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Business management

Higher level

Paper 3

26 April 2024

Zone A afternoon | Zone B afternoon | Zone C afternoon

1 hour 15 minutes

Instructions to candidates

- Do not open this examination paper until instructed to do so.
- Read the stimulus material carefully.
- Answer all questions.
- You are permitted access to a calculator for this paper.
- The maximum mark for this examination paper is **[25 marks]**.

MF Future Housing (MFFH)

Read the resources and answer the questions that follow.

Resource 1 – Background of the social enterprise

Five years ago, Martin Fernandez moved into temporary shelter because he could no longer afford to live in his house. Many households found themselves in the same situation, as rapidly rising costs to buy or rent a house created a housing crisis. So, in 2022, with finance from a business angel and crowdfunding, Martin established the social enterprise *MF Future Housing (MFFH)* to provide affordable housing solutions for young families.

MFFH manufactures and sells 3D-printed* houses directly to individuals who own land or to local governments, charities, and non-governmental organizations (NGOs) trying to provide affordable housing solutions. *MFFH* uses cradle-to-cradle design and manufacturing and total quality management (TQM), which strongly influence *MFFH*'s organizational culture.

Figure 1: Artist's impression of a 3D-printed house in progress



MFFH's 3D-printed houses:

- can be assembled on site within 24 hours and are easy to relocate
- cost between \$30 000 and \$50 000 to produce, which is significantly less than the mean and median house price in many countries.

A private limited company, *MFFH* has strong ethical objectives. The business angel serves on *MFFH*'s board of directors. *MFFH* manufactures 10 000 homes a year. *MFFH*'s unique selling point/proposition (USP) is that it produces environmentally sustainable houses at affordable prices to young families.

However, compared to the house-building industry averages and *AG Easy Homes PLC (AGEH)*, a major competitor, *MFFH* has high gearing and debtor days and low profitability.

* 3D printing: The manufacturing of a physical object from a three-dimensional digital model. This new process can build houses faster, more cheaply, and more sustainably than traditional methods

Table 1: Industry average gearing ratio and debtor days for 2022–2024 compared with those of *MFFH* and *AGEH*

From 2022–2024	Gearing ratio (%)	Debtor days
Industry average	50	100

From 2022–2024	Gearing ratio (%)	Debtor days
<i>MFFH</i>	75	120
<i>AGEH</i>	40	80

Resource 2 – Summary of the Organization for Economic Cooperation and Development (OECD)’s views on affordable housing and a housing crisis

The OECD has highlighted affordable housing challenges for young families in many countries. The current costs of sustainable housing are too high and therefore unaffordable. The United Nations (UN) has stated that housing should be considered a basic human need and human right and appeals to all governments to do more to support young families.

Resource 3 – Email to Martin from a UN housing spokesperson

From: contact@UNHousing.org

To: M.Fernandez.CEO@MFFH.org

Dear Martin,

We know that you manufacture affordable housing. Our biggest supplier, *AGEH*, uses traditional production methods, resulting in high costs and long completion times. We admire your strong ethical objectives and your decision to manufacture 3D-printed affordable houses.

We would like to discuss placing a large order of 40 000 houses per year for five years. We would require a sample of 200 houses to check quality standards before placing an order for the full number of houses.

Resource 4 – Excerpt from *AGEH*'s company report, 2024

AGEH was founded in 1952 at a time when the United States (US) had a severe housing shortage. Today, *AGEH* is one of the largest global commercial manufacturers of traditionally built houses. *AGEH* currently produces nearly 40 000 houses per year and has a capacity to build 100 000 per year. At various times in its long history, *AGEH* has formed strategic alliances with construction companies in developing countries.

Resource 5 – Summary of minutes from a recent meeting of *MFFH*'s board of directors

Martin opened the meeting with details of the offer from the UN housing spokesperson. Board members discussed at length whether *MFFH* could fulfil such a large order. The discussion raised the following points:

- Government contracts are paid 50 % in advance.
- The offer could impact on *MFFH*'s ability to meet the needs of young families for affordable housing in its own country.
- The order could enhance *MFFH*'s sustainability reputation internationally, which could allow it to attract additional investors.
- The order would exceed *MFFH*'s current capacity. Its long-term liabilities would have to increase to finance new capacity, and borrowing costs are forecast to rise significantly.
- The order will impact *MFFH*'s positioning.

The board decided to produce the sample of 200 houses. The UN inspection team will be arriving next month to check quality.

Resource 6 – Operations manager memo to Martin immediately after the inspection

The sample did not meet international quality standards. Our quality assurance manager is very concerned. I am worried about our ability to manufacture 40 000 houses per year, as our capacity utilization is now at 75 %. The UN inspection team are still keen to continue with the order if some changes are implemented.

Could we consider outsourcing some parts of the production process? This may be costly, however, and the businesses may not utilize cradle-to-cradle design and manufacturing or have a similar culture to *MFFH*. Luckily, I think we can monitor any new supply chain successfully.

1. With reference to business management motivation theory, describe **one** need that *MFFH* satisfies for young families requiring affordable homes. [2]
2. Explain **one** marketing challenge **and one** financial challenge for *MFFH* if it accepts the United Nations (UN) order. [6]
3. Using all the resources provided and your knowledge of business management tools and theories, recommend a possible plan of action for *MFFH* over the next five years. [17]

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References:

- Figure 1** guteksk7, n.d. *3d printing single-family house with concrete. New technology house building using a modern CNC machine - stock photo.* [image online] Available at: <https://www.gettyimages.co.uk/detail/photo/3d-printing-single-family-house-with-concrete-new-royalty-free-image/1488610651> [Accessed 30 November 2023]. Source adapted.