Business plan - CubeCrete

Chris Jones – 2007634 – Word Count 2860

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ABSTRACT

During this report I aim to create a business that is profitable and sustainable. It will help generate commerce for the local areas which surround it and help rejuvenate and revive places around the United Kingdom.

INTRODUCTION

This report is to design and develop my third-year business plan idea. The business plan I have created is for the creation of multiple blocks that can be interlinked to create a retaining wall structure that can be used in maritime, residential and commercial settings to retain any specified material behind the newly built wall. During this report I aim to provide detailed drawings to conceptualise my idea, a two-year financial forecast to ensure my business venture is a viable and profitable product, a quantified SWOT analysis and proposed timeline stating important milestones for the development of my product.

DESIGN AND CONCEPT

My design journey began by researching interlocking and repetitive patterns that could be used to create a repeating retaining wall structure that would be capable of creating a superior retaining strength to pre-cast concrete whilst also offering an appealing architectural feature for the residential and commercial sectors. Initially I created a rounded interlocking block wall based on Dharma wheel interlocking designs. A Dharma wheel is a symbol that in the Buddhist religion to symbolize perfection “The circular shape of the wheel symbolizes the perfection of Buddha's teachings” (OneTribe, Jan 2019). However, upon creation of this pattern I found numerous failings within the structure that would provide severe problems for on site construction and the retaining of materials. Appendix A shows the design in question, the foundation would become incredibly complex due to the curvature of each piece at the base of the wall. Creating a foundation that would require a raised profiled shape that would begin the interlocking pattern would increase the build cost drastically. It would also mean that in some instances of maritime use the blocks would need to be precast as the creation of these elements on site in a water environment would be impossible to create.

The failing of the first concept led me to create a second design option that focused on using straight cut square blocks that would be rotated 45 degrees to form an interlocking diamond shape wall. Each layer of blocks would rest in between the two blocks below allowing for a greatly increased latitudinal strength. The use of square edges allowed the foundation creation to be far simpler than that of the Dharma wheel shape (Appendix A). The foundation could become a simple strip foundation that would be lined with a simple half block triangle that could be fixed to the strip foundation through the rear of the block creating a secure base connection. The standard size of the block I have designed is 1000x1000x900 with the half base and top block being cut corner to corner, so its 50%. I have also allowed for the tapering of the rear of the block to minimise on unnecessary usage of concrete to create the blocks. To prevent the blocks from moving upon installation, if infill were to be required behind the wall, it would be infilled as each layer of the wall was being installed up to the full height of the required wall. If it were to be retaining an already exposed material face, then the wall can be built without the requirement to prop the blocks from behind using the layered infill. The materials saved for the inclusion of the rear tapered section was to be just below 1/3 of each blocks total volume when compared to the untampered solid block. Saving almost 1/3 of the

material of a block per block will lead to huge manufacturing cost savings across the financial year therefore increasing the profit margins whilst not imposing any limits on the product or taking shortcuts within the product manufacturing stage.

I also aim to create a further design that would incorporate the potential for textured finishes on the block face. This allows the client to personalise the finish of the retaining wall if there were a requirement to use a more pleasant architectural finish in a commercial or residential sector. There is also the opportunity to further this front face finishing idea to partner with other brands to offer a wooden palm fixed plank system to give a wood effect. This would lead to further joined works with wood manufacturers and stainless-steel workers in the futures.

TIMELINE

To create my timeline of important milestones for my business I created a one-year scale that would show the setting up process and initial steps of the business that would need to be completed to initiate the manufacturing process (Appendix D). once this had been completed, I was then able to focus on what larger milestones that my business will be required to complete to grow at the rate I expect over the first two years (Appendix E).

Appendix D begins by gaining the successful patent to the design I have specified. It will also ensure the blocks meet the required engineering standards that are using in the creation of a retaining wall system. The second step is to begin looking for a suitable workshop space that includes a storage area for completed blocks that are awaiting delivery for a client. It also requires a suitable area for loading of haulage transport to ensure the blocks can be delivered to clients. The area I am aiming to initially rent will cost £1000 per month and I am looking to gain around 100ft^2. This will be adequate to begin the molding and creation of the blocks with a storage area. I will also be required to start an employee search. This will help spread the workload of block creation and workshop tasks. Initially I will manage the workshop to remove the high cost of a manager on the payroll of the business. I will simply be looking for two employees to help create the blocks and load transportation. The salary will initially be set at £15,000 per annum which will equate to £312.50 per week per employee (Appendix F). prior to manufacturing commencing I will look to visit numerous local engineering and architectural companies to offer our product as a replacement to current plain concrete retaining walls that may be currently specified in their drawings. Be doing this I will be able to personally explain my product and how it can beat competitors for final appearance, ease of maintenance and structural integrity once the wall is completely built. Giving this personal meeting with the engineering practices will allow me to convey my product in a more personable format hopefully leading to a greater uptake in the use of my product. I will also be able to answer any questions companies may have allowing them to correctly understand the real-life positives of using my system.

Appendix E shows my five important milestones that the company will look to complete over the first two years of business. My initial milestone is to create a good working relationship with five engineering practices to ensure my product is being repeatedly used within projects around the country. The repeating nature of these contracts will ensure that there is a consistent base revenue stream coming into the company that will allow for more advertising and staff numbers to further spread my business around the country.

Milestone two indicates the need to gain access to an in-house form of transportation for the delivery of the blocks to clients. This will require the acquisition of a small to medium sized lorry that will be able to transport 10-15T of blocks at any one time. Gaining this will completely remove the requirement to use an external haulage company to deliver blocks on smaller projects and will reduce the amount of external transportation required on larger projects thus further cutting costs.

Milestone three involves gaining a larger storage area that will house complete precast concrete blocks that can be used to satisfy clients projects removing the lead time on the completion of projects. This will ensure that revenue will be incoming the business as soon as the order is made as the blocks can be delivered far sooner than if they were to be created post order.

Milestone four dictates the requirement for additional staff members that will be used to create, organise and deliver the blocks from our workshop to the client. This will be required when recurring contracts require a consistent and steady flow of the production of blocks for larger scale projects or multiple small-scale projects.

The final milestone is to renegotiate the cost of the concrete being delivered. Once a reliable and consistent relationship has been created between the concrete supplier and myself the contract can be renegotiated to lower the cost of the concrete that is being used to create the blocks. The cost may be lowered or kept the same and instead the volume of concrete that is being delivered will be increased to cope with potential demand.

FINANCIAL FORECAST

My financial forecast (Appendix F) covers my first two years as a business owner. It helps to identify if the business has the potential to be profitable whilst also showing the workload to make it so.

Year one shows how I will be initially spending £107,000 and how that is broken down over workshop rent, employees, transportation, and concrete. To start this business, I feel I would require a loan of £60,000 to allow me to procure the tools and staff necessary to create the product I am aiming to create. The first year would see me create 700 blocks at a resale rate of £100 per block that would be sent in 20 deliveries. Each delivery would cost £1000 so my total first year profit would be £43,000.

The cost of rent for a 150Sq/Ft workshop was based on researching unit prices within Cardiff (Appendix G) is between £500 and £1250 per month depending on access requirements and location of the unit. I felt going towards the higher estimate would allow for the adequate access that would be needed for transportation needs whilst also being a central location for ease of access to get required materials to the workshop such as concrete.

Year two would see me pay back the £60,000 loan to ensure that I was able to own 100% of the business. This would be either completed in a lump sum at the end of the financial year or through installments. My employee cost would increase by double since I would require more employees to complete the larger workload of block production which has doubled from 700 to 1400 units. The increase of block production is proportion to the increase in deliveries. My concrete deliveries have remained at the same amount which is just below one delivery per week however the amount of concrete being delivered in each delivery is now double to help cope with the additional demand of manufacture. The final gross profit for year two will be estimated at £74,000. This profit also includes the full repayment of my initial loan and the inclusion of two new members of staff to help tackle the increased workload.

After completing my financial forecast for the first two years I see the business being a profitable asset. It will require a sizeable initial set up cost from the loan however the monthly cost of £8900 for total outgoings every month will be covered by the £12,500 per month income. This estimate is a conservative estimate for my first two years as the acquisition of a larger project could further increase profits.

SUSTAINABILITY

Sustainability goal 8 is defined as “decent work and economic growth” (Wikipedia, 2023).

CubeCrete aims to meet target 8.1 sustainable and economic growth by creating a new profitable business within Cardiff that will allow for the creation of domestic growth within the area. The target for growth is 7% and my business aims to grow by nearly 50% between years one and two. The business also aims to meet target 8.2; diversify, innovate, and upgrade for economic productivity by creating a new and improved retaining wall system that is more environmentally friendly by reducing the requirement of creating completely new retaining walls after natural erosion or damage y only requiring a few select blocks to be replaced within the wall instead of destroying and rebuilding whole walls as is currently the case. Target 8.3 will be met by the creation of employment opportunities within the region by creating a minimum of four opportunities by the end of the second financial year. This number will increase as demand grows year on year. Target 8.6 will be met by the business looking to employ persons who may not be familiar with the practices of creating retaining walls initially however given training and education they will be able to complete the tasks associated with the employment. Target 8.9, promote tourism will also help to be met by my business as the use of the textured blocks will be used in the regeneration of deteriorated areas around the country to ensure they are kept to a high standard for the promotion of tourism. This will likely be in the blocks use in commercial and maritime sectors such as shopping centers and marinas.

VIABILITY (SWOT ANALYSIS)

"A SWOT analysis is designed to facilitate a realistic, fact-based, data-driven look at the strengths and weaknesses of an organization, initiatives, or within its industry" (Investopedia, March 29th 2021). It is important for me to complete a SWOT analysis to ensure that all potential weaknesses and strengths of my business plan are identified before business commences. This will help minimise the effect of unseen and potentially disastrous problems along my business timeline.

CubeCrete SWOT	
Strengths	**Weaknesses**
• Current Background knowledge of the problem I am solving • Current knowledge of concrete and mixtures • Current contacts in the industry I am venturing in to	• Inexperienced in creating a business • Inexperienced in HR roles and management
Opportunities	**Threats**
• Opportunity to create contacts in the Civil engineering industry • Opportunity to be involved in larger projects to ensure the product is demonstrated around the country	• Funding may be hard to achieve • Current financial recession

My SWOT analysis has highlighted that my main problem that I will face when initiating the business is a financial one. Currently financial situation may prove as an initial hurdle to cross however with a successful loan application of £60,000 as stated in my financial forecast (Appendix F) I will be able to complete the first year of business in which time I will have built a foundation to be able to move forwards from in year two with regards to increasing the size of project we are involved with and increasing out profit margin.

It has also shown how my current knowledge is far more product based than it is business related so I will have to ensure that I remember to focus on the business as a whole instead of completing the manufacturing process and neglect other areas of the business.

RFERENCE LIST

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Investopedia, 29th March 2021 – visited 07/12/2022 Strength, Weakness, Opportunity, and Threat (SWOT) Analysis Definition (investopedia.com)

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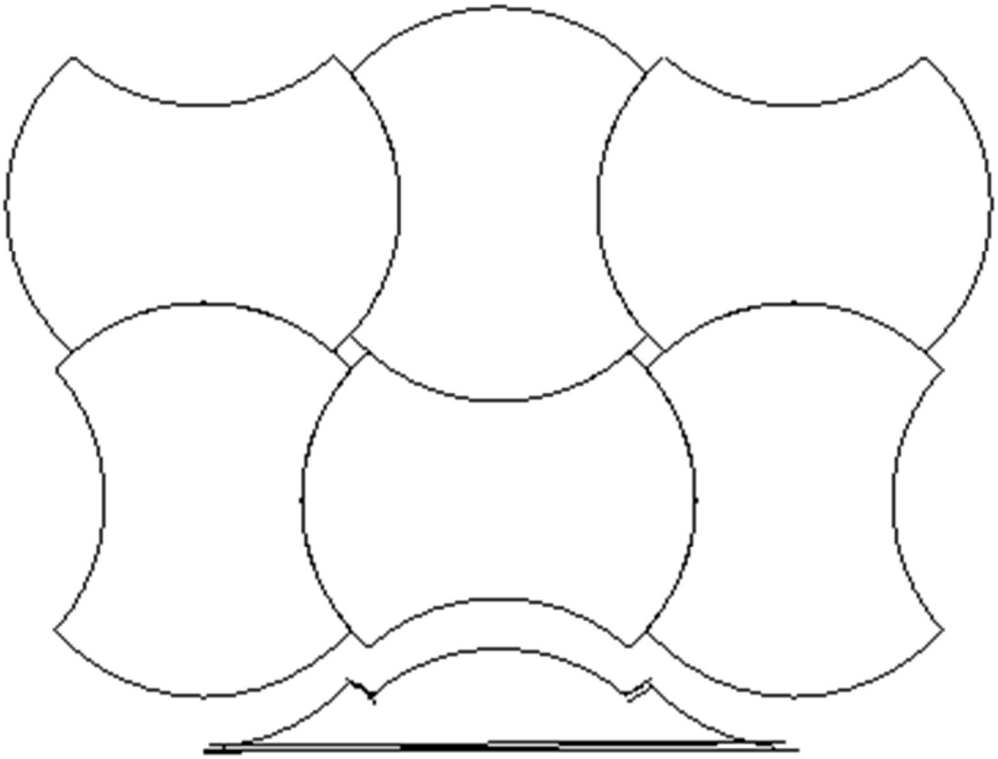
APPENDICIES

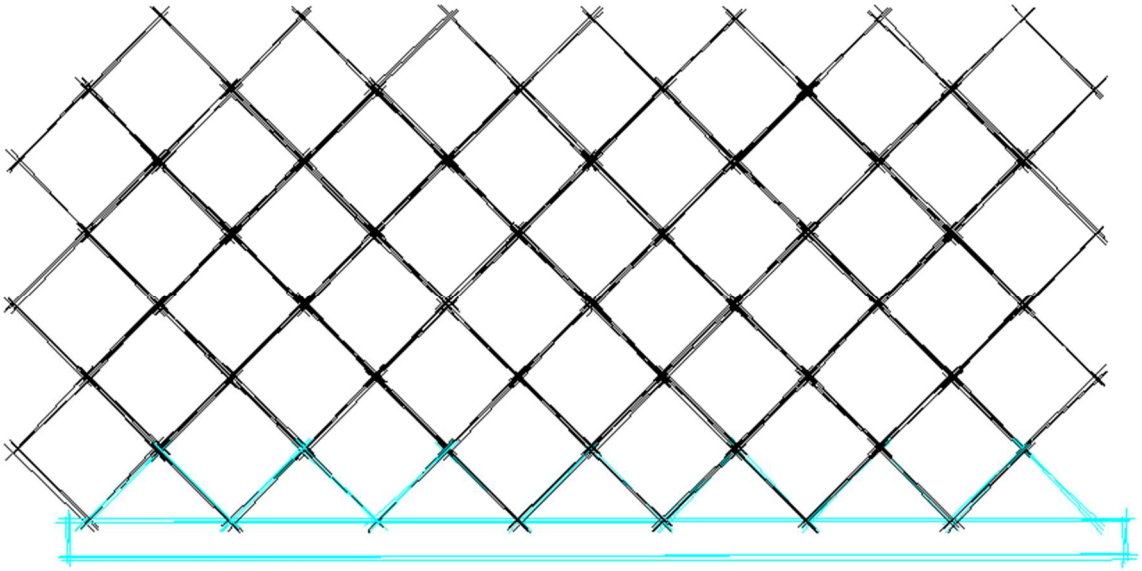
Appendix A

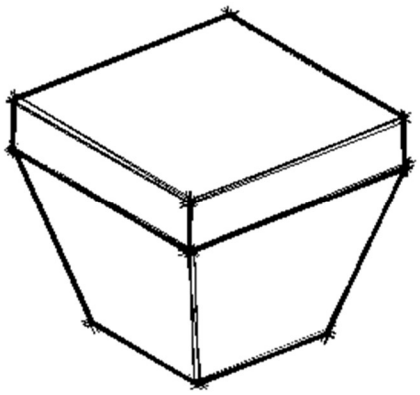
Shows my 3d block 1st attempt.

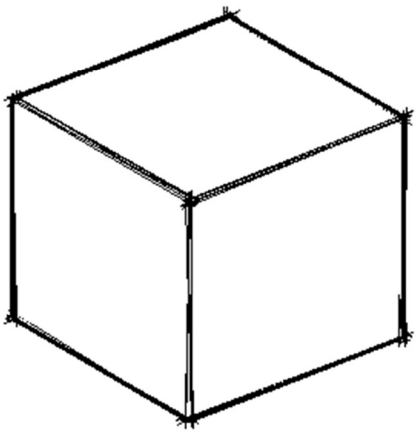


Appendix B

Shows my 3d block FINAL

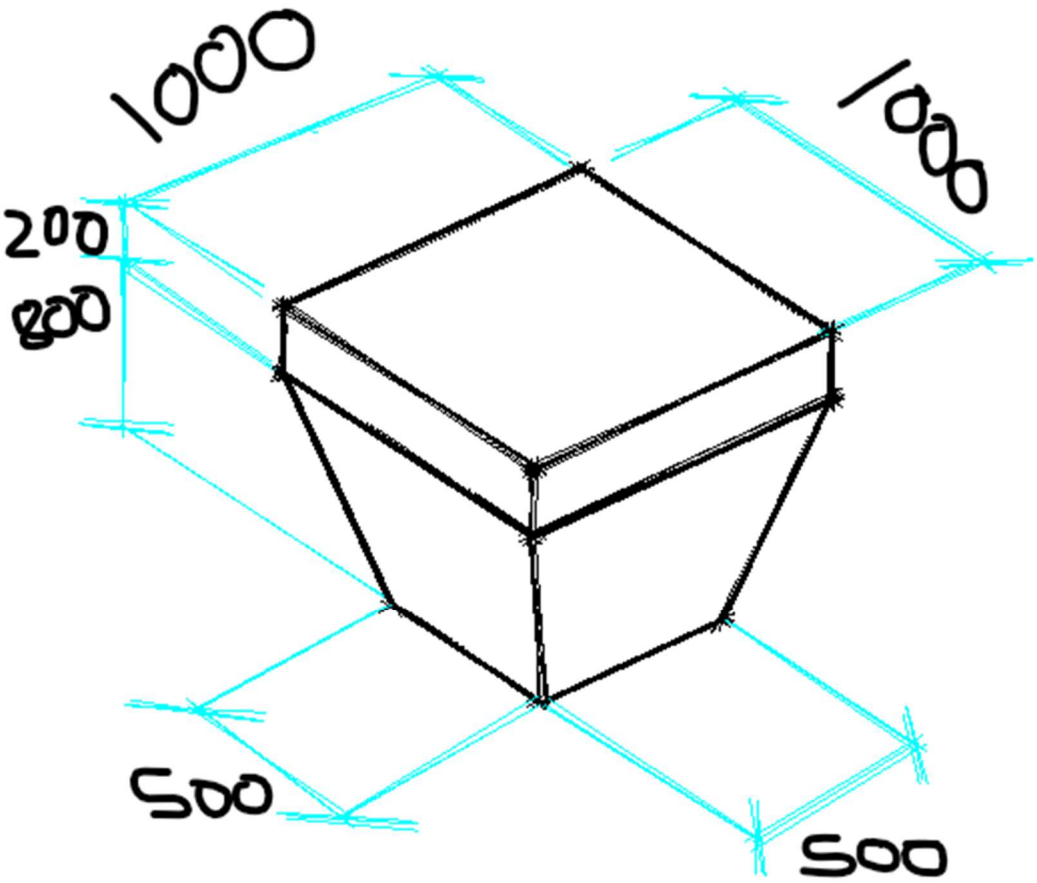






Appendix C

BLOCK DIMENSIONS

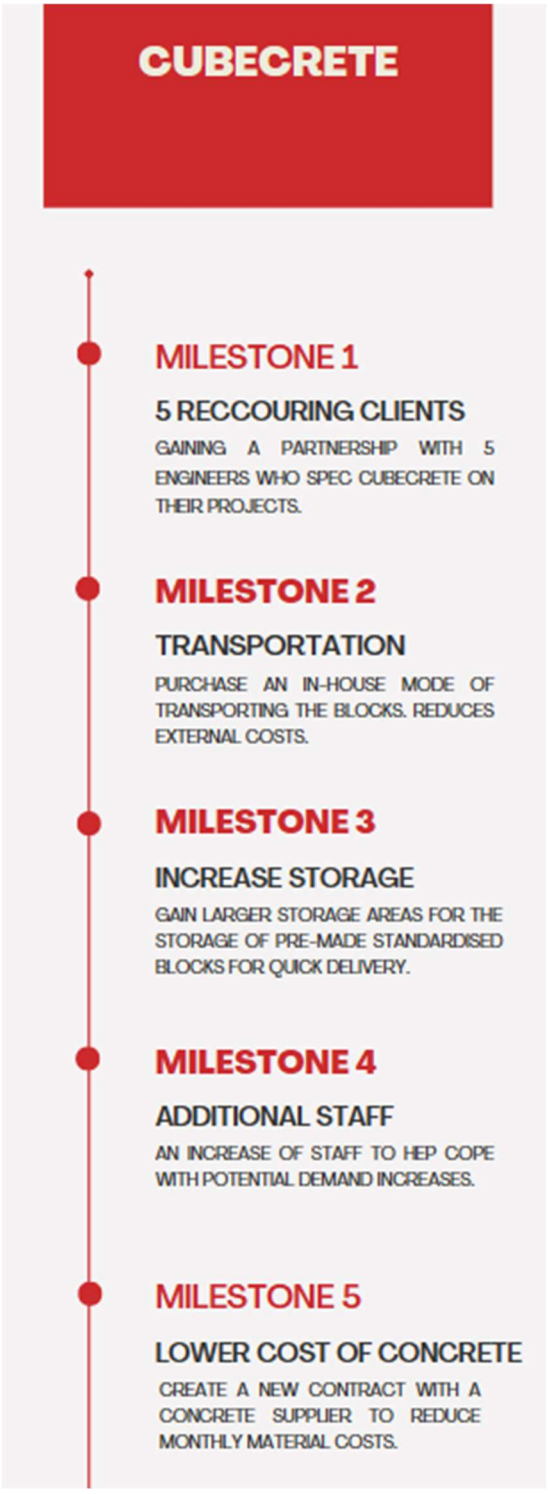


Appendix D

CUBECRETE TIMELINE

Appendix E

CUBECRETE MILESTONES



Appendix F

FINANCIAL FORECAST

CUBECRETE

OUTGOING	YEAR ONE COST (£)	QUANTITY	TOTAL	YEAR TWO COST (£)	QUANTITY	TOTAL
WORKSHOP RENT	1000	12	£12,000.00	1000	12	£1,000.00
EMPLOYEES	1500	2	£36,000.00	1500	4	£72,000.00
TRANSPORTATION	500	30	£15,000.00	500	30	£15,000.00
CONCRETE	1000	50	£50,000.00	2000	50	£100,000.00
LOAN REPAYMENT				60000	1	£60,000.00
			£113,000.00			£248,000.00

INCOMING	INCOME (£)	QUANTITY	TOTAL	INCOME (£)	QUANTITY	TOTAL
ESTIMATED BLOCKS SOLD	100	700	£70,000.00	150	1400	£210,000.00
DELIVERY COST	1000	20	£20,000.00	2000	50	£100,000.00
LOAN	60000	1	£60,000.00			
			£150,000.00			£310,000.00
		PROFIT	£37,000.00		PROFIT	£74,000.00

Appendix F

START BUSINESS UNIT LOCATIONS, CARDIFF

Unit Locations	Wards	Postcode
Bessemer Workshops, Bessemer Close	Grangetown	CF11 8DL
Douglas Buildings, Royal Stuart Lane	Butetown	CF10 5EL
Brewery Workshops, Station Terrace	Fairwater	CF5 4AR
Fairwater Workshops, Norbury Road	Fairwater	CF5 3BG
Gabalfa Workshops, Clos mentor	Gabalfa	CF14 3AY
Lamby Workshops, Lamby Way	Rumney	CF3 2EQ
Royal Stuart Workshops, Adelaide Place	Butetown	CF10 5BR
Splott Workshops, Portmanmoor Road	Splott	CF24 5FF
Willowbrook Technology Park, Llandogo Road	St.Mellons	CF3 0EF