# YEAR 3 - BUSINESS PLAN

WORD COUNT:



# **CONTENTS**

# CONTENTS

Word Count:	1
Introduction / Business Idea	3
Competitors	4
Costs and Pricing	5
Cash Flow Forecast	7
Branding and Marketing	9
SWOT Analysis	11
Conclusion	
Bibliography	
Appendix	

### **INTRODUCTION / BUSINESS IDEA**

Around a Year ago I was sat with my grandparents (back when we could) my grandad was talking about a bracket that he wanted in order attach a small object to a wall. He had been looking all over to find something that would work. He thought about fabricating it himself, but the cost of tools and equipment would not be very cost effective. I mentioned that we had 3D printers at the university and how I could create one that way. I said that I would ask if this would be ok (but completely forgot).

When we where asked to come up with a business idea for one of our projects my mind instantly jumped to the above experience. From this I developed the idea that what if there was a business that catered to people like my grandad and offer 3D printing services for one off designs. I decided to add a CAD drafting service that can be done completely digitally as well, I decided to do this as it can be easily added to the business, I would need CAD software anyway to modify and customise prints regardless so I may as well offer another service as well. This should provide another useful income that I will be able to be working on while 3D prints are being printed in the background. In this document I will be going through how I have researched and development this idea to make it into a viable and profitable business. I will be assessing my idea using a range of different techniques including cashflow forecasts, SWOT analyses and more. By the end of this plan, you should have a clear understanding of what my busines is and how I intend to make it profitable.

### **COMPETITORS**

Throughout this section I will be outlining my research into other competitors and looking at what they offer compared my business idea. I also am putting a disclaimer here as a lot of the competitors do not have a fixed rate they charge and will create a quote once I have made contact and send them a model, this means I may not be able to find an exact price for the service/product. Where I was able to get a quote, I uploaded a basic 3D model called benchy (CreativeTools, 2015) that I found online.

### **3D Print Direct**

The first competitor I found is and online based company where you are where you upload a 3D file, and they can create an instant quote. For the model I uploaded it came in at around £13.50 but found that this company was limited when it came to the selection of materials and only has higher end materials such as carbon fibre. It also was not very descriptive and is full of jargon meaning for the everyday person it may be difficult to understand. Also, from my understanding there main focus on bulk orders to justify the cost as I feel that was high for the single model (3D Print Direct, 2020).

### **Triple Axis**

The second business I found is like the first, is an online 3D printing service where you upload a model and receive your product in the post a couple weeks later (Triple Axis, 2020) this company differs a couple of ways from the first. One main difference is the material selection it is a lot like what mine would be and focuses on the most popular materials such as PLA and ABS it also offers a resin option. My business will be more comparable to this than the first as I want mine to be a simple as possible. My busines will provide more detail so customers have a better understanding of the properties for each material. We will also offer collection of the product to further reduce the price of the product if the customer wishes to.

### **3D Print House**

This company is a busines that is local to the Winchester area and the focus on 3D printing for prototyping. They also integrate an element of CNC which is an area that I have potential to expand into if the business takes off (3D Printing House, 2020). They do not give an option for an instant quote on the website nor do they go into any detail about types of 3D printing or materials that they offer making it

unclear to people that have no clue about 3D printing which is where I intend to make my company compete

### **CAD Services**

Finally this company is a direct competitor for the CAD drafting side of my business as it only focuses on creating CAD drawings for clients (CAD Services, 2020). Looking at the company's project it seems to me that they are a lot more concentrated on architecture, but they do offer different services and software. Another difference between there company and mine is that it does not seem to cater to individuals which my business will. Looking at the differences I feel like this business will not be an issue as the services that they provide are different enough not to be a threat.

### **COSTS AND PRICING**

in this section I will be looking at the different costs of running the business. From the costs I will then work out how much I will charge for the product/service to make a profit and make the business viable.

#### Material costs:

• Plastic for the 3D printer (£25 - £35 dependent on material) (3dgbire, 2020) if I use 30 spools per year its around £900

#### Labour costs:

• There will be a cost for my time (producing designs and programming the printer) but also need to consider that the larger the project the more time it can take and if I only have one printer that is all I can do till it is done.

#### Overhead costs:

- Software subscriptions (£495 for fusion 360) and the printer comes with its own printing software (Autodesk, 2020).
- Printer maintenance (estimate around £200 a year if bad)

#### Other costs

• Cost of 3D printer (£1500) - I went with a high-quality 3D printer as the product that the customer is paying for must be of substantial quality and gives me more options in terms of size (3dgbire, 2020)

**Total costs** - £3095 that is with the cost of the printer so on the second year it should go down to £1595 per year I will take the middle ground between the 2 and call it £2250 of costs

### How much to charge for labour?

I want to make 25000 profit a year to start with

25000 ÷ 220 (working days a year) = 113.64 per day

113.64 ÷ 6 (hours per working day) = **18.94 per hour** 

### How much to charge for costs?

2250 ÷ 220 (working days a year) = 9

9 ÷ 6 (hours per working day) = 1.5 per hour

### Total cost for my time is 18.94 + 1.5 = £20.45 per hour

To justify this, I would charge £10 per hour for may actual time (designing and programming) and an addition £2 - £5 per hour that the 3D printer is running. This way customers will be charged for materials that they use (the bigger the more expensive) also the higher quality the more it will cost (the higher the quality the longer it will take)

I could also investigate charging different prices for different quality materials for example:

Dremel PLA filament (£26.99 per spool) = £2 per running hour

Dremel ABS filament (£31.19 per spool) = £3 per running hour

Dremel Nylon filament (£35.99 per spool) = £5 per running hour

(3D GBIRE, 2020)

In conclusion I will charge around £10 per hour for any time spent doing work, for example creating CAD designs, formatting files, programming and setting up machine. In addition, I will be charging the customer a rate between £2 - £5 depending on the material while the printer is idly printing a part (this charge does not include the £10 labour). With the charges I have laid out I hope to average around £20.45 per hour or more to cover costs and make enough profit.

### **CASH FLOW FORECAST**

In this chapter I will show my cash flow forecast that I have made for my business. I will also be justifying some of the inputs I have put into to give if some context. There will also be a larger version of the cash flow forecast as appendix 1 as the tables are small and may be difficult to read in document.

### Year 1

		Nov-20		Dec-20		Jan-21		Feb-21		Mar-21		Apr-21		May-21		Jun-21		Jul-21		Aug-21		Sep-21		Oct-21
la como	Н	1404-20	H	Det-20		Jan-21		160-21		IVIAI-ZI		Apr-21		IVIAY-ZI		Juli-21		Jui-21		Aug-21		3ep-21		OCC-21
Income	_		_	200.00	_	500.00	_	4 000 00		700.00	_	4 000 00	•	400.00	_	200.00	_	000.00	_	700.00	_	700.00	_	500.00
CAD Drafts	£		£	300.00	£	500.00	_	1,000.00	£	700.00	£	,	_	400.00	£	300.00	£	800.00	£	700.00	£	700.00	£	500.00
3D Printing	£	-	£	700.00	£	1,000.00	_	2,000.00	£	3,000.00	£	5,500.00	£	3,000.00	£	4,000.00	£	5,000.00	£	7,000.00	£	6,000.00	£	4,000.00
Loan	£	6,000.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
	<u> </u>																							
	_																							
Costs	_																							
3D Printer	⊨	1,500.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Printer Fillament	£	26.99	£	90.00	£	120.00	£	240.00	£	360.00	£	660.00	£	360.00	£	480.00	£	600.00	£	840.00	£	720.00	£	480.00
Computer + Hardware	£	2,500.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Software	£	459.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Accounting	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00
Advertising	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00
Tax			£	200.00	£	300.00	£	600.00	£	740.00	£	1,300.00	£	680.00	£	860.00	£	1,160.00	£	1,540.00	£	1,340.00	£	900.00
Website	£	550.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00
Loan Repayment	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00
	Ī																							
Total Income	£	6,000.00	£	1,000.00	£	1,500.00	£	3,000.00	£	3,700.00	£	6,500.00	£	3,400.00	£	4,300.00	£	5,800.00	£	7,700.00	£	6,700.00	£	4,500.00
	Ī																							
Total Costs	£	5,395.99	£	670.00	£	800.00	£	1,220.00	£	1,480.00	£	2,340.00	£	1,420.00	£	1,720.00	£	2,140.00	£	2,760.00	£	2,440.00	£	1,760.00
Total Profit	£	604.01	£	330.00	£	700.00	£	1,780.00	£	2,220.00	£	4,160.00	£	1.980.00	£	2,580.00	£	3,660.00	£	4,940.00	£	4,260.00	£	2,740.00
	F	.,						,		,		, ,		,. ,		,,,,,,,,,,		.,		,		,		,
Money in Bank	f	604.01	£	934.01	£	1.634.01	£	3.414.01	f	5.634.01	f	9.794.01	£	11.774.01	£	14.354.01	£	18.014.01	£	22,954.01	f	27.214.01	f	29.954.01
Money III Ballk		004.01		334.01	μ.	1,054.01		3,414.01		3,054.01	Τ.	3,734.01	Τ.	11,774.01	Τ.	14,554.01		10,014.01	Τ.	22,554.01		27,214.01		23,334.01

### Year 2

		N= 21		D 31		Jan. 22		Feb-22		M== 22		A 22		14 22		l 22		1 22		A 22		C 22	-	Oct-22
		Nov-21		Dec-21		Jan-22		Feb-22		Mar-22		Apr-22		May-22		Jun-22		Jul-22		Aug-22		Sep-22	-	UCT-22
Income			_		_		_		_		_		_		_		_		_				_	
CAD Drafts		600.00	£	400.00	£	300.00	£	600.00	£	300.00	£	550.00	£	100.00	£	350.00	£	800.00	£	1,200.00	£	700.00	£	600.00
3D Printing	-	00.00	_	5,000.00	£	4,500.00	£	3,000.00	£	1,000.00	£	7,000.00	£	5,000.00	£	2,000.00	£	7,000.00	£	8,000.00	£	7,000.00	£	5,000.00
Loan	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
									_		_				_				_		$\vdash$			
																					<b>—</b>			
Costs																					_			
3D Printer	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Printer Fillament		480.00	£	600.00	£	540.00	£	360.00	£	120.00	£	840.00	£	600.00	£	240.00	£	840.00	£	960.00	£	840.00	£	600.00
Computer + Hardware	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Software		459.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Accounting		110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00
Advertising	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00
Тах	£	920.00	£	1,080.00	£	960.00	£	720.00	£	260.00	£	1,510.00	£	1,020.00	£	470.00	£	1,560.00	£	1,840.00	£	1,540.00	£	1,120.00
Website	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00
Loan Repayment	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00
																					Ш			
																					L			
Total Income	£ 4,6	600.00	£	5,400.00	£	4,800.00	£	3,600.00	£	1,300.00	£	7,550.00	£	5,100.00	£	2,350.00	£	7,800.00	£	9,200.00	£	7,700.00	£	5,600.00
																					L			
Total Costs	£ 2,2	239.00	£	2,060.00	£	1,880.00	£	1,460.00	£	760.00	£	2,730.00	£	2,000.00	£	1,090.00	£	2,780.00	£	3,180.00	£	2,760.00	£	2,100.00
																					Ĺ			
Total Profit	£ 2,3	361.00	£	3,340.00	£	2,920.00	£	2,140.00	£	540.00	£	4,820.00	£	3,100.00	£	1,260.00	£	5,020.00	£	6,020.00	£	4,940.00	£	3,500.00
Money in Bank	£ 32,3	315.01	£ 3	35,655.01	£	38,575.01	£	40,715.01	£	41,255.01	£	46,075.01	£	49,175.01	£	50,435.01	£	55,455.01	£	61,475.01	£	66,415.01	£	69,915.01

### Year 3

#### SAM LEWIS YEAR 3 - BUSINESS PLAN

		Nov-21		Dec-21		Jan-22		Feb-22		Mar-22		Apr-22		May-22		Jun-22		Jul-22		Aug-22		Sep-22		Oct-22
Income																								
CAD Drafts	£	300.00	£	350.00	£	1,000.00	£	500.00	£	350.00	£	600.00	£	200.00	£	500.00	£	850.00	£	900.00	£	800.00	£	750.00
3D Printing	£	5,000.00	£	5,000.00	£	3,000.00	£	5,500.00	£	3,250.00	£	3,500.00	£	2,000.00	£	4,500.00	£	7,500.00	£	5,000.00	£	7,000.00	£	5,000.00
Loan	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
	_																							
Costs	_																							
3D Printer	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Printer Fillament	£	600.00	£	600.00	£	360.00	£	660.00	£	390.00	£	420.00	£	240.00	£	540.00	£	900.00	£	600.00	£	840.00	£	600.00
Computer + Hardware	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Software	£	459.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Accounting	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00
Advertising	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00
Tax	£	1,060.00	£	1,070.00	£	800.00	£	1,200.00	£	720.00	£	820.00	£	440.00	£	1,000.00	£	1,670.00	£	1,180.00	£	1,560.00	£	1,150.00
Website	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00
Loan Repayment	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00
	匚																							
	L																							
Total Income	£	5,300.00	£	5,350.00	£	4,000.00	£	6,000.00	£	3,600.00	£	4,100.00	£	2,200.00	£	5,000.00	£	8,350.00	£	5,900.00	£	7,800.00	£	5,750.00
	L																							
Total Costs	£	2,499.00	£	2,050.00	£	1,540.00	£	2,240.00	£	1,490.00	£	1,620.00	£	1,060.00	£	1,920.00	£	2,950.00	£	2,160.00	£	2,780.00	£	2,130.00
Total Profit	£	2,801.00	£	3,300.00	£	2,460.00	£	3,760.00	£	2,110.00	£	2,480.00	£	1,140.00	£	3,080.00	£	5,400.00	£	3,740.00	£	5,020.00	£	3,620.00
Money in Bank	£	69,915.01	£	73,215.01	£	75,675.01	£	79,435.01	£	81,545.01	£	84,025.01	£	85,165.01	£	88,245.01	£	93,645.01	£	97,385.01	£1	.02,405.01	£1	106,025.01

Throughout the cash flow forecast (CFF) I have made several assumptions in the income and cost areas in this section I will be talking about some of these and justifying the choices I made.

### Income

For the first 3-4 months I have put my income lower as I will be a new business and it will take a while for customer to hear about me as the best advertisement is word of mouth, so I have given it around 4 or so months for business to pick up.

Secondly, I have thrown in a couple of random months of particularly high and low incomes as there will be times where there will be situations out of my control that will affect the business, so I added some extremes to take this into account.

The final point for income I will make is the amount of loan I entered. I chose £6000 as it was enough to cover the start up costs and left with me with some left over for an emergency. I also considered that I would have to pay it back with interest so the bigger the loan the larger the amount of interest I would have to pay.

#### Costs

A lot of the justification for the costs can be found in the costs and pricing chapter but I will go over the ones that are not here.

Firstly, I did some primary research by asking around with friends and family as a lot of them are self employed and they said that they pay anything from around £90 - £130 for accounting fees so I took the average of £110 in my CFF

#### SAM LEWIS YEAR 3 - BUSINESS PLAN

Secondly, I researched the average cost of a website and found the following table that can be seen in figure 1. from this I decided to use the upfront cost of £550 and a monthly cost of around £20 for this I hope that I would get a good website as it will be the main way the customer will interact with me and the business. (Barraclough, 2020)

	Cost of a Basic Website	
	Upfront costs	
Design	£200 to £500	
Domain	£2.99 to £100 / year	
Total Upfront Cost	£202.99 to £600	
	Ongoing costs	
Hosting	£3 to £45 / month	
Content Updates	£0 to £10 / month	
Total Ongoing Costs	£3 to £55 / month	

Figure 1: Cost of a Basic Website (Barraclough, 2020)

The final point is that unfortunately I will have to pay tax and the rate for a sole trader that is earning £37,500 (which is what I expect to fall under) is 20% of income which I have considered in the CFF. (Burton, 2017)

### **BRANDING AND MARKETING**

well that I will discuss below. I also did some

In this chapter I will be discussing my what marketing I am going to do and where I will do it to reach my potential customers, also I will explain why I have chosen the methods that I have. I will also be talking through the process of designing my logo and the company name and why I think it is good and what future development it needs

The first thing that I needed to do was a come up with a company name, I got to the name Print-Ease. This is because my company specialising in the ease of using 3D printing and it make 3D printing easy. I decided to split the 2 words into 2 different colours to match my design portfolio for continuity. As you can see, I added the logo as

research into the name by googling it and trying some different URLs to see if a company with the same name or something similar and I found nothing that

The second stage was to create a logo for my busines. I wanted something that would be able to be printed on the products I produce so that it would be obvious

where the product come from and should help with word of mouth, to do this the logo would need to be relatively simple and not to intricate so I started with initials of the company P and E. I then wanted to incorporate what the company does and that is work in 3D whether it is CAD or printing. When I was on the CAD software, I saw the symbol representing the axis and liked the way it looked. It looked like figure 2. I then possitioned the letters in a bold font in th oriantayion that resembled the axis symbol.

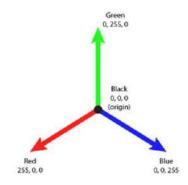


Figure 2: Axis Symbol (Microsoft, 2020)

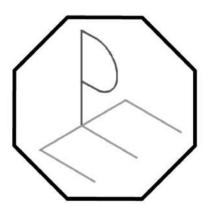
Unfortunatly the way I arranged it and with the bold font it looked to similar to



Figure 3: PlayStation Logo (Sony, 2020)

the playstation logo that can be seen in figure 3. In order to to combat this I rearanged the way the letters where arranged and also the thickeness of the lines of the font. Ther is still work that needs to be done with tryinf to fine tune the thicknesses of the lines in order to make sure the logo is visible when it has been 3d printed onto the products. This end result I feel gives the right feel for the business and gives off the correct image. Dispite the fact the logo could

do with a little fine tuning I am happy with the end result the final logo can be seen below.



When it comes to advertising for the business, I first need to look at my target customers are. My company is mainly focused on individuals, handymen and some small businesses. To reach these people, I will focus my advertisement on social media sites such as Facebook, Instagram, and linked in. on Facebook you are able to be paid campaigns, this means I will just create the add and Facebook will distribute it. I will also create an Instagram page and use it almost like a portfolio. Facebook I will use to reach individuals and handymen like people as a lot of them do business through Facebook anyway. To reach small businesses, I will advertise

and crate an account on linked in as it is focused more on businesses interacting with other businesses. Hopefully with this marketing a good number of my target customers will find my business and use the services I provide to a point where my business becomes successfully.

### **SWOT ANALYSIS**

In this section I will be evaluating the strengths, weaknesses, opportunities, and threats (SWOT) of my business idea. from this I will be able to see any issues and make changes to my business where I see fit and to improve customer services.

### Strengths

**New technology** - the first strength is that with 3D printing being a new technology it is not very accessible meaning that very few people have accesses to it. and is very rare for someone in my customer basis to have access to a 3D printer.

**Interest** - again with 3D printing being relatively new there is interest as there is not anything like it and is not very accessible. My hope is that people my be drawn into getting a part 3D printed partly out of curiosity.

#### Weaknesses

Errors and Failed Prints - 3d printing is verry much trial and error meaning every print will requires different setting, especially at the start it may take me multiple attempts to get the setting correct before I get to know the printer's behaviour. Also, there may be instances where errors may occur during printing an example may be that the primly may come away from the base during printing resulting in a failed print right near the end of the print. All the above will result in a waste of time, materials, and money.

**Printer Limitations** - especially at the start where I am limited in my start up budget the printer that I may purchase will almost definitely have limitations on it. the main ones will be the size of the print bed (limiting the size of the product that can be printed) and materials that can be used (depending on the printer it way only be able to print with specific materials resulting in some potential limitations.

### **Opportunities**

**Expansion** - the nature of 3D printing being produced in a single machine mean all I must do is purchase an extra printer to increase production numbers and/or rate. For example, if I am doing well and want to upgrade from one to two printers, I

will only have to spend £1500 (see costs and pricing section) in order to double my production.

Different CAM Methods - like expansion I will potentially in the future be able to not only purchase more 3D printers but also different types of machines. Some other types of machines that I could use are CNC lathes and mills, laser cutters and vacuum forming. All will increase the services I will be able to provide resulting in more potential customers.

### **Threats**

**Developing technology** - as time goes on it is natural for 3D printing to become more and more accessible and the more accessible it is the more people will have access to CAD and 3D printing taking away potential customers

**Competitors** - one of the only things that will determine an advantage over a competitor will be that you are using this is because it the printer that decides how quickly a product will be printed. You can speed up any printer but that well affect the quality also the size a print can be will also depend on the printer. This means that all a competitor will have to do to have an advantage is purchase a better machine.

# CONCLUSION

In this business plan I have outlined the main points of my business. I have developed a good understanding of my competitors, so I know how to steer my company to make myself different in the future. I also have a good understanding of how much it is all going to cost and how much I will need to charge to make a good profit. I also covered marketing and how I came up with the logo and company name. final I did an analysis of my business in the hope that I could identify the strengths, weaknesses, opportunities and treats to my business. Hopefully through reading this the reader will have a clear understanding of what my business is and how I intend on making it possible.

### **BIBLIOGRAPHY**

- CAD Services . (2020). *Home: CAD Services* . Retrieved from CAD Services : https://www.cadservices.com/
- 3D GBIRE. (2020). *Dremel Fillament: 3D GBIRE*. Retrieved from 3D GBIRE: https://3dgbire.com/search?page=1&q=Dremel+Filament&type=product
- 3D Print Direct . (2020). *Home: 3D Print Direct* . Retrieved from 3D Print Direct : https://3dprintdirect.co.uk/
- 3D Printing House. (2020). *Home: 3D Printing House*. Retrieved from 3D Printing House: https://3dprinting.haus/
- 3dgbire. (2020). *Products: 3dgbire*. Retrieved from 3D GBRIE: https://3dgbire.com/products/dremel-3d45?variant=31869517430837
- Autodesk. (2020). *Fusion 360: Autodesk*. Retrieved from Autodesk: https://www.autodesk.co.uk/products/fusion-360/overview
- Barraclough, D. (2020, October 29). How Much Does a Website Cost in 2020?: Expert Market. Retrieved from Expert Market: https://www.expertmarket.co.uk/web-design/how-much-does-website-cost
- Burton, L. (2017, July 27). *Sole Trader Tax: High Speed Training*. Retrieved from High Speed Training: https://www.highspeedtraining.co.uk/hub/sole-trader-tax/#:~:text=The%20current%20Income%20Tax%20rates%20for%20sole%20traders%20 are%3A&text=Basic%20rate%20tax%3A%20%C2%A31,%C2%A3150%2C000%20%3D%2045 %25%20tax.
- CreativeTools. (2015, April 05). *Benchy: Thingiverse*. Retrieved from Thingiverse: https://www.thingiverse.com/thing:763622
- Microsoft . (2020). VB.Net Generate Color Sequences Using RGB Color Cube: Microfoft TechNet. Retrieved from Microfoft TechNet:

  https://social.technet.microsoft.com/wiki/contents/articles/20990.vb-net-generate-color-sequences-using-rgb-color-cube.aspx
- Sony. (2020). *home: Playstation*. Retrieved from Playstation: https://www.playstation.com/en-gb/?smcid=gwo
- Triple Axis. (2020). *Home: Triple Axis*. Retrieved from Triple Axis: https://www.tripleaxis.co.uk/

# APPENDIX

SAM LEWIS YEAR 3 - BUSINESS PLAN

### Appendix 1 - Cash flow forecast year 1 - 3

Year 1

	1	N 20		D 20		124		E   24		24		A 24		14 24		1 21		1 1 24		. 21		C . 24		0.1.24
		Nov-20		Dec-20		Jan-21		Feb-21		Mar-21		Apr-21		May-21		Jun-21		Jul-21		Aug-21		Sep-21		Oct-21
Income	_				_						_						_				_			
CAD Drafts	£	-	£	300.00	£	500.00		1,000.00	£	700.00	£	_,,,,,,,,,,		400.00	£	300.00	£	800.00	<del>                                     </del>	700.00	£	700.00	£	500.00
3D Printing	£	-	£	700.00	£	1,000.00		2,000.00	£	3,000.00	£	5,500.00	£	3,000.00	£	4,000.00	£	5,000.00	£	7,000.00	£	6,000.00	£	4,000.00
Loan	£	6,000.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
	_																						<u> </u>	
	_																						—	
Costs	<u> </u>																							
3D Printer	£	1,500.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Printer Fillament	£	26.99	£	90.00	£	120.00	£	240.00	£	360.00	£	660.00	£	360.00	£	480.00	£	600.00	£	840.00	£	720.00	£	480.00
Computer + Hardware	£	2,500.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Software	£	459.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Accounting	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00
Advertising	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00
Tax			£	200.00	£	300.00	£	600.00	£	740.00	£	1,300.00	£	680.00	£	860.00	£	1,160.00	£	1,540.00	£	1,340.00	£	900.00
Website	£	550.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00
Loan Repayment	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00
Total Income	£	6,000.00	£	1,000.00	£	1,500.00	£	3,000.00	£	3,700.00	£	6,500.00	£	3,400.00	£	4,300.00	£	5,800.00	£	7,700.00	£	6,700.00	£	4,500.00
Total Costs	£	5,395.99	£	670.00	£	800.00	£	1,220.00	£	1,480.00	£	2,340.00	£	1,420.00	£	1,720.00	£	2,140.00	£	2,760.00	£	2,440.00	£	1,760.00
Total Profit	£	604.01	£	330.00	£	700.00	£	1,780.00	£	2,220.00	£	4,160.00	£	1,980.00	£	2,580.00	£	3,660.00	£	4,940.00	£	4,260.00	£	2,740.00
Money in Bank	£	604.01	£	934.01	£	1,634.01	£	3,414.01	£	5,634.01	£	9,794.01	£	11,774.01	£	14,354.01	£	18,014.01	£	22,954.01	£	27,214.01	£	29,954.01

SAM LEWIS YEAR 3 - BUSINESS PLAN

# Year 2

	No	ov-21	Dec-2	1	Jan-22		Feb-22		Mar-22		Apr-22		May-22		Jun-22		Jul-22		Aug-22		Sep-22		Oct-22
Income																							
CAD Drafts	£ 60	0.00	£ 400.00	£	300.00	£	600.00	£	300.00	£	550.00	£	100.00	£	350.00	£	800.00	£	1,200.00	£	700.00	£	600.00
3D Printing	£ 4,00	00.00	£ 5,000.00	£	4,500.00	£	3,000.00	£	1,000.00	£	7,000.00	£	5,000.00	£	2,000.00	£	7,000.00	£	8,000.00	£	7,000.00	£	5,000.00
Loan	£	-	£ -	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Costs																							
3D Printer	£	-	£ -	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Printer Fillament	£ 48	0.00	£ 600.00	£	540.00	£	360.00	£	120.00	£	840.00	£	600.00	£	240.00	£	840.00	£	960.00	£	840.00	£	600.00
Computer + Hardware	£	-	£ -	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Software	£ 45	9.00	£ -	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Accounting	£ 11	0.00	£ 110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00
Advertising	£ 5	0.00	£ 50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00
Тах	£ 92	0.00	£ 1,080.00	£	960.00	£	720.00	£	260.00	£	1,510.00	£	1,020.00	£	470.00	£	1,560.00	£	1,840.00	£	1,540.00	£	1,120.00
Website	£ 2	0.00	£ 20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00
Loan Repayment	£ 20	0.00	£ 200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00
Total Income	£ 4,60	0.00	£ 5,400.00	£	4,800.00	£	3,600.00	£	1,300.00	£	7,550.00	£	5,100.00	£	2,350.00	£	7,800.00	£	9,200.00	£	7,700.00	£	5,600.00
Total Costs	£ 2,23	9.00	£ 2,060.00	£	1,880.00	£	1,460.00	£	760.00	£	2,730.00	£	2,000.00	£	1,090.00	£	2,780.00	£	3,180.00	£	2,760.00	£	2,100.00
				1																			
Total Profit	£ 2,36	1.00	£ 3,340.00	£	2,920.00	£	2,140.00	£	540.00	£	4,820.00	£	3,100.00	£	1,260.00	£	5,020.00	£	6,020.00	£	4,940.00	£	3,500.00
Money in Bank	£ 32,31	5.01	£ 35,655.01	£	38,575.01	£	40,715.01	£	41,255.01	£	46,075.01	£	49,175.01	£	50,435.01	£	55,455.01	£	61,475.01	£	66,415.01	£	69,915.01

SAM LEWIS YEAR 3 - BUSINESS PLAN

# Year 3

		Nov-21		Dec-21		Jan-22		Feb-22		Mar-22		Apr-22		May-22		Jun-22		Jul-22		Aug-22		Sep-22		Oct-22
Income																								
CAD Drafts	£	300.00	£	350.00	£	1,000.00	£	500.00	£	350.00	£	600.00	£	200.00	£	500.00	£	850.00	£	900.00	£	800.00	£	750.00
3D Printing	£	5,000.00	£	5,000.00	£	3,000.00	£	5,500.00	£	3,250.00	£	3,500.00	£	2,000.00	£	4,500.00	£	7,500.00	£	5,000.00	£	7,000.00	£	5,000.00
Loan	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Costs																								
3D Printer	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Printer Fillament	£	600.00	£	600.00	£	360.00	£	660.00	£	390.00	£	420.00	£	240.00	£	540.00	£	900.00	£	600.00	£	840.00	£	600.00
Computer + Hardware	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Software	£	459.00	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-
Accounting	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00	£	110.00
Advertising	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00	£	50.00
Тах	£	1,060.00	£	1,070.00	£	800.00	£	1,200.00	£	720.00	£	820.00	£	440.00	£	1,000.00	£	1,670.00	£	1,180.00	£	1,560.00	£	1,150.00
Website	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00	£	20.00
Loan Repayment	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00	£	200.00
Total Income	£	5,300.00	£	5,350.00	£	4,000.00	£	6,000.00	£	3,600.00	£	4,100.00	£	2,200.00	£	5,000.00	£	8,350.00	£	5,900.00	£	7,800.00	£	5,750.00
Total Costs	£	2,499.00	£	2,050.00	£	1,540.00	£	2,240.00	£	1,490.00	£	1,620.00	£	1,060.00	£	1,920.00	£	2,950.00	£	2,160.00	£	2,780.00	£	2,130.00
Total Profit	£	2,801.00	£	3,300.00	£	2,460.00	£	3,760.00	£	2,110.00	£	2,480.00	£	1,140.00	£	3,080.00	£	5,400.00	£	3,740.00	£	5,020.00	£	3,620.00
Money in Bank	£	69,915.01	£	73,215.01	£	75,675.01	£	79,435.01	£	81,545.01	£	84,025.01	£	85,165.01	£	88,245.01	£	93,645.01	£	97,385.01	£ 1	.02,405.01	£ 1	.06,025.01