

CREST Report

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Award Level: Gold

Project Title: Standardising Tri-Tech Contracting's Tender Process

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Project Aim

This project aims to standardise how Tri-Tech deals with its Tender Process. Tri-Tech Contracting is a firm specialising in Civil Engineering - defined as the profession of designing and executing plans for structural works that serve the general public. [1] Typically, a company (such as Scottish Power Renewables or Great Yarmouth Borough Council) will send details of a project to Tri-Tech (and other Civil Engineering Firms), and these firms will 'Tender' for the project (bidding the best possible quality and the lowest possible price). [2] However, Tri-Tech's previous Tender system was disorganised, with Project References (important for organising information) being duplicated, and Tender Proposals being delivered in an unprofessional format.

Therefore, my project was to standardise the following documents into templates, such that they are easy to use and contain all the relevant information. The project predominantly used Microsoft Excel and its VisualBasic (VBA) coding software. The objectives were as follows:

- 1) To add features to the Quotation Tracker, such as an 'Add New Projects' button and a Risk Score.
- 2) To create criteria for determining the Risk Score, including Health and Safety considerations, Technical Complexity and Financial Complexity.
- 3) Creating a Tender Sign Off Template, containing an information dashboard, task assignments and meeting timelines.
- 4) Summarising the Tender Process in a Flow Chart and PowerPoint 'User Guide' Presentation.
- 5) Integrating the Quotation Tracker, Risk Score, Tender Sign Off Template and a pre-existing SharePoint folder system using VBA
- 6) Creating a professional, client-ready Tender Proposal Template.

Wider Context

Tri-Tech specialises in Onshore Renewable Energy, Rail and Nuclear Power, having a role in delivering the Sizewell C Nuclear Power Plant. [3] My project will support Tri-Tech in reducing the time taken to organise and submit a tender through improvements to company efficiency, leading to reducing tender costs (as fewer staff-hours are required), Tri-Tech submitting more competitive tenders and reducing the cost of nationally significant infrastructure such as Sizewell C.

Furthermore, Tri-Tech is around 2 and a half years old and is rapidly growing. My project was a key part of broader company plans to prevent diseconomies of scale through communication inefficiencies.

Range of Approaches and Overall Plan

My mentor and I identified 3 different ways to carry out the project:

- 1) For me to receive a document detailing the project in full.
- 2) To receive each assignment in a modular format, creating my own documents before integrating my features into the legacy system.
- 3) In a modular format, to directly edit each legacy document (such as the legacy Quotation Tracker and legacy Tender Flow Chart).

We evaluated each criterion on difficulty, quality and impact on colleagues. We determined that Option 1 would be too difficult, as I lacked a comprehensive understanding of company processes and receiving the full project on Day 1 could be overwhelming. Option 3 risked a detrimental impact on colleagues, as directly editing documents could result in important information being edited out, leading to difficulties co-ordinating ongoing projects and restoring data. Although Option 2 would be slower (due to integrating my templates with legacy documents), we determined it would be the best way to meet Tri-Tech's high standards and use colleagues' advice to improve templates.

Time Management

This project consisted of 5 modules, and was designed to take 3-4 working weeks, or 15 to 20 days. Each module would take approximately 3 days. My mentor carried out weekly check-ins to monitor the progress of my work. Also, I sent an email when I completed a given module, so my mentor could assess my work and suggest improvement. Furthermore, buffer time was implemented into my time management to account for client meetings I attended, gaining further knowledge about business operations, and unexpected problems.

Note: Further information on time management is found when discussing learning and accessing VBA (Module 1 and Module 2)

Use of Materials and People

My project was predominantly based on use of Microsoft Applications on a laptop. These applications were: Excel (for spreadsheet information), Outlook (for communication with colleagues), PowerPoint (for the User Guide), Word (for the Tender Proposal Template) and Visual Basic (for coding), and Microsoft Copilot (for assistance). Furthermore, I frequently contacted colleagues, who tested my work on their laptops, and suggested improvements, particularly the use of buttons to improve functionality. Microsoft's dedicated support articles and Microsoft Learn were very helpful in gaining an understanding of Microsoft software. [5]

Ethical and Safety Considerations

When using Artificial Intelligence (AI) software such as Microsoft Copilot, I followed a Responsible Use Policy. This ensured my work was fully human-generated and free from problems such as Hallucinations (when AI applications falsely recall details) and mistakes.

Secondly, I took frequent breaks from the laptop (to prevent posture deterioration and eyesight problems) and used special glasses that reflect blue light, to preserve eye health. This is in accordance with studies and recommendations from the US National Institute for Health. [4]

Furthermore, when I asked my mentor which pictures to include in the report, he reminded me of the sensitivity of Tender data to the business. Therefore, pictures have used test data and some pictures (e.g of the Quotation Tracker) are omitted.

Project

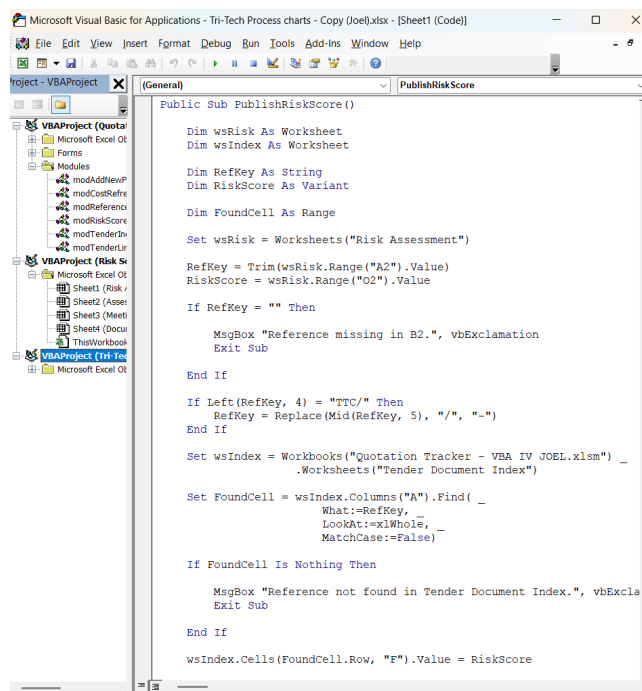
The modules in my project were designed to chronologically track the tender process from the Invitation to Tender (ITT) to Contract Award.

Module 1 involved adding Visual Basic Code which allowed a user to add a project. The prior system added projects manually, leading to reference duplications and incomplete information. My new system prompts users to select a client from an editable list stored on a separate Excel spreadsheet, assign a project title and a deadline date, before automatically generating other details, such as a Reference code and a link to SharePoint folder, where other files related to the tender would be stored. I also created a button which, when clicked, begins this process. To improve functionality, I used Excel's Conditional Formatting feature to show Orange if a deadline was approaching and Red if the deadline has passed.

An extract from the VBA code – which takes a Risk Score and publishes it in the Quotation Tracker - and use of Conditional Formatting – within the Risk Score - have

been shown in the pictures below.

Reference	Location	Client Tier	Client Relationship	Competition
TTC/ZTE/26/0001	Rest of England	1% Tier 1 or 2 Contractor	Positive Initial Meetings	Open Bid
	20	1	20	20
Publish Risk Score Quotation Tracker Must be Open				



This project took longer than expected (4-5 days), due to learning how VBA works and company meetings. However, this used some of my buffer time, and I was assured that the next modules would be completed more quickly.

I have learnt how to manage my time more effectively, how to code with precision using Visual Basic, and how project design must incorporate usability principles (such as buttons) to work within a team context.

Module 2 involved the creation of a Risk Score Template, an extract of which can be seen in the image above. It uses another spreadsheet called 'Assessment Criteria' (image below) to assess the Financial, Technical and Health and Safety aspects of a project. Points are allocated based on project characteristics, with a lower score indicating a more favourable project. A score over 100 points must be raised in a Tri-Tech meeting and leads to client negotiations.

CreditSafe	CreditSafe Score	Competition Status	Competition Status Score	Health and Safety	Health and Safety Score
0 to 20	50	Sole Bidder		1 Serious Danger	100
21 to 30	20	Competition		10 High Risk	75
31 to 50	10	Open Bid		20 Moderate Risk	25
51 to 70	5			Low Risk	5
71 to 100	1			Minimal Risk	1

To determine how many points were awarded for each characteristic, I consulted with my mentor. These reflect evolving business priorities. For example, the score of 100 points for 'Serious Danger' to Health and Safety indicates Tri-Tech's commitment to high standards of Health and Safety. The Excel spreadsheet uses XLOOKUP (such as '=XLOOKUP(E2,'Assessment Criteria'!U:U,'Assessment Criteria'!V:V,"")') to improve the

				Handover Form			
Reference:			TTC/ZTE/26/0001				
Financial Information			Update Quotation Tracker	Duration Information			
Tender Price	Contract Price	Difference		Tender Start	Contract Start	Difference	
£ 14,000.00	£ 12,000.00	-£2,000.00		01/01/2027	01/01/2028	365	
Tender Cost	Contract Cost	Difference		Tender Finish	Contract Finish	Difference	
£10,000.00	£ 9,500.00	-£500.00		01/01/2028	01/01/2028	0	
Tender Margin	Contract Margin	Difference		Tender Duration	Contract Duration	Difference	
£ 4,000.00	£ 2,500.00	-£1,500.00		365	0	-365	
Approval Information			Project Information				
Handover Meeting Date	Complete?	Proposed Contract Manager	Agreed?	Tender Type	Contract Type	Difference	
04/09/2026	yes		yes	Full Tender Pack	Full Tender Pack	No	
Approval	Signed	Date		Attendance	Attendance	Difference	
						No	
				Assumptions	Assumptions	Difference	
						No	
				Exclusions	Exclusions	Difference	
						No	
				Personnel	Personnel	Difference	Approved
					joel	Yes	YES

As you can see, information about the contract, project personnel and duration are shown, with approval boxes conditional on certain criteria (such as personnel changes being approved) shown in the bottom left corner and VBA used to update cost data to the Quotation Tracker (see the button in the upper centre of the photo). This was completed by the middle of week 2, with further updates during week 3 to integrate some VBA features.

From this module, I have developed my understanding of high-level Excel features, as well as understanding how important shared communication and update spaces are to company efficiency.

As referenced earlier, Module 4 improved the Tender Proposal Template. This is supposed to be professional, structured document submitting Tri-Tech's tender offer to clients. However, the previous system was a one-page cover sheet with a headline cost and Terms and Conditions, missing important information and professionalism. Therefore, I took inspiration from documents Tri-Tech received from other companies [6] to make a bespoke document for Tri-Tech, a sample of which is pictured below.



TRI-TECH
CONTRACTING LIMITED

DELIVERING WITH EXCELLENCE

Tender Proposal

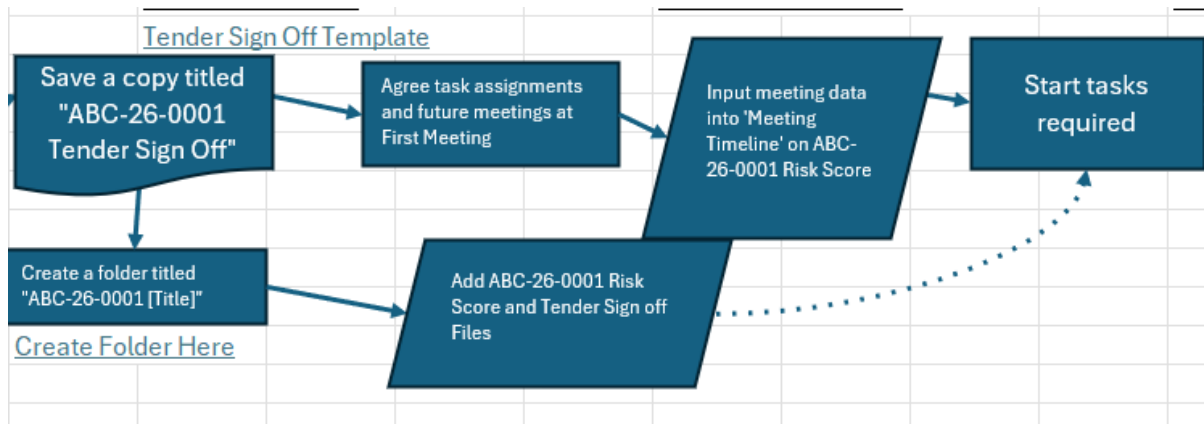
Tender Proposal – [Project Title] – [Tri-Tech Reference] – Page 1

Tri-Tech Reference	
Client	
Client Contact	
Project Title	
Postcode	
Date of Submission	
Approval	

As you can see, it contains a professional header – with project Title and Reference – and footer – with Tri-Tech’s contract details, uses Tri-Tech’s blue and gold motif throughout the document – for example, the gold borders in the table and the bold blue titles, and Tri-Tech’s watermark. In line with professional requirements, the Template contains an introduction to Tri-Tech, how Tri-Tech has met the client’s needs (such as in Health and Safety and Sustainability), the project Scope (what Tri-Tech will do) and Methodology (how Tri-Tech will do it), a cost assessment (broken down into Labour, Equipment and Materials) and formal Terms and Conditions. Other colleagues also participated in the refinement of the document to suit company requirements, such as completing the Terms and Conditions section. This was done by the middle of week 3, and was praised by my mentor for its professional, consistent formatting.

From this module, I have learned the importance of professional communication between businesses and how I can adapt my work to the appropriate context. I have also developed my understanding of how collaborative work can be carried out efficiently and effectively.

Finally, Module 5 summarises Modules 1-4 in a PowerPoint and a Flow Chart, for training new recruits. Following standard flow chart shape convention, the Flow Chart tracks the Tender Process (from Invitation to Tender through to Contract Agreement) and includes links to relevant documents and templates. An extract is shown below:



The PowerPoint follows the same process as the Flow Chart, but with the addition of screen recordings showing the steps. An example slide is shown below.

Screen Recording Quotation Tracker

Using screen recordings has helped me to learn to write with more clarity by ensuring what I write can be easily transformed into precise actions. Furthermore, I have learned how to use standard flow chart conventions and organise my work effectively.

Conclusion

Implications

In summary, my project has improved the way Tri-Tech handles its tenders, improving the efficiency of the company and supporting the company's ambition to grow, be profitable, and deliver more competitive tenders. This will help to improve the quality of Tri-Tech's work and help to deliver nationally significant projects (such as Sizewell C) more quickly and cheaply. This was completed by the end of week 3, with final refinements at the start of week 4.

Decision Making

Throughout this project, I took several key decisions which supported the timely completion of my work. Using solely Microsoft applications (Word, Excel, PowerPoint, etc) instead of proprietary software allowed me to better integrate documents with each other through Microsoft's Visual Basic Coding software and not require learning different coding architectures. Furthermore, my original choice (in conjunction with my mentor) to structure the modules chronologically allowed me to gain a deeper understanding of Tri-Tech's Tender Process and better co-ordinate the project. However, adjusting the order to account for losing VBA access show creative thinking and spontaneous reorganisation. Finally, my decision to use templates contributed significantly to the best possible completion of the project, as I could make errors (such as incorrect coding) without worrying about jeopardising the legacy company processes.

Reflection

What I have Learned

This project has developed my understanding of a modern workplace. I have understood how important positive relationships with clients and colleagues are. I have observed and participated in meetings with clients and frequently collaborated with others when refining my work, showing how the systems I design must have usability and simple integration as priorities. Also, my coding skills have significantly improved. Proficiency in using Microsoft Applications such as VBA will be very helpful in both workplace and personal contexts, especially with responsible AI integration. Finally, I have a better understanding of how businesses operate within time constraints (tender deadlines) and a professional context.

Future Development

I could improve my work through making the VBA code more flexible. For example, code that searches for a particular cell in an Excel spreadsheet is prone to fail if somebody copies the template poorly or must change details. Searching for a column heading is more reliable. Also, inflexible code is problematic as I have created templates and not yet fully integrated my work within companywide systems (this is in progress, as of writing). Hence, in the future, ensuring full integration and version control will be prioritised.

The Underlying Science

As referenced earlier, this paragraph will focus on Computer Science skills, particularly within coding. Within Visual Basic, a typical code starts by declaring 'Option Explicit' and defining your variables (such as 'Dim Age as Integer'). Common data types include Integer, String (for phrases) and decimal (for non-whole numbers). This forced users to follow a specific reference format ("XYZ-26-00XX"), keeping code running smoothly and

documents organised efficiently. After the declarations, code typically moves into a Control Structure, which “determine the flow of execution depending on certain conditions”. [7]

An example from my project is as follows:

```
If clientList.Count = 0 Then
    MsgBox "No clients found.", vbExclamation
Exit Sub
End If
```

This allows users to easily identify problems with their documents – such as missing data - and fix them quickly.

These features will typically be found within a procedure, such as Sub AddNewProjectRow(). A coder adds this after Option Explicit and before defining variables. This helps to keep code organised as the names reflect actual processes, rather than ‘Procedure 1’. Finally, to integrate buttons which run the code, Event Driven Programming is required. Buttons allow users to easily operate the code without making mistakes as frequently or editing the code, whilst experienced users can change functionality as they prefer.

Regarding Energy Science, Tri-Tech is a company that is willing to adapt to the future, and has chosen to prioritise Renewable and Nuclear Energy over Oil and Gas. This is because both Renewable and Nuclear Energy have been shown to reduce Carbon emissions, in accordance with Tri-Tech’s sustainability policy and the UK Government’s Net Zero targets. [8,9] This is accounted for in Risk Scores, with Oil and Gas projects receiving a higher score than Renewable and Nuclear projects.

Finally, I have used the term ‘Economies of Scale’ in this report. This is an economic term. This is the “reduction of [average] production costs that is a result of making and selling goods [such as Tenders] in large quantities”. [10]

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Source List

- 1) <https://www.britannica.com/technology/civil-engineering>
- 2) <https://www.glenigan.com/>
- 3) <https://tri-techcontracting.co.uk>
- 4) <https://pmc.ncbi.nlm.nih.gov/articles/PMC10852174/>
- 5) <https://learn.microsoft.com/en-us/office/vba/api/overview/>
- 6) <https://www.stowengroup.com>
- 7) <https://www.educba.com/control-structures/>
- 8) <https://www.sciencedirect.com/science/article/abs/pii/S0013935123000828>
- 9) <https://www.gov.uk/government/publications/net-zero-strategy>
- 10) <https://dictionary.cambridge.org/dictionary/english/economies-of-scale>