Financial Business Plan

TutorPoint

2019 / 2020

Group 2
MEng Software Engineering Project
Department of Electronic Engineering
University of York

Document Version Control

History of edits and alterations to the CUBIXEL financial business plan, including the document version, date, author, and description of the edits.

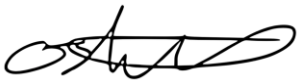
Version numbering is based on the significance of change.

Key: (major-change/milestone**.**new-section**.**section-edit)

Version	Author	Date	Section Modified	Remarks
0.1.0	OC	05/12/19	All Sections	Document created.
0.1.1	OC	03/01/20	Cash Flow	Cash flow created.
0.1.2	OS	03/02/20	All Sections	Initial drafting.
0.1.3	CS	04/02/20	Market Analysis	Initial drafting .
0.1.4	OC	04/02/20	All Sections	Initial drafting.
0.1.5	OS	05/02/20	2. Product Financial Plan	Section rephrasing and added wage graph.
0.2.0	OS, OC	05/02/20	All Sections 3.3 Project Budget 3.4 Overhead Recovery Rate 5. Financial Agreement	Added new sections of project budget, overhead recovery rate, and a financial agreement. Continued drafting and rephrasing sections.
1.0.0	**OC, OS, CS**	**06/02/20**	**All Sections**	**Full document check and completion of first draft.**
1.0.1	OC	18/02/20	All Sections	Plan Feedback received and initial changes have been made.
1.1.0	OC	19/02/20	All Sections	Restructured Document, removed marketing. Removed previous labour predictions and implemented a new method.
1.1.1	OC	20/02/20	2. Product Financial Plan	Changed strategy and added to the whole section.
1.1.2	OS	20/02/20	1.4 Feature List 2.1 Project Plan	Added feature list. Added to the project plan.
1.1.3	OC	20/02/20	2.3 Project Outflow	Changed into two sections, fixed costs and variable costs.
1.2.0	OC	20/02/20	2.4 Project Budgeting	Correcting Values.
2.0.0	**OC**	**21/02/20**	**All Sections**	**Full document check and completion of second draft.**
2.0.1	OS	21/02/22	All Sections	Proofreading.

Document Approval

All authors of the document are required to proofread, mandate, and sign-off before the document's official publication.

Author	Signature	Date
Oliver Clarke		21/02/2020
Oliver Still		21/02/2020

Preface

This document is the financial business plan for the TutorPoint application, in development by the software development company CUBIXEL. It provides the reader with an understanding of what the company predicts for its finances during the first few iterations during development of the product TutorPoint. This includes details of the company's approach to budgeting, costs and forecasted expenses.

The company, Cubixel ("we", "our", "us"), may be stylised as "CUBIXEL" and may be referred to as the COMPANY.

The financial backer, Tony Ward ("you", "their", "them"), may be referred to as the FINANCIAL ADVISOR, FINANCIAL BACKER, or the BACKER.

The application, TutorPoint, may be referred to as the APPLICATION, SOFTWARE, PROJECT, PROGRAM, or the GOODS.

The proposed financial cash injection made by the financial backer may be referred to as the FUNDS.

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1. Introduction

1.1 Company Overview

CUBIXEL is an eight-person software engineering consultancy and development team based in York, United Kingdom. As a team, we provide software design services to clients and large companies, focusing on full stack development and providing true customer value using agile development practices.

We are inclusive to all industries that align with our own company ideals, especially those involved in global change to provide a positive impact to fields of research, and in people's homes.

1.2 Mission Statement

At CUBIXEL, we strive to provide companies with the necessary tools to prosper in their respective fields. Our business focus is on the design, implementation, and support of research and academic based software for companies willing to push the boundaries of education and research.

With the core of our team initially meeting at university, we understand the importance of the social tools required to aid those in higher education. By contributing our knowledge and expertise to the academic field of study, we believe we can establish and succeed in new areas of research and advance society to educate more young people into STEM and social based sectors.

1.3 Product Description

TutorPoint is a desktop based, Java application intended to provide a digital lecture environment for both students and lecturers. It is open to any subject that a tutor would like to teach but with a particular focus on STEM subjects at the college and university level. It provides the tools to enable delivery of lecture content live to an audience with instant feedback from users on topics being covered. Users will be able to create an account as either a student or a lecturer and begin watching or producing content on a subject of their choice.

The aim of TutorPoint is to provide an online platform for students and specialists to share, converse and develop their respective fields. The platform is to be structured in a way as to aid education above any other purpose, incorporating a screen for XML presentations, an interactive whiteboard, and text/video chat. The goal of TutorPoint is to nurture limitless education in all fields globally, enabling new fields of studies and advancement in developing countries and niche areas of expertise.

1.4 Feature List

The fundamental features of TutorPoint include:

- The ability to register as either a student or a tutor, with access to your own public profile.
- A personalised list of the user's favourite/interested topics, and areas of expertise.
- Full graphical user interfaces, with easy access to the main features of the application.
- A home landing view of previously streamed content by followed and popular tutors.
- The ability to start a live stream (if the user is a tutor) from a local XML presentation file.
- Tutors may switch between a variety of views to present from, including:
    - XML presentation, with ability to present text, graphics, audio, images, and videos.
    - Interactive whiteboard, with ability to draw and place text (tutor-only access in one-to-many stream, tutor and student access in one-to-one stream).
    - Optional webcam view.
- A user text chat alongside streams, for users to converse topics during the presentation.

2. Product Financial Plan

CUBIXEL are looking for a financial backer who will be able to fund the total estimated cost defined to help start and maintain the development of the proposed product as described in section 1.3. This section consists of a project summary and breakdown of the predicted income, expenditure, and budget, as well as supporting and justifying the viability of the product financially.

2.1 Project Plan

The project will incorporate agile-style, iterative development with Kanban-style management to ensure feature deadlines are met and remain within the labour budget. Two-week project iterations will be delivered and assessed internally by the company where a project log report will be produced for the client to view. The project log report will contain a summary of the completed features and whether the development of each feature was within time and budget. Overall, seven iterations will be completed during the project's lifespan beginning from 20th February 2020.

Employees are assumed and expected to log all hours working on the project to the nearest fifteen minutes via the time tracking service Clockify, and will work no more than the assigned hours unless otherwise approved by the finance manager. By comparing the predicted hours for each user story to the number of programming hours per iteration, each user story can be assigned to a specific iteration. The software development team is then encouraged to complete all user stories assigned to each iteration within the allocated time. If all user stories have been completed, employees may assist in the refactoring and exploratory testing stages. If at the end of an iteration stories that should have been completed still remain, these stories will be pushed into the next iteration, the estimates will be reassessed, and the source of the inaccuracies found and addressed.

2.2 Project Inflow

Financial backing will be the main source of funding in the initial and current stage of development, therefore it is important that all necessary expenditures of the project are included and covered for when calculating the required cash injection.

Additional income may occur during the project's development through contracted services by the company to vendors resulting in a net profit. Nonetheless, it is not expected that financial income will be gained from this in the scenario where the company does not outsource any code developed in-house by our software development team. The contracted services include coded resources, modules and support.

In the event where the company agrees to provide its services to other vendors, a contract will be formed with the total cost calculated by considering the scale and intensity of the work scope. All income from contracted services will not initially be considered as net profit, but instead will be fed back into the project by outsourcing contracted services for our own products in order to further development and result in zero net profit. Additionally, if an excess from all contract deals is predicted, the excess will be budgeted into wages, or paid back to the financial backer.

The financial injection needed to cover the budgeted expenditures is **£55,000.00** as of 20th February 2020. The cash injection is suggested to be received in two payments, the first payment at an amount of **£34,375.00** and a second payment of **£20,625.00**. The payments are balanced in a ⅝ : ⅜ ratio split in order for the company to keep a positive bank balance throughout the project and for the account to not close negative for any week.

2.3 Project Outflow

2.3.1 Fixed Costs

Weekly rent and bills for the company's office space (including support for IT infrastructure) is assumed to remain constant throughout the project's lifespan. In total, this overhead cost has been calculated to be **£35,388.66**. Further details of the overhead expenditure is discussed in section 3.3.

2.3.2 Variable Costs

All employees are paid £12.50 per hour of committed work on the product as of 30th September 2020. With the current small scale of the company, weekly wage expenditure is expected to fluctuate throughout development due to varying work deadlines and demand. This fluctuation can be seen through the recorded hours during the autumn term being significantly lower than the spring term. Additionally, due to companywide commitments, no work was conducted over the Christmas period.

Nonetheless, the expenditure from wages displays an upwards trend as the pace of the team gradually increases. Taking the mean average of working hours from the first three weeks beginning 13th January 2020 of development, the entire team committed just under 60 hours of work on the project, totalling at £750.00 per week, or around 7 hours and 30 minutes per employee. This included meetings, administration, research, and documentation for starting the company and initialising the project. As the first iteration approached, the team was expected to follow the current upwards trajectory from autumn to spring term, thus the hours were expected to increase per employee. Using extrapolation of previous hours is not an effective method to predict future labour costs, however it does consider and display the capability of the team.

With this in mind, future wage expenditure can be estimated using pre-defined to complete our product. The total number of user stories is 30 as of 20th February 2020 and amounts to a total of 65 ideal days of programming (an ideal day representing eight hours). This converts to 520 hours total of programming required, or 65 hours per person. As there are seven fortnightly iteration cycles between 20th February 2020 to the 21st May 2020, this equates to an average of nine hours per person per iteration.

To spread the workload out evenly like this would not be financially practical. Therefore, the user stories have been sorted by their difficulty, dependencies, and predicted time to program, before being allocated to specific iteration cycles to balance the workload evenly throughout the project. This should minimise any major unforeseen increases in labour, and will allow employees to assist in project refactoring and testing to ensure a working version of the program is available at the end of the iteration.

Iteration Period	User Stories	Estimated Total Hrs	Cost	Cost with Admin Hours (£)	Per Week Of Iteration (£)
Iteration 0 (16th Jan - 20th Feb)	001, 002, 004, 020	52	£ 650.00	n/a	n/a
Iteration 1 (20th Feb - 5th Mar)	003, 004, 008, 009, 010, 014, 016	88	£ 1,100.00	£ 2,000.00	£ 1,000.00
Iteration 2 (5th Mar - 19th Mar)	012, 015, 017	80	£ 1,000.00	£ 1,900.00	£ 950.00
Iteration 3 (19th Mar - 2nd Apr)	006, 007, 018, 019	72	£ 900.00	£ 1,800.00	£ 900.00
Iteration 4 (2nd Apr - 16th Apr)	021, 022, 023, 027, 028	76	£ 950.00	£ 1,850.00	£ 925.00
Iteration 5 (16th Apr - 30th Apr)	024, 025, 030	72	£ 900.00	£ 1,800.00	£ 900.00
Iteration 6 (30th Apr - 14th May)	011, 013, 026, 029	80	£ 1,000.00	£ 1,900.00	£ 950.00
Iteration 7 (14th May - 28th May)	-	-	£ 900.00	£ 1,800.00	£ 900.00
	Total:	**440**	**£ 7,400.00**	**£ 13,050.00**	

Figure 1 - Table to show the time allocation and budget of user stories per iteration.

There will be additional hours required for tasks such as meetings, research, administration and fulfilment of individual roles. We have at least one weekly meeting as a company, which takes an hour. As a company, we expect an additional 4.5 hours of allocated tasks or supporting work per employee per week on the project's development. This includes meetings, research, administration and fulfilment of individual roles.

The iteration hours have been split into two-week periods equally with the administration hours added to each week. This is summarised in figure 1. Furthermore, there are no user stories allocated in the final iteration. This is due to the iteration being dedicated for any last refactoring or testing and completing any underestimated or additional/optional user stories if the deadline permits.

As a company, similar intensities have already been observed to that of what will be required during the programming iteration period. The main company documentation is now complete, allowing more hours to be allocated to programming. Therefore, we can assure confidence that the product can be delivered on time due to our team's prior capability shown in administration. Details of the current weekly expenditure of wages and the predicted weekly expenditure of wages discussed in this section can be seen visualised in figure 2.

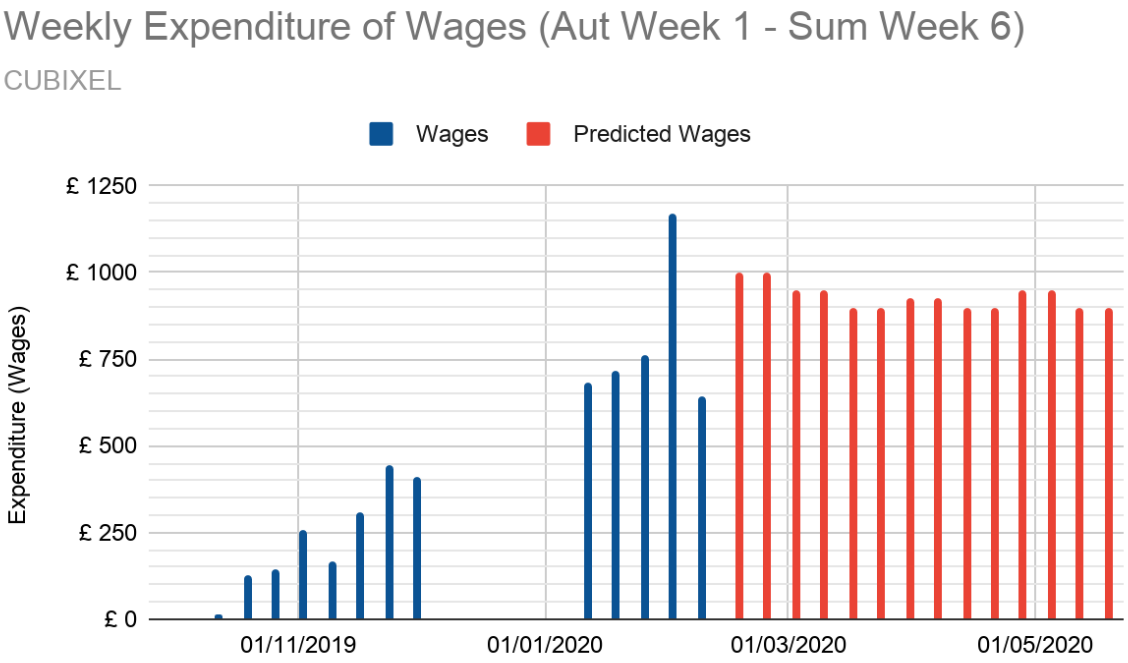

Figure 2 - Bar chart of weekly expenditure due to wages from autumn week 1 to summer week 6.

2.4 Project Budgeting & Overhead Recovery Rate

In order to keep the project within budget, assumptions and rules have been made for the seven iterative stages of development from the 20th February 2020 to the 21st May 2020. A zero-base budgeting model is applied where each cost must be justified by an employee. The assumptions are:

- Team members may not work over defined weekly hours budgeted per employee for each user story. If a team member believes that they will not have sufficient working hours to complete their respective tasks or would like to work additional hours, they must make the project or finance manager aware prior. This proposal will then be accessed by the managers whether it is reasonable or if it is within the labour budget. If so, more hours will be allocated to the respective employee.
- Likewise, if a feature or user story is overspending, then it will come under scrutiny as to why the issue occurring. Both the labour budget and the completion rate of the respective user story will be compared. If the percentage expenditure of the labour budget is greater than the completion rate, the employees will be notified and the estimation will be reassessed in line with our agile methodology.
- Each employee is expected to give reliable and accurate information as to what they are working on and the duration using the third-party service Clockify.
- Hours are monitored daily and must be justified or work must be proven if they seem unreasonable.
- It is expected that the cost of rent and utilities (including IT infrastructure) for this business plan will not change during the course of the development period.
- No new staff will be hired, nor any current employees are expected to leave during this period.

For company service contracts, a total budget of **£4,000.00** will be reserved in the unlikely event where we do not sell any services ourselves and thus the net is negative. We intend to at least buy and sell two modules each, overall resulting in a net of as close to zero as possible. In the case where we result in a net profit, this income will be used to offset any weekly wages that are over budget during the highest intensity periods of development.

Indirect costs of the company include the office rent, office bills and utilities, IT infrastructure, contracted development, and loan repayments of the cash injection. The overheads for the business are totalled at **£35,388.66**. Direct/Variable costs, which includes all labour, is budgeted at **£18,890.63.**

To calculate the overhead recovery rate the full absorption costing method has been used to provide the full cost of development. Using the predicted project expenditures, the overhead recovery rate is estimated to be **23.42 £/Hr** for the project. The full budget for the project, TutorPoint, is estimated to be **£55,000.00**. Details of the total injection left at the end of this development period, including the current and projected expenditure, can be seen in figure 3.

	Budget	*Current Expenditure*	*Predicted Expenditure*	***Remaining Budget***	*Predicted Remaining*
Overhead Expenditure					
Office Rent	**£ 24,042.60**	£ 12,654.00	£ 24,042.60	**£ 11,388.60**	£ -
Office Bills and Utilities	**£ 1,900.00**	£ 1,000.00	£ 1,900.00	**£ 900.00**	£ -
IT Infrastructure	**£ 3,800.00**	£ 2,000.00	£ 3,800.00	**£ 1,800.00**	£ -
Contracts	**£ 4,000.00**	£ -	£ 4,000.00	**£ 4,000.00**	£ -
Loan Repayments	**£ 1,646.06**	£ -	£ 1,646.06	**£ 1,646.06**	£ -
Variable Expenditure					
Wages	**£ 18,890.63**	£ 5,840.63	£ 18,890.63	**£ 13,050.00**	£ -
Overhead	£ 35,388.66	£ 15,654.00	£ 35,388.66	£ 19,734.66	£ -
Variable	£ 19,611.34	£ 5,840.63	£ 18,890.63	£ 13,770.72	£ 720.72
Total Injection	**£ 55,000.00**	**£ 21,494.63**	**£ 54,279.28**	**£ 33,505.38**	**£ 720.72**
Overhead Recovery Rate (£/hr)	**23.42**	**10.36**	**23.42**		

Figure 3 - Table detailing the project budget, with the current and predicted project expenditure.

Furthermore, by using an iteration tracking table we can track actual programming progress against the respective labour/financial cost. This can be analysed to determine whether we may under or overspend for each user story during iterations. This means the company can be managed to address issues where overspending from the budget is foreseen to occur.

The iteration in the table seen in figure 4 is classed as a research period (iteration 0) rather than as a proper development iteration in order to lay down the foundational features and user stories of the project before regular iterations begin. This period consisted of three developers, including technical managers and testing managers, working on the project for a four-week period leading up to the first iteration on 20th February 2020. Although not classed iteration, the premise of the time and labour budget can be accessed.

To track project and financial progress a table is used per iteration. An example of this is shown in figure 4.

User Story	Estimated Hrs	Actual Hrs	Hrs Difference	Completion	Estimated Cost	Current Cost	Cost Difference	Percentage Expenditure
1	16.00	38.00	22.00	100%	£ 200.00	£ 475.00	£ 275.00	238%
2	8.00	16.00	8.00	100%	£ 100.00	£ 200.00	£ 100.00	200%
5	4.00	2.00	-2.00	100%	£ 50.00	£ 25.00	£ (25.00)	50%
20	24.00	6.00	-18.00	100%	£ 300.00	£ 75.00	£ (225.00)	25%

Figure 4 - Table detailing the projected progress against actual progress for the project research period / iteration 0.

3. Financial Agreement

3.1 Mutual Non-Disclosure Agreement

1. Each of the parties to this Agreement intends to disclose information (the Confidential Information) to the other party for the purpose of the development of the application specified (the Purpose).

2. Each party to this Agreement is referred to as 'the Recipient' when it receives or uses the Confidential Information disclosed by the other party.

3. The Recipient undertakes not to use the Confidential Information disclosed by the other party for any purpose except the Purpose, without first obtaining the written agreement of the other party.

4. The Recipient undertakes to keep the Confidential Information disclosed by the other party secure and not to disclose it to any third party except to its employees who need to know the same for the Purpose, who know they owe a duty of confidence to the other party and who are bound by obligations equivalent to those in clause 3 above and this clause 4.

5. The undertakings in clauses 3 and 4 above apply to all of the information disclosed by each of the parties to the other, regardless of the way or form in which it is disclosed or recorded but they do not apply to:

    a) any information which is or in future comes into the public domain (unless as a result of the breach of this Agreement); or

    b) any information which is already known to the Recipient and which was not subject to any obligation of confidence before it was disclosed to the Recipient by the other party.

6. Nothing in this Agreement will prevent the Recipient from making any disclosure of the Confidential Information required by law or by any competent authority.

7. The Recipient will, on request from the other party, return all copies and records of the Confidential Information disclosed by the other party to the Recipient and will not retain any copies or records of the Confidential Information disclosed by the other party.

8. Neither this Agreement nor the supply of any information grants the Recipient any licence, interest or right in respect of any intellectual property rights of the other party except the right to copy the Confidential Information disclosed by the other party solely for the Purpose.

9. The undertakings in clauses 3 and 4 will continue in force indefinitely**.**

10. This Agreement is governed by, and is to be construed in accordance with, English law. The English Courts will have non-exclusive jurisdiction to deal with any dispute which has arisen or may arise out of, or in connection with, this Agreement.

3.2 Service-Level Agreement

The following signatures confirm that an agreement between the FINANCIAL BACKER and the Financial Manager, on behalf of the COMPANY (CUBIXEL), has been made for the FINANCIAL BACKER to provide the company with the proposed FUNDS defined in this document to proceed with the development of the software application.

In addition, both the COMPANY and FINANCIAL BACKER agree to the terms laid out in section 4.1 to non-disclose all information relating to the project and company operations.

Payments of the proposed FUNDS will be made at an agreed time following the completion and documentation of this agreement.

Signed by:	*Signed by:*
for and on behalf of	*for and on behalf of*
THE COMPANY	***THE FINANCIAL BACKER***
Signature:	**Signature:**
Date:	**Date:**