

This question was well answered by most candidates. Level 3 and strong level 2 responses presented a wide range of valuation methods, and the strongest answers were those that directly applied these to the case context. For example, high scores were achieved in recognising that, as an unquoted company, several of the valuation techniques would be challenging to apply. Level 3 answers were also well focused on the importance of an appropriate negotiation process and the importance of direct input of Cybwoll's owner.

Weaker level 2 and level 1 responses were often thin and were not well applied to the case context. These answers were often purely theoretical, demonstrating little or no ability to assess the viability of each valuation method to the case context.

Task 3

The first task asked candidates to recommend with reasons three key non-financial objectives that might be set for Cybwoll and a suitable performance measure for each objective.

This task was generally well answered, with most candidates presenting a high level 2 response. Most were able to present at least two appropriate non-financial objectives for Cybwoll, largely based on the goals set out by the Director for cyber security in the exhibit. The strongest level 2 and level 3 answers were those that presented clearly explained objectives which were fully relevant to the role of Cybwoll within the Robobryce Group, and which also presented a relevant performance measure. However, in weaker answers, many of the performance measures presented were weak or poorly justified and demonstrated a general lack of understanding and confusion between a performance measure and an objective. Weaker level 2 and level 1 responses failed to adequately explain the relevance of the objectives they had selected or failed to present an appropriate performance measure for the selected objectives.

The second task asked candidates to recommend with reasons the work that Robobryce's Internal Audit department (IA) might undertake in order to ensure that robotics software engineers are reporting all security vulnerabilities to Cybwoll's consultants.

This question was not well answered, with very few candidates achieving a level 3 answer. There were some good level 2 responses, which attempted to focus on how IA would assess the reporting of security vulnerabilities to Cybwoll through activities such as sampling vulnerability reporting and interviewing the software engineers to assess their understanding of the reporting process. Stronger answers remained focused on the need to assess the suitability and accuracy of the vulnerability reporting process and not merely on the general activities of the IA function.

Weaker level 2 and level 1 answers most often failed because they presented very generic answers, with little or no focus on the assessment of the process of security vulnerability reporting. Many weak level 2 and level 1 answers failed to answer the question asked.

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Strategic Level Case Study November 2023 – February 2024

Marking Guidance

Variant 1

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How to use this levels-based marking scheme

1. Read the candidate's 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**	Develop business strategy	60 %
(b)	**D**	Evaluate and mitigate risk	40 %
Section 2			
(a)	**C**	Recommend financing strategies	50 %
(b)	**B**	Evaluate business ecosystem and business environment	50 %
Section 3			
(a)	**D**	Evaluate and mitigate risk	40 %
(b)	**E**	Recommend and maintain a sound control environment	60 %

SECTION 1			
Task (a) Evaluate whether or not the proposal is consistent with Robobryce's mission and vision.			
Trait			
Consistent with mission	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes mission	**1-2**
	Level 2	Evaluates consistency	**3-4**
	Level 3	Evaluates consistency with justification	**5-6**
Inconsistent with mission	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes inconsistency	**1**
	Level 2	Evaluates inconsistency	**2-3**
	Level 3	Evaluates inconsistency with justification	**4-5**
Consistent with vision	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes vision	**1**
	Level 2	Evaluates consistency	**2-3**
	Level 3	Evaluates consistency with justification	**4-5**
Inconsistent with vision	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes inconsistency	**1**
	Level 2	Evaluates inconsistency	**2-3**
	Level 3	Evaluates inconsistency with justification	**4-5**

Task (b) Explain whether it would be unethical for Robobryce to make existing staff redundant in order to employ replacements on lower salaries.			
Trait			
1st argument	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes ethical principle	**1**
	Level 2	Applies principle	**2-3**
	Level 3	Applies principle with justification	**4**
2nd argument	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes ethical principle	**1**
	Level 2	Applies principle	**2-3**
	Level 3	Applies principle with justification	**4**
3rd argument	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes ethical principle	**1**
	Level 2	Applies principle	**2-3**
	Level 3	Applies principle with justification	**4**

SECTION 2			
Task (a) Evaluate the advantages and disadvantages of seeking the T$750 million loan from a Darrlandian bank rather than a Tesslandian bank.			
Trait			
Advantages	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Lists advantages of borrowing in Darrland	**1-3**
	Level 2	Evaluates advantages of borrowing in Darrland	**4-6**
	Level 3	Evaluates advantages of borrowing in Darrland with justification	**7-9**
Disadvantages	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Lists disadvantages of borrowing in Darrland	**1-2**
	Level 2	Evaluates disadvantages of borrowing in Darrland	**3-5**
	Level 3	Evaluates disadvantages of borrowing in Darrland with justification	**6-8**

Task (b) Identify the key stakeholders who will be affected by Robobryce's relocation to Darrland and recommend with reasons how Robobryce should manage its relationships with them			
Trait			
1st stakeholder	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies stakeholder	**1**
	Level 2	Identifies stakeholder interests	**2-3**
	Level 3	Identifies stakeholder interests and recommends management	**4-5**
2nd stakeholder	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies stakeholder	**1**
	Level 2	Identifies stakeholder interests	**2-3**
	Level 3	Identifies stakeholder interests and recommends management	**4**
3rd stakeholder	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies stakeholder	**1**
	Level 2	Identifies stakeholder interests	**2-3**
	Level 3	Identifies stakeholder interests and recommends management	**4**
4th stakeholder	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies stakeholder	**1**
	Level 2	Identifies stakeholder interests	**2-3**
	Level 3	Identifies stakeholder interests and recommends management	**4**

SECTION 3			
Task (a) Evaluate whether or not it was realistic for Robobryce to assure its shareholders that it will preserve its intellectual capital in relation to software and software development.			
Trait			
Arguments for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments for being realistic	**1-2**
	Level 2	Evaluates arguments for being realistic	**3-4**
	Level 3	Evaluates arguments for being realistic with justification	**5-6**
Arguments against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments against being realistic	**1-2**
	Level 2	Evaluates arguments against being realistic	**3-4**
	Level 3	Evaluates arguments against being realistic with justification	**5-6**

Task (b) Recommend with reasons the ways in which internal audit might support the preservation of intellectual capital throughout this change			
Trait			
1st audit assignment	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes audit work	**1-2**
	Level 2	Describes audit work with reasons	**3-4**
	Level 3	Discusses audit work with reasons and good justification	**5-6**
2nd audit assignment	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes audit work	**1**
	Level 2	Describes audit work with reasons	**2-3**
	Level 3	Discusses audit work with reasons and good justification	**4-5**
3rd audit assignment	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes audit work	**1**
	Level 2	Describes audit work with reasons	**2-3**
	Level 3	Discusses audit work with reasons and good justification	**4-5**
4th audit assignment	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes audit work	**1**
	Level 2	Describes audit work with reasons	**2-3**
	Level 3	Discusses audit work with reasons and good justification	**4-5**

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Summary of the core activities tested within each sub task

Sub Task	Core Activity		Sub task weighting (% section time)
Section 1			
(a)	**B**	Evaluate business ecosystem and business environment	60 %
(b)	**D**	Evaluate and mitigate risk	40 %
Section 2			
(a)	**A**	Develop business strategy	50 %
(b)	**C**	Recommend financing strategies	50 %
Section 3			
(a)	**D**	Evaluate and mitigate risk man capital	40 %
(b)	**E**	Recommend and maintain a sound control environment	60 %

SECTION 1			
Task (a) Identify and evaluate the implications of Innoroab's software for Robobryce's business ecosystem			
Trait			
1st implication	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implication	**1-2**
	Level 2	Evaluates implication	**3-4**
	Level 3	Evaluates implication with justification	**5-6**
2nd implication	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implication	**1**
	Level 2	Evaluates implication	**2-3**
	Level 3	Evaluates implication with justification	**4-5**
3rd implication	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implication	**1**
	Level 2	Evaluates implication	**2-3**
	Level 3	Evaluates implication with justification	**4-5**
4th implication	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implication	**1**
	Level 2	Evaluates implication	**2-3**
	Level 3	Evaluates implication with justification	**4-5**

Task (b) Evaluate the arguments for and against it being unethical for Robobryce to reverse engineer Innoroab's software			
Trait			
For	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies principles	**1-2**
	Level 2	Applies principles	**3-4**
	Level 3	Applies principles with justification	**5-6**
Against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies principles	**1-2**
	Level 2	Applies principles	**3-4**
	Level 3	Applies principles with justification	**5-6**

SECTION 2			
Task (a) Evaluate the arguments for and against Robobryce offering to buy Innoroab			
Trait			
For purchase	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments for purchase	**1-3**
	Level 2	Evaluates arguments for purchase	**4-6**
	Level 3	Evaluates arguments for purchase with justification	**7-9**
Against purchase	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments against purchase	**1-2**
	Level 2	Evaluates arguments against purchase	**3-5**
	Level 3	Evaluates arguments against purchase with justification	**6-8**
Task (b) Identify and evaluate the difficulties that Robobryce would face in valuing Innoroab and recommend responses to those difficulties, stating reasons			
Trait			
Difficulties	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies difficulties	**1-3**
	Level 2	Evaluates difficulties	**4-6**
	Level 3	Evaluates difficulties with justification	**7-9**
Responses	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes responses	**1-2**
	Level 2	Recommends relevant responses	**3-5**
	Level 3	Recommends relevant responses with justification	**6-8**

SECTION 3			
Task (a) Identify and evaluate the difficulties associated with reporting human capital, assuming that the matters described by Hou Xijin will not be resolved before the integrated report is published			
Trait			
1st difficulty	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes difficulty	**1**
	Level 2	Evaluates difficulty	**2-3**
	Level 3	Evaluates difficulty with justification	**4**
2nd difficulty	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes difficulty	**1**
	Level 2	Evaluates difficulty	**2-3**
	Level 3	Evaluates difficulty with justification	**4**
3rd difficulty	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes difficulty	**1**
	Level 2	Evaluates difficulty	**2-3**
	Level 3	Evaluates difficulty with justification	**4**

Task (b) Evaluate the arguments for and against integrating the five internal audit staff employed by Innoraob into the Robobryce Group Internal Audit Department			
Trait			
1st argument for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1-2**
	Level 2	Evaluates argument	**3-4**
	Level 3	Evaluates argument with good justification	**5-6**
2nd argument for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1**
	Level 2	Evaluates argument	**2-3**
	Level 3	Evaluates argument with good justification	**4-5**
1st argument against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1**
	Level 2	Evaluates argument	**2-3**
	Level 3	Evaluates argument with good justification	**4-5**
2nd argument against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1**
	Level 2	Evaluates argument	**2-3**
	Level 3	Evaluates argument with good justification	**4-5**

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Strategic Level Case Study November 2023 – February 2024

Marking Guidance

Variant 3

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Summary of the core activities tested within each sub task

Sub Task	Core Activity		Sub task weighting (% section time)
Section 1			
(a)	**B**	Evaluate business ecosystem and business environment	50 %
(b)	**A**	Develop business strategy	50 %
Section 2			
(a)	**D**	Evaluate and mitigate risk	40 %
(b)	**C**	Recommend financing strategies	60 %
Section 3			
(a)	**D**	Evaluate and mitigate risk	40 %
(b)	**E**	Recommend and maintain a sound control environment	60 %

SECTION 1			
Task (a) Evaluate the impact that the protests and associated events have had on Robobryce's relationships with society, the government and clients			
Trait			
Society	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes relationship	**1-2**
	Level 2	Evaluates impact on relationship	**3-4**
	Level 3	Evaluates impact on relationship with justification	**5-6**
Government	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes relationship	**1-2**
	Level 2	Evaluates impact on relationship	**3-4**
	Level 3	Evaluates impact on relationship with justification	**5-6**
Clients	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes relationship	**1**
	Level 2	Evaluates impact on relationship	**2-3**
	Level 3	Evaluates impact on relationship with justification	**4-5**

Task (b) Recommend with reasons the arguments that Robobryce might use to claim that it operates in a sustainable manner			
Trait			
1st recommendation	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1-2**
	Level 2	Recommends argument with reasons	**3-4**
	Level 3	Recommends argument with reasons, providing justification	**5-6**
2nd recommendation	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1-2**
	Level 2	Recommends argument with reasons	**3-4**
	Level 3	Recommends argument with reasons, providing justification	**5-6**
3rd recommendation	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument	**1**
	Level 2	Recommends argument with reasons	**2-3**
	Level 3	Recommends argument with reasons, providing justification	**4-5**

SECTION 2			
Task (a) Evaluate whether or not the disclosure in relation to cyber risks in our statement of principal risks was adequate			
Trait			
Arguments for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies issues	**1-2**
	Level 2	Evaluates arguments for	**3-4**
	Level 3	Evaluates arguments for with justification	**5-6**
Arguments against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies issues	**1-2**
	Level 2	Evaluates arguments against	**3-4**
	Level 3	Evaluates arguments against with justification	**5-6**

Task (b) Discuss the advantages and disadvantages of suspending the forthcoming dividend payment in order to finance the T$550 million costs arising from this cyber attack			
Trait			
1st advantage	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes advantage	**1-2**
	Level 2	Discusses advantage	**3-4**
	Level 3	Discusses advantage with justification	**5-6**
2nd advantage	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes advantage	**1**
	Level 2	Discusses advantage	**2-3**
	Level 3	Discusses advantage with justification	**4-5**
1st disadvantage	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes disadvantage	**1**
	Level 2	Discusses disadvantage	**2-3**
	Level 3	Discusses disadvantage with justification	**4-5**
2nd disadvantage	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes disadvantage	**1**
	Level 2	Discusses disadvantage	**2-3**
	Level 3	Discusses disadvantage with justification	**4-5**

SECTION 3			
Task (a) Evaluate the argument that it is unethical for the Board to resist the protesters' efforts to reduce the environmental damage caused by Robobryce's business practices			
Trait			
1st argument	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes issue	**1**
	Level 2	Evaluates issue	**2-3**
	Level 3	Evaluates issue with justification	**4**
2nd argument	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes issue	**1**
	Level 2	Evaluates issue	**2-3**
	Level 3	Evaluates issue with justification	**4**
3rd argument	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes issue	**1**
	Level 2	Evaluates issue	**2-3**
	Level 3	Evaluates issue with justification	**4**

Task (b) Recommend with reasons how Robobryce's Board might go about restoring its credibility with the shareholders			
Trait			
Recommendations	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes responses	**1-3**
	Level 2	Recommends sensible responses	**4-7**
	Level 3	Recommends sensible responses with detailed explanation	**8-11**
Reasons	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes reasons	**1-3**
	Level 2	Discusses reasons	**4-7**
	Level 3	Discusses reasons with good justification	**8-10**

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Strategic Level Case Study November 2023 – February 2024

Marking Guidance

Variant 4

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Summary of the core activities tested within each sub task

Sub Task	Core Activity		Sub task weighting (% section time)
Section 1			
(a)	**A**	Develop business strategy	60 %
(b)	**B**	Evaluate business ecosystem and business environment	40 %
Section 2			
(a)	**C**	Recommend financing strategies	60 %
(b)	**B**	Evaluate business ecosystem and business environment	40 %
Section 3			
(a)	**D**	Evaluate and mitigate risk	50 %
(b)	**E**	Recommend and maintain a sound control environment	50 %

SECTION 1			
Task (a) Assuming the acquisition goes ahead, evaluate the arguments for and against the proposition that Robobryce would have the resources to successfully bring Retrayler to market			
Trait			
Arguments for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments	**1-3**
	Level 2	Evaluates arguments	**4-7**
	Level 3	Evaluates arguments with justification	**8-11**
Arguments against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments	**1-3**
	Level 2	Evaluates arguments	**4-7**
	Level 3	Evaluates arguments with justification	**8-10**
Task (b) Identify and evaluate the political risks associated with the Graylandian Government that could arise from Robobryce's attempted acquisition of Foroneng			
Trait			
Identification	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies risks	**1-2**
	Level 2	Explains risks	**3-4**
	Level 3	Explains risks in detail	**5-6**
Evaluation	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implications	**1-2**
	Level 2	Evaluated implications	**3-4**
	Level 3	Evaluated implications with justification	**5-6**

SECTION 2			
Task (a) Evaluate the respective advantages and disadvantages of funding this acquisition of Foroneng through debt, a rights issue or the exchange of Robobryce shares for shares in Foroneng			
Trait			
Debt	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies advantages and disadvantages	**1-2**
	Level 2	Evaluates advantages and disadvantages in context	**3-5**
	Level 3	Evaluates advantages and disadvantages in context and with justification	**6-7**
Rights issue	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies advantages and disadvantages	**1-2**
	Level 2	Evaluates advantages and disadvantages in context	**3-5**
	Level 3	Evaluates advantages and disadvantages in context and with justification	**6-7**
Exchange of shares	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies advantages and disadvantages	**1-2**
	Level 2	Evaluates advantages and disadvantages in context	**3-5**
	Level 3	Evaluates advantages and disadvantages in context and with justification	**6-7**

Task (b) Identify and evaluate the reputational issues for Robobryce that will arise in the event that we make a public bid to acquire Foroneng and the bid fails to secure control			
Trait			
Identify issues	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies risks	**1-2**
	Level 2	Explains risks	**3-4**
	Level 3	Explains risks in detail	**5-6**
Evaluate issues	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implications	**1-2**
	Level 2	Evaluated implications	**3-4**
	Level 3	Evaluated implications with justification	**5-6**

SECTION 3			
Task (a) Evaluate whether or not Robobryce's Board would be justified in blaming the management team at Foroneng for failing to safeguard the Group's intellectual property.			
Trait			
Arguments for blame	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Outlines arguments for	**1-3**
	Level 2	Discusses arguments for	**4-6**
	Level 3	Discusses arguments for with justification	**7-9**
Arguments against blame	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Outlines arguments against	**1-2**
	Level 2	Discusses arguments against	**3-5**
	Level 3	Discusses arguments against with justification	**6-8**

Task (b) Identify and evaluate the shortcomings that led to the theft of the files and recommend suitable responses			
Trait			
Shortcomings	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes shortcomings	**1-3**
	Level 2	Evaluates shortcomings	**4-6**
	Level 3	Evaluates shortcomings with justification	**7-9**
Responses	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes responses	**1-2**
	Level 2	Recommends relevant responses	**3-5**
	Level 3	Recommends relevant responses with justification	**6-8**

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Marking Guidance

Variant 5

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Section 2			
(a)	**B**	Evaluate business ecosystem and business environment	60 %
(b)	**D**	Evaluate and mitigate risk	40 %
Section 3			
(a)	**D**	Evaluate and mitigate risk	40 %
(b)	**E**	Recommend and maintain a sound control environment	60 %

SECTION 1			
Task (a) Explain how we might use game theory to plan a response to Pavrobot with respect to Pavheev and evaluate the usefulness of game theory for achieving an optimum response			
Trait			
Use game theory	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Defines game theory	**1-3**
	Level 2	Explains use	**4-6**
	Level 3	Explains use with justification	**7-9**
Optimum response	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes strengths and weaknesses	**1-2**
	Level 2	Evaluates strengths and weaknesses	**3-5**
	Level 3	Evaluates strengths and weaknesses with justification	**6-8**
Task (b) Evaluate the implications of Pavrobot's behaviour for Robobryce's share price and recommend, with reasons, the ways in which Robobryce might protect its share price in the short term			
Trait			
Behaviour	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Defines market efficiency	**1-3**
	Level 2	Evaluates implications of behaviour	**4-6**
	Level 3	Evaluates implications of behaviour with justification	**7-9**
Protect	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes responses	**1-2**
	Level 2	Recommends responses	**3-5**
	Level 3	Recommends responses with justification	**6-8**

SECTION 2			
Task (a) Recommend with reasons how we should manage the political risks associated with Ms Liqiong's allegations			
Trait			
Recommendations	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Defines political risks	**1-3**
	Level 2	Recommends mitigation	**4-7**
	Level 3	Offers detailed recommendation for mitigation	**8-11**
Reasons	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes reasons	**1-3**
	Level 2	Explains reasons	**4-7**
	Level 3	Explains reasons with justification	**8-10**
Task (b) Identify and evaluate the ethical issues associated with the level of hospitality we provide to visiting buyers			
Trait			
Identify	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies ethical issues	**1-2**
	Level 2	Discusses ethical issues	**3-4**
	Level 3	Offers detailed discussion of ethical issues	**5-6**
Evaluate	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes implications of issues	**1-2**
	Level 2	Evaluates implications of issues	**3-4**
	Level 3	Evaluates implications of issues with justification	**5-6**

SECTION 3			
Task (a) Evaluate the arguments both for and against extending Robobryce's values to specifically exclude bribery			
Trait			
Arguments for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments for	**1-2**
	Level 2	Discusses arguments for	**3-4**
	Level 3	Discusses arguments for with justification	**5-6**
Arguments against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments against	**1-2**
	Level 2	Discusses arguments against	**3-4**
	Level 3	Discusses arguments against with justification	**5-6**
Task (b) Evaluate with reasons the advantages and disadvantages of Robobryce establishing an ethics committee comprising non-executive directors			
Trait			
Advantages	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes role of committee	**1-3**
	Level 2	Discusses advantages of committee	**4-7**
	Level 3	Discusses advantages of committee with good justification	**8-11**
Disadvantages	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes disadvantages of committee	**1-3**
	Level 2	Discusses disadvantages of committee	**4-7**
	Level 3	Discusses disadvantage of committee with good justification	**8-10**

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Marking Guidance

Variant 6

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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.
- 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**	Evaluate business ecosystem and business environment	60 %
(b)	**D**	Evaluate and mitigate risk	40 %
Section 2			
(a)	**A**	Develop business strategy	50 %
(b)	**C**	Recommend financing strategies	50 %
Section 3			
(a)	**D**	Evaluate and mitigate risk	40 %
(b)	**E**	Recommend and maintain a sound control environment	60 %

SECTION 1			
Task (a) Recommend with reasons whether or not Robobryce should treat clients' customers as stakeholders in terms of cyber security			
Trait			
1st argument for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Defines stakeholders	**1-2**
	Level 2	Discusses argument for	**3-4**
	Level 3	Discusses argument for with justification	**5-6**
2nd argument for	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument for	**1**
	Level 2	Discusses argument for	**2-3**
	Level 3	Discusses argument for with justification	**4-5**
1st argument against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument against	**1**
	Level 2	Discusses argument against	**2-3**
	Level 3	Discusses argument against with justification	**4-5**
2nd argument against	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes argument against	**1**
	Level 2	Discusses argument against	**2-3**
	Level 3	Discusses argument against with justification	**4-5**

Task (b) Evaluate the arguments for and against the view that Robobryce cannot ensure the security of its systems			
Trait			
Cannot ensure	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments for not ensuring	**1-2**
	Level 2	Evaluates arguments for not ensuring	**3-4**
	Level 3	Evaluates arguments for not ensuring with justification	**5-6**
Can ensure	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies arguments for ensuring	**1-2**
	Level 2	Evaluates arguments for ensuring	**3-4**
	Level 3	Evaluates arguments for ensuring with justification	**5-6**

SECTION 2			
Task (a) Recommend with reasons how an audit of key resources might help the Board to decide whether Cybwoll would be a suitable acquisition for the Robobryce Group			
Trait			
1st resource	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies resource	**1**
	Level 2	Discusses need for audit	**2-3**
	Level 3	Discusses need for audit with justification	**4-5**
2nd resource	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies resource	**1**
	Level 2	Discusses need for audit	**2-3**
	Level 3	Discusses need for audit with justification	**4**
3rd resource	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies resource	**1**
	Level 2	Discusses need for audit	**2-3**
	Level 3	Discusses need for audit with justification	**4**
4th resource	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Identifies resource	**1**
	Level 2	Discusses need for audit	**2-3**
	Level 3	Discusses need for audit with justification	**4**

Task (b) Recommend with reasons the approach that we should take to deciding on an acceptable purchase price for Cybwoll			
Trait			
Valuation models	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes models	**1-3**
	Level 2	Applies models to scenario	**4-6**
	Level 3	Applies models to scenario with justification	**7-9**
Negotiation	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes need for negotiation	**1-2**
	Level 2	Discusses need for negotiation in scenario	**3-5**
	Level 3	Discusses need for negotiation in scenario with justification	**6-8**

SECTION 3			
Task (a) Recommend with reasons three key non-financial objectives that might be set for Cybwoll and a suitable performance measure for each objective			
Trait			
1st objective	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes objective	**1**
	Level 2	Recommends objective	**2-3**
	Level 3	Recommends objective with justification	**4**
2nd objective	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes objective	**1**
	Level 2	Recommends objective	**2-3**
	Level 3	Recommends objective with justification	**4**
3rd objective	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes objective	**1**
	Level 2	Recommends objective	**2-3**
	Level 3	Recommends objective with justification	**4**

Task (b) Recommend with reasons the work that Robobryce's Internal Audit Department might undertake in order to ensure that robotics software engineers are reporting all security vulnerabilities to Cybwoll's consultants			
Trait			
1st step	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes step in audit	**1-2**
	Level 2	Discusses step in audit	**3-4**
	Level 3	Discusses step in audit with justification	**5-6**
2nd step	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes step in audit	**1**
	Level 2	Discusses step in audit	**2-3**
	Level 3	Discusses step in audit with justification	**4-5**
3rd step	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes step in audit	**1**
	Level 2	Discusses step in audit	**2-3**
	Level 3	Discusses step in audit with justification	**4-5**
4th step	**Level**	**Descriptor**	**Marks**
		No rewardable material	**0**
	Level 1	Describes step in audit	**1**
	Level 2	Discusses step in audit	**2-3**
	Level 3	Discusses step in audit with justification	**4-5**