Business Proposal

12.2023

—

Team Zeta

Jada Bonnett, Ashley Moore, Ellie Stamper, Mason Holland, Luke Balkema
Taylor University
Upland, IN

Table Of Contents

1. Introduction

This Business Proposal aims to provide Grace Morton Church and the greater FEC Bible Quizzing community with an efficient and effective product to track and intake scores from their competitions. In this proposal, we have analyzed the customer and consumers, the system currently being used and our suggested model moving forward. We hope to show why our recommendation is the optimal solution by providing examples of products already created and explaining what our model would fix and improve.

1.1. Problem Definition

The Fellowship of Evangelical Churches (FEC) Bible Quizzing teams host competitions against one another about 3/4 times per year. In order to keep accurate scores of teams during and after the competition they record their scores. Currently, this is done on paper, but a new system to provide more accuracy is needed.

2. Customer Details

2.1. Customer Overview

The Fellowship of the Evangelical Churches has a quiz bowling community for children from 7th-12th grade to participate in. Through practice, these members learn about the Bible and memorize scriptures. They then participate in competitions with other churches and teams to encourage one another toward excellence.

2.2. Organization Mission

The mission of the Fellowship of Evangelical Churches Bible Quizing Bowls is to "motivate young people to master the content of certain portions of Scripture". They also aim to assist students from grades 7th-12th grade to learn to interpret the readings of the Bible correctly and live their lives according to those words. (FEC Quiz Rulebook). The Taylor University Information Systems Analysis class has the opportunity to help them in their efforts because they also recognize the importance of educating students more deeply about the Word of God.

2.3. Motivation

Historically the system for scorekeeping during quiz bowls has been solely on paper by the scorekeeper or assisting judge. Coaches from each team also keep their own scoresheets that they then use to inform themselves on the status of their team, as well as keeping information about previous bowls. Unfortunately, these systems have failed to keep accurate records.

Improving the system for scoring and maintaining accuracy in results, provides clarity and usability for the users both directly using the system as well as people who will never interact with it. Bringing forth these things would relieve the Quiz Masters since there would no longer be human errors in scorekeeping. Making this possible allows the coaches to have more accurate stats. Along with not only precise scorekeeping, we will be enabling this system to auto-update constantly. Doing this will allow the coaches and all Quiz Masters to know the current score between all teams while the quiz bowl is happening. We hope to also have this show to the audience as well, so guests and teammates will always know where their team stands.

3. Stakeholders

3.1. System User Stakeholders

Bruce Rocke: Bruce Rocke serves as the man behind the Bible quizzing. He generates questions for the tournaments and organizes the round-robin event. As one of the chief organizers in this event, Bruce has a personal stake to see the quizzes succeed and see children know Christ better because of their success. An improved scoring system provides a method of greater longevity for this purpose.

Quiz Masters: Quiz masters are individuals in charge of the organization, tech, and scoring of round-robin and single-elimination brackets. An improved system would allow Quiz Masters to update scores more efficiently and accurately. Submission could flow directly into a shared space where coaches can verify information, decreasing the chances of mistakes. This also prevents scoresheets from being lost between round-robin matches, instead having a digital, easy to access home base. Calculations could also be simplified with preexisting digital formulas.

Coaches: Each team in the junior and senior high brackets has a coach. Coaches are involved in verifying score inputs, whether it be for the correct team, player, or number of points. Coaches have invested in making sure the correct scores are reported and not lost. Via a digital system, they can be offered greater security for the information as well as a chance to review the scores for accuracy.

Players: While players may not be actively involved in scorekeeping, they certainly rely upon their individual and team scores being valid to advance in bracket tournaments. Being able to see scores and past statistics also gives players motivation to improve.

Churches: Churches have vestment in seeing their players learn more about the Bible, as well as seeing them move forward in tournaments. More accurate scoring allows for proper statistics and a measurable method of determining player knowledge.

4. Problem Analysis

4.1. Situation Description

Grace Morton Church requires an improved digital system for scorekeeping to reduce human error. The current system of keeping score is with pen and paper. There are three Quiz Masters who are responsible for running the room. One Quiz Master is tasked with keeping score on the paper sheet. Coaches are not able to see this sheet until it is submitted. They have noticed errors in overall scores and wrong students getting credit for answering questions. There is no effective way to store the data from the paper sheets if they want to refer back to them.

The current system can be improved to include more efficient database storage and digital scorekeeping to catch and reduce human error.

4.2. KT Situation Appraisal

The Kepner Trego (KT) Situation Appraisal is a way that helps identify the current system faults and places for improvement. This helps prioritize the correct items as well as identifying leading issues.

Concerns	More Details	Priority
Human Error	Inconsistent record-keeping of scores	**High**: The main issue from the client
Shared Documents	Needing real-time updates from all scorekeepers	**High**: Keeping scoring consistent and continually updated
Social Hub	Study resources, and public students/profiles for better connections	**Moderate**: The client desires this function and would give an increased amount of function
Scoreboard	Real-time updates on scores for fans in person and not.	**Low**: Not necessary, but would be beneficial
Accurate Database	Convert paper records to digital to keep more secure and accurate records.	**Moderate**: Have accurate records for documentation purposes

4.3. System Goals

The goal of the system is to convert the paper method to a digital method and reduce human error. It should be designed to allow the Quiz Masters to easily and accurately record the scores. It should allow the Coaches to access the scoresheets and view it in real-time. It should also be able to store the data to a database for record keeping.

1) Ability for Quiz Master to record data digitally
2) Ability for Coaches to view scoresheets in real-time
3) Ability to store data in database

5. Solution Alternatives

5.1. Introduction

As we evaluate the solution alternatives, there are a few tools that can help us choose which solution best fits the system and customer's requirements. The Kepner Tregoe Decision Analysis (KTDA) is divided into two categories: needs and wants. This analysis focuses on the customer's requirements and is weighted based on the priority of impact to the problem. The purpose of this analysis is to select the alternative that best fits the customer's requirements. The Solution Alternatives we will evaluate are: BQScore App, Microsoft Excel, and ScriptureKeeper.

5.2. BQScore App

BQScore is an already existing app currently available for purchase on Apple's App Store. It was designed for an iPad and recommended for a 7" screen or larger. It currently costs $9.99 and is only available for iPads. The design is user-friendly, and the layout is intuitive. Scorekeeping can track any quiz events such as timeouts, fouls, overtime, etc. All calculations are automatic, eliminating virtually all calculation errors during scorekeeping. At the conclusion of the quiz, the winning team score is highlighted in green, the highest individual scores are highlighted in blue, and the second-highest individual scores are highlighted in red. The score sheets are saved automatically but can also be deleted if desired. Unfortunately, this particular app was designed for the UPCI Bible Quizzing Program, so the scoring conventions slightly vary from the FEC Bible Quizzing Program.

There is potential to add a scoreboard and/or leaderboard function but it is not readily available within the app by itself. It could be a fairly easy addition to create using the data from the app. Since this app was originally designed for scorekeeping, it does not support communication or other interactions at this time. There is not a built-in function for showing real-time feedback, but it is possible. For example, you could display the screen on a monitor that shows the current scoresheet.

BQScore App	
NEEDS	**Y/N**
Digital Scoring Form	Y
Store Scores to Database	Y
Real-time Feeback/Scores	Y

WANTS	% Weights	Score (Scale 1-10)	Weighted Score
Leaderboard	30	5	1.5
Scoreboard for matches	30	7	2.1
Social Hub/Announcements	30	0	0
Communication	10	0	0
Totals	**100**	**12**	**3.6**

5.3. Microsoft Excel

Microsoft Excel is the industry-leading spreadsheet software program. It is available for Windows, macOS, Android, iOS and iPadOS. This tool requires a Microsoft Office Account but is free to use and sign up for. An initial scorekeeping template can be made for each quiz. Scores can be updated by simply marking the corresponding cell. Microsoft has a share option that allows multiple people to view a sheet at once. The Quiz Master would ideally be the only user that has editing capabilities, but the Coaches would be able to view and see live updates to the scoresheet through a shared link.

Similar to the previous app alternative, there is potential to add a scoreboard and/or leaderboard function but it is not readily available within the application itself. Comments are another available function for communication but would need to be modified to allow a more published version of messages for announcements.

Microsoft Excel	
NEEDS	**Y/N**
Digital Scoring Form	Y
Store Scores to Database	Y
Real-time Feeback/Scores	Y

WANTS	% Weights	Score (Scale 1-10)	Weighted Score
Leaderboard	30	2	0.6
Scoreboard for matches	30	8	2.4
Social Hub/Announcements	30	0	0
Communication	10	0	0
Totals	**100**	**10**	**3**

5.4. ScriptureKeeper

Our team of students at Taylor University proposes to build a web application designed to meet the needs of our customer. Since this option will be designed and implemented by Taylor students, no cost will be associated for the customer. The app will take approximately 13-15 weeks to complete with an estimated 8 hours of work per week across five team members. The app will allow a digital form for scorekeeping that would help to reduce the current problem of human-error. Coaches will also have the ability to view the scoresheets as the Quiz Master enters the score to catch any further errors. The digital form will also support easy storage of a database to hold past quiz records and other stats. The data will also contribute to the new Scoreboard feature for each quiz room and an overall Leaderboard throughout the Quiz Offs. The app will also act as a Social Hub that individual quizzers, Quiz Masters, coaches, etc. will have access to and be able to view study questions, see important announcements/updates, schedules, leaderboards, and communicate with coaches through direct messaging.

ScriptureKeeper	
NEEDS	**Y/N**
Digital Scoring Form	Y
Store Scores to Database	Y
Real-time Feedback/Scores	Y

WANTS	% Weights	Score (Scale 1-10)	Weighted Score
Leaderboard	30	10	3
Scoreboard for matches	30	10	3
Social Hub/Announcements	30	10	3
Communication	10	10	1
Totals	**100**	**40**	**10**

6. Solution Analysis

6.1. KT Decision Analysis

The Kepner Tregoe Decision Analysis (KTDA) is divided into two categories: needs and wants. This analysis focuses on the customer's requirements and is weighted based on the priority of impact to the problem. The purpose of this analysis is to select the alternative that best fits the customer's requirements. Each solution alternative is given a score on a scale of 1-10 (1 being poor and 10 being excellent) depending on how well it meets that requirement. The weighted score shows which solution best fits based on those requirements.

	BQScore App	Microsoft Excel	ScriptureKeeper
NEEDS	Y/N	Y/N	Y/N
Digital Scoring Form	Y	Y	Y
Store Scores to Database	Y	Y	Y
Real-time Feeback/Scores	Y	Y	Y

	BQScore App			Microsoft Excel			ScriptureKeeper		
WANTS	% Wgt	Score	Wgt'd Score	% Wgt	Score	Wgt'd Score	% Wgt	Score	Wgt'd Score
Leaderboard	30	5	1.5	30	2	0.6	30	10	3
Scoreboard for matches	30	7	2.1	30	8	2.4	30	10	3
Social Hub/Announcements	30	0	0	30	0	0	30	10	3
Communication	10	0	0	10	0	0	10	10	1
Totals	100	12	**3.6**	100	10	**3**	100	40	**10**

7. Recommendation

Our recommendation would be ScriptureKeeper. This option has the highest value on our KDTA scale and has more flexibility to meet the needs of our customer. ScriptureKeeper will be designed over the course of the following spring semester. It will take approximately 13-15 weeks to complete with a group of five students. It is expected that we will work at least 4 hours per week in class and 4 hours per week outside of class during that time. Since it will be built by Taylor students, there is no direct cost to implement it.

Although BQScore App and Microsoft Excel were good options, they did not meet all the requirements our customer was looking for. These two options would need additional components to complement the already existing applications. With the ScriptureKeeper option, all of the components will be on the same application, avoiding the hassle of managing applications across multiple platforms.