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BUSINESS **9609/31**

Paper 3 Case Study **May/June 2022**

INSERT **3 hours**

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INFORMATION

- This insert contains the case study.
- You may annotate this insert and use the blank spaces for planning. **Do not write your answers** on the insert.

This document has **8** pages. Any blank pages are indicated.

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Heart Data (HD)

HD designs and manufactures micro circuit boards containing advanced software. The boards are used in data processing, IT system manufacture and vehicle control. HD is a private limited company with two shareholders who are also the directors. One is responsible for the Design Division, the other for the Manufacturing Division. HD started in 2002 and now employs 18 electronic engineering graduates. One of these graduates is responsible for managing HD's website and for dealing with customer enquiries and orders. HD also employs an accountant and two administration staff. HD is located in country Q. HD still has its original mission statement: "to provide world class software solutions to customers".

The geographic split of HD's sales is:

- 40% country Q
- 30% US
- 30% other countries

Corporate social responsibility (CSR) issues

HD's customers include social media operators, police and security forces, retailers, governments and universities. The micro circuit boards contain metals, such as nickel, which are difficult to recycle. Some pressure groups claim that metals used in micro circuit boards are obtained from mines which employ child labour. HD's accountant also believes that some manufacturers make payments to foreign governments which do not appear in their company accounts. Two pressure groups and country Q's government have asked HD for a detailed social audit.

Organisational structure

The Design Division is organised in a matrix structure. Design engineers work on their own and also in small teams, each on a specific project such as a customer's special order. These temporary teams exist for the life of each custom made circuit board project. Each team has designers with the particular skills required. The Design Director delegates responsibility to each team for the completion of each project. The teams choose their own leaders and a team member to communicate with the customer. HD design engineers work from home for 20% of their hours. They communicate by electronic methods except when a team holds problem-solving meetings.

HD's project design teams have an excellent reputation with customers for designing problem-free circuit boards to meet their specific needs. However, the Design Director is worried about recent trends in the Design Division. Absenteeism and labour turnover of design engineers are increasing and project completion dates are being delayed. One design engineer told the director "I have two managers to report to and working with constantly changing teams is bad for morale". See Table 1 for human resources data.

The Manufacturing Division has a hierarchical structure including a factory manager. The 22 employees making the micro circuit boards are given specific, well-defined tasks which they are trained for and they follow detailed instructions. Five supervisors regularly monitor their work.

Table 1: HD human resources data January – May 2022

	Total number of employees	Number of employees that left HD
Design Division	18	5
Manufacturing Division	22	1
Administration staff	3	0

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Capacity

HD manufactures the boards in its own factory. 40% of HD sales are standard circuit boards. The other 60% are custom made. HD's maximum monthly capacity is 1 million units. However, the flexibility of HD's design teams and the quality of its circuit boards have led to substantial increases in demand. This has resulted in HD's factory operating at over maximum capacity for several months. Output in May 2022 reached 1.05 million units. The Manufacturing Director thinks that this is unsustainable because of the lack of time for machine maintenance and the pressure on production workers. The director has considered outsourcing some of the manufacturing of custom made circuit boards to an overseas supplier or building a factory extension.

A possible joint venture

HD occasionally works with other similar businesses. The Managing Director of MW, a small manufacturing company, has approached HD with a proposal for a joint venture. MW has an original concept for a circuit board that will enable detailed analysis of large amounts of data from satellites observing distant stars. This circuit board would be sold in a niche market that MW does not operate in. The joint venture would require the expertise of HD's design engineers to develop this concept to a product launch. It would be produced by MW but marketed by HD. The life of this product is estimated to be two years. Financial forecasts indicate that HD's share of potential revenue would be $5m, yielding an operating profit of $0.5m.

Tables 2 and 3 show extracts from HD's financial statements.

Table 2: Extracts from HD's income statements June 2021 – May 2022 ($m)

Revenue	40
Cost of sales	22
Gross profit	18
Wages and expenses	10
Operating profit	8
Tax	4

Dividends payable for year June 2021 – May 2022 are $4m.

Table 3: Extracts from HD's statement of financial position at 31 May 2022 ($m)

Non-current assets	8
Current assets	20
Total assets	28
Non-current liabilities	4
Current liabilities	4
Total liabilities	8
Net assets	20
Share capital	10
Reserves	10

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Globalisation and Marketing

HD's circuit boards are sold in a specialised market in which quality, not price, is the most important factor. HD has a very good reputation. Its unique selling point (USP) is that its engineers provide comprehensive after sales support and advice to customers. HD's main promotional activity is through its own website.

HD's website manager acts in a marketing role. She has compiled a market report. This states that in the last 18 months there have been significant changes in customer enquiries. The geographical location of potential customers is changing, price is becoming more important and enquiries often do not result in orders being placed with HD. She concludes these changes may be because of:

- increased competitors' marketing activity
- increased globalisation
- increased economic collaboration by countries setting up free trade areas without tariffs
- merger activity among competitors resulting in multinational companies
- rapidly expanding markets e.g. BRICS.

Future strategies

HD's directors have ambitious objectives for the business. Appendix 1 shows some of the HD's directors' recent strategic analysis.

The directors are now considering two strategic options for long-term growth. Either option would be in addition to HD's existing activities. Both options would use HD's core competencies.

Option 1

HD would take over another circuit board manufacturer in a low-income country. This would reduce manufacturing costs. External finance would be required for this option. HD's organisational structure and corporate culture might have to change significantly.

Option 2

HD would design, develop and manufacture a new product for analysis of the huge quantities of data generated in medical trials. This product would be targeted at universities and teaching hospitals. This option would require additional design engineers with different skills. Internal finance is available for this option.

Appendix 1: HD SWOT analysis

Strengths	**Opportunities**
• Good reputation • Employee skills in circuit board design • High levels of customer loyalty	• Attracting employees with different specialist skills • Growing international markets • Developing innovative products for new technology markets
Weaknesses	**Threats**
• Operating over maximum capacity • No promotion other than HD's website • High labour turnover of design engineers	• Increasing competition • New technology replacing circuit boards • Increasing investment in Research and Development by competitors

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