TCU Sports Broadcasting

FrogCrew Vision

Version 2.0

Revision History

Date	Version	Description	Author
23/09/24	1.0	Initial draft	James Edmonson, Aliya Suri, Kate Bednarz, Dave Park, Manuel Burciaga, James Clarke
25/10/24	1.1	Fixed comments and improved descriptions	James Edmonson, Aliya Suri, Kate Bednarz, Dave Park, Manuel Burciaga
27/10/24	1.2	Revised and completed all sections	Aliya Suri
14/1/25	1.3	Made corrections from feedback	Aliya Suri
3/03/25	1.4	Made corrections to format and filled in missing information	Michala Rogers
4/09/25	2.0	Update to current project status	Michala Rogers

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Vision

1. Introduction

The purpose of this document is to collect, analyze, and define the business requirements, i.e., high-level needs, desired ultimate business outcomes and features of the TCU Frog Crew System. It focuses on the capabilities needed by the stakeholders and the target users, and why these needs exist in the first place. Technical implementation details are described in the separate Software Requirements Specification (SRS).

1.1 Background

Mike Martin is an Associate Professor of Professional Practice at Texas Christian University, responsible for managing crew lists for athletic events, some of which are partnered with ESPN+, depending on the sport. His responsibilities include coordinating crew schedules for Men's Football, Women's Basketball, Men's Basketball, Women's Soccer, Women's Volleyball, and Men's Baseball.

The current workflow begins with crew members submitting their availability via email or text (see **Figure 1** for a visual representation of the existing process). Mike manually compiles this information into a Comprehensive Crew List, which serves as a master document containing crew member details, such as contact information and the roles they are qualified to perform (e.g., Producer, Director, Camera Operator, Technical Director, EVS Operator, and Audio Engineer). From this, he creates additional documents to manage and communicate the necessary information for each event.

One key document is the Crew Availability Spreadsheet, which lists crew members' availability for a specific event. This spreadsheet provides Mike with the basis for assigning roles, ensuring the crew is staffed appropriately for the event's needs. Another document Mike generates is the Game Day Schedule, a detailed schedule shared with crew members to inform them of upcoming game times, locations, and general logistical information.

Using these resources, Mike creates a Game Day Crew List for each event, specifying the assignments for each crew member based on availability and the event's specific requirements. The Game Day Crew List includes:

- Assigned roles for each crew member (e.g., Camera 1, GFX, EVS, or Technical Director).
- Contact details for immediate communication.
- Notes for role-specific tasks or responsibilities, such as handling specialized equipment like EVS or managing graphics overlays.

Once the schedule is finalized, Mike sends individual confirmation emails or texts to crew members with their assignments. This manual process requires significant time and effort, as it involves consolidating availability, scheduling roles, and communicating assignments across multiple channels (see **Figure 2** for an illustration of the inefficiencies in the current system). Additionally:

- Errors in data entry can result in scheduling conflicts or missed assignments.
- Important communications are at risk of being lost in personal email inboxes or text threads.
- Cost calculations, which depend on crew hours and roles, are managed separately and add further complexity to the workflow.

The new FrogCrew system is designed to streamline these tasks. It will allow crew members to input their availability directly into the system, automate the generation of schedules and assignments, and send notifications through a centralized platform. The system will also feature a built-in cost calculator, simplifying financial management for each event. By automating data entry, centralizing communication, and reducing the risk of errors, FrogCrew will save significant time and effort while ensuring a more reliable scheduling process for TCU's athletic events.

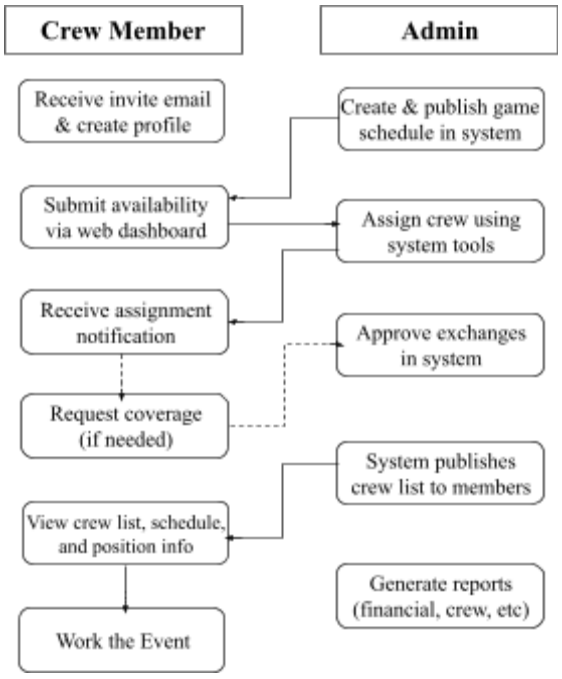


Figure 1: Flow of the current FrogCrew process.

NAME	8/15/2024	8/29/2024	9/12/2024	9/12/2024	9/13/2024	9/15/2024	9/17/2024	NAME	9/19/2024	9/20/2024	9/21/2024	9/22/20
	Thu	Thu	Thu	Thu	Fri	Sun	Tue		Thu	Fri	Sat	Sun
	SOC	SOC	VB	VB	VB	SOC	VB		SOC	VB	VB	SOC
	7:00pm	7:00pm	1:00pm	7:00pm	7:00pm	1:00pm	7:00pm		TBD	7:00pm	5:00pm	1:00pr
	ESPN+	ESPN+	ESPN+	ESPN+	ESPN+	ESPN+	ESPN+		ESPN+	ESPN+	ESPN+	ESPN-
STEVEN BOCANEGRA	X	X	X	X	X		X	STEVEN BOCANEGRA	X	X	X	
ISIAH MANZANARES		X	X	X	X		X	ISIAH MANZANARES	X	X	X	
STEPHEN NEHR	X	X	X	X	X	X	X	STEPHEN NEHR	X	X	X	X
EUGENE WAIRIUKO		X				X	X	EUGENE WAIRIUKO	X	X	X	X
JAMES CREANGE		X	X	X	X	X	X	JAMES CREANGE	X	X		
JACOB MARTIN	X	X				X	X	JACOB MARTIN	X	X	X	X
ETHAN CROCKER		X					X	ETHAN CROCKER	X			
TIM CALNAN		X	X	X	X		X	TIM CALNAN	X	X	X	
MATT SALOTTI	X					X		MATT SALOTTI	X	X		X
PEYTON NORTH	X	X	X	X	X	X	LATE	PEYTON NORTH	X	X		X
TIM DALY	X	X	X	X	X	X	X	TIM DALY	X	X	X	X
ZION TRAMMEL			X	X	X	X	X	ZION TRAMMEL	X	X	X	X
SCOTT SNYDER			X	X	X			SCOTT SNYDER				
CRAIG RAY								CRAIG RAY				
ERICA JOHNSON		X					X	ERICA JOHNSON	X			X
JOSH SOURS	X		X	X			X	JOSH SOURS	X			
TIM SMITH	X			X	X		X	TIM SMITH				
KATIE HEITMAN	X	X	X	X	X		X	KATIE HEITMAN	X	X	X	

Figure 2: Current form of crew member availability.

1.2 References

1 Project Glossary

2. Business Requirements

5 Business Rules

2.1 Business Opportunity/Problem Statement

The problem of manual scheduling for TCU athletic events often leads to mistakes, such as assigning crew members to the wrong roles or shifts or losing track of availability emails. These errors can result in confusion, miscommunication, and scheduling conflicts. Currently, Mike Martin, the sole person responsible for managing the schedules, spends hours collecting crew availability from emails and texts, manually inputting the information into a comprehensive crew list and generating additional documents, such as crew availability spreadsheets and game day schedules. These spreadsheets are then used to create game day crew lists, which assign specific roles (e.g., camera operator, EVS operator, technical director) to each crew member for upcoming events. The manual nature of this workflow is not only time-consuming but also prone to errors, such as incorrect assignments or missing details.

By implementing an automated scheduler that allows crew members to input their availability directly into the system, the entire process could be streamlined. The system would generate schedules and assignments automatically, eliminating the need for manual data entry, reducing errors, saving time, and improving communication. This would ensure that every crew member receives the correct assignment and remains informed, without the risks and inefficiencies of lost emails or manual data handling.

2.2 Business Objectives

BO-1: Automate the scheduling process and reduce admin effort by 90%.

BO-2: Decrease email communication by 50% through centralized notifications.

BO-3: Support financial visibility for budgeting and crew equity.

BO-4: Ensure accurate shift assignments using real-time availability data.

2.3 Success Metrics

SM-1: 80% of crew members submit availability through FrogCrew within 3 months of launch.

SM-2: Admin time spent per event reduced by 90% within 6 months.

SM-3: 95% of published schedules are conflict-free, as reported by users.

SM-4: Confirmation emails/texts decrease by 75% with notifications managed in-app.

SM-5: Time required to calculate event costs drops by 70% within the first semester.

SM-6: 90% of users rate usability at 4/5 or higher in a satisfaction survey.

2.4 Vision Statement

For	TCU Sports Broadcasting administrators and crew members
Who	Need to coordinate crew availability and assignments
The FrogCrew System	Is a centralized scheduling platform
That	Simplifies operations for administrators and crew members when scheduling sports production events
Unlike	The current manual process of submitting availability and scheduling work
Our product	Will automate and streamline the entire scheduling process and allow for easy scheduling, crew list generation, and reporting, ensuring smooth operation for all athletic events covered by TCU Sports Broadcasting.

The Frog Crew Scheduling System aims to streamline and automate the scheduling process for TCU Sports Broadcasting. By eliminating the manual handling of crew availability and reducing errors caused by scattered communication, this system will simplify operations for administrators and crew members alike. The system will allow for easy scheduling, crew list generation, and reporting, ensuring smooth operation for all athletic events covered by TCU Sports Broadcasting.

2.5 Business Risks

RI-1: If users input incorrect availability or scheduling data, the system could still produce scheduling errors, undermining its reliability and effectiveness.

RI-2: Employees might be resistant to using the new system, reducing the return on investment and negating the time-saving benefits of automation.

RI-3: The system may struggle to accommodate shift patterns or last-minute changes, limiting its usefulness and requiring manual intervention.

RI-4: The system may not seamlessly integrate with TCU IT's existing network and infrastructure, leading to issues with deployment and longevity.

2.6 Business Assumptions and Dependencies

AS-1: Event schedule data is provided in a consistent and usable form

AS-2: Usability of scheduler will be easier for both user and admin.

AS-3: A profile system (Name, Email, Phone Number, etc) will be available for users to update personal information

3. Stakeholder Profiles and User Descriptions

3.1 Stakeholder Profiles

Stakeholder	Major value or benefit from this product	Attitudes	Major features of interest	Constraints	End user or not?
Admin (Mike Martin)	Improved productivity; time saving; reduce scheduling errors	Strong commitment through the whole process	Time saving, ease of communication with crew members	None identified	Yes
Crew Members	More efficient use of viewing schedules, providing availability, and viewing crew lists	End users	Ease of communication with admin, ease of viewing schedules	Training for staff in using the software	Yes
Athletic Department	More efficient crew for broadcasting events	Won't be a user but will appreciate the use of a better scheduling software	Scheduling crew feature	Getting logo approval from TCU athletics	No
TCU IT Department	Hosting the software	Periodic meetings	Following TCU IT's software rules	Backend: C# Database: MS SQL Front end: Wordpress	No

3.2 User Environment

The working environment will continue to involve the same number of people, primarily the scheduler and the team being scheduled. Currently, task cycles are short, with minimal time spent on each activity, but our goal is to further reduce this time through automation. There are no unique environmental constraints, such as mobility or outdoor requirements, to consider. Presently, there are no dedicated system platforms in use, and no plans to introduce new ones. The only application being used is Excel, and we aim to ensure that our solution integrates seamlessly with Excel for easy data import and export.

3.3 Alternatives and Competition

Some alternative scheduling tools include options like Calendly and When2Work. Both of these tools offer a variety of features tailored to different scheduling needs but come with notable costs. Calendly's pricing is structured as follows: Standard at $10 per seat/month, Teams at $16 per seat/month, and Enterprise starting at $15,000 per year.

Calendly is widely known for its intuitive and user-friendly interface, allowing users to set up personalized meeting types and availability windows. It integrates seamlessly with multiple calendars like Google Calendar, Outlook, and Office 365, enabling automatic syncing and reducing the chances of double-booking. Furthermore, Calendly offers advanced features like automated reminders, custom branding for premium plans, and team scheduling for collaborative bookings. However, users of the free version face limitations, such as restricted meeting types and fewer integrations, with more robust features only available at higher pricing tiers.

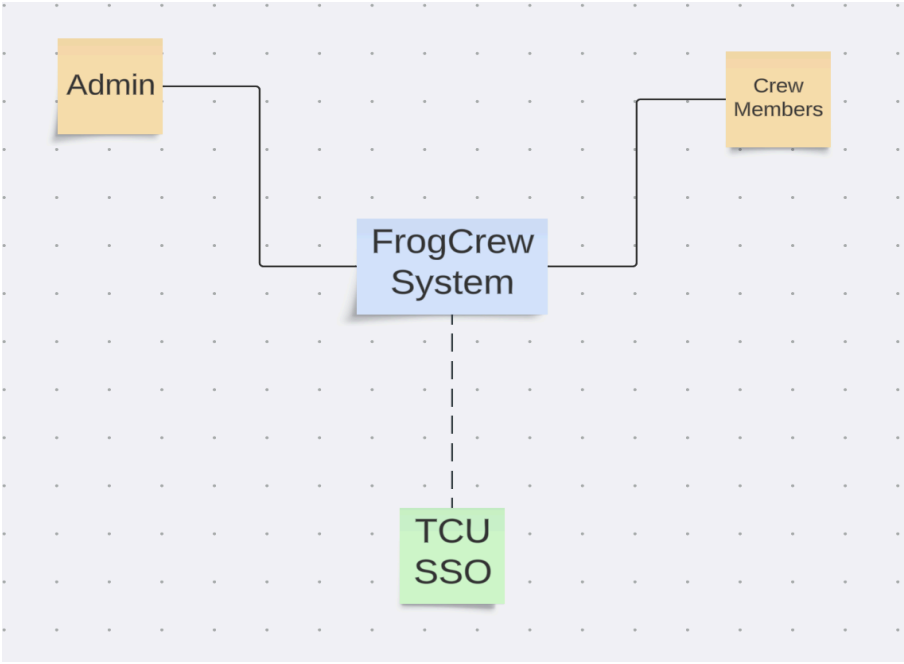
On the other hand, When2Work caters more specifically to industries that rely on shift-based scheduling. Pricing for When2Work varies based on the number of employees, with tiers such as $38 for 1 month, $100 for 3 months, $164 for 6 months, and $273 for a full year for up to 10 employees. When2Work's primary strength lies in its ability to manage complex work shifts, track employee availability, facilitate shift swaps, and process time-off requests. It is particularly useful for businesses in healthcare, retail, and hospitality, where managing varying schedules and ensuring adequate staffing is critical. When2Work also includes mobile access, allowing employees to view their schedules and make adjustments on the go. However, it may be more complex to navigate compared to simpler scheduling tools like Calendly, and its focus on shift scheduling may not make it the ideal choice for businesses or individuals seeking appointment booking or general meeting coordination.

While both tools offer essential scheduling features, the right choice depends largely on the user's specific needs, with Calendly excelling in appointment scheduling and When2Work standing out in managing shift-based work environments. Additionally, the cost structure of each may affect the overall decision, as Calendly's fees can escalate with larger teams, while When2Work's pricing is more geared toward smaller workgroups but may still be costly for small businesses or startups.

4. Scope and Limitations

This section provides a high-level view of the TCU Frog Crew scheduling system and system configuration.

4.1 Product Perspective



The context diagram above provides an overview of the FrogCrew System and its primary user roles: Admin and Crew Members. The system is designed to manage and facilitate crew-related activities, with Admin responsible for overseeing crew management, scheduling, and communication, while Crew Members can create and update profiles, view schedules, and manage their availability. The diagram also includes the TCU Single Sign-On (SSO) as a potential component, represented with a dashed line to indicate that integration with TCU's SSO system is not yet confirmed. If implemented, TCU SSO would provide a streamlined and secure authentication method for users accessing the FrogCrew System. This layout focuses on core functionalities and highlights the main interactions between user roles and the system.

4.2 Major Features / Scope

FE-1: Crew members submit and manage availability

FE-2: Admins create and publish schedules

FE-3: Role assignment for each game

FE-4: Shift swap requests and approvals

FE-5: Financial tracking and cost reporting

FE-6: Automated email notifications

FE-7: Secure login via email or SSO

FE-8: Export crew lists for external use

FE-9: Admin dashboard for full schedule visibility

4.3 Deployment Considerations

The FrogCrew system will be deployed on a TCU-owned and operated Windows Server to ensure full compatibility with the university’s existing IT infrastructure. The development team has coordinated closely with TCU IT throughout the project to ensure that the application adheres to university standards for performance, security, and reliability. The system uses a Vue.js-based front end, a C#/.NET REST API for backend processing, and a Microsoft SQL Server database. Gmail’s SMTP service is integrated for automated email notifications, and all communication between components is encrypted using TLS to maintain data security.

Authentication will be managed through a secure login system, with future support for TCU’s Single Sign-On (SSO) system under consideration. Initially, users will access the system via email invitations, through which they will create a password-protected account. Only those directly invited by the administrator will be granted access, ensuring controlled and secure use of the platform.

No additional hardware or infrastructure is required for deployment, as TCU’s current server capacity is sufficient to support the expected user base. However, the system has been designed with scalability in mind, allowing TCU IT to expand storage or processing capabilities if needed in the future. The deployment process will follow a staged

approach, beginning with testing in a development environment, followed by validation in a staging environment, and concluding with full production deployment.

To support a smooth transition, the FrogCrew team is preparing documentation and training resources for administrators and end users. Since access to the system is limited to TCU Athletics Broadcasting personnel, broad user training is not necessary, but clear instructions for login, navigation, and key workflows will be provided. Ongoing maintenance, server monitoring, and security patching will be handled by TCU IT after deployment, ensuring long-term sustainability of the system.

5. Other Product Requirements

5.1 Performance Requirements

The system should have a response time of less than 5 seconds for user requests under normal load conditions.

5.2 Quality

The system should maintain functionality under varying loads, with error handling to manage unexpected inputs or failures. The system should be able to recover gracefully from errors, ensuring minimal disruption to user experience

5.3 Design/External Constraints

The FrogCrew system must integrate seamlessly with existing TCU IT systems, including email and calendar applications. The system should allow for easy import and export of data from Excel and other common formats.

5.4 Documentation Requirements

An online help resource must be available to assist users with common issues and questions.

5.5 Priority

High priority should be assigned to compliance and performance requirements to ensure the system meets legal obligations and user expectations.