Kali Aero App Development

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Table of Contents

Summary

Kali Aero was a large aerospace company with over 11,000 employees in the Savannah area and 25,000 employees worldwide. The Savannah location had noticed that the company needed to be more active in the production area. After further review, it was discovered that production employees took longer than usual to complete their assigned work. When the work was not completed on schedule, employees were placed on mandatory overtime, where they had to stay later than their regular work hours or work on their days off. As a result, the company had to pay time and a half for any hours worked over 40 hours up to 56 hours and double time for any hours worked after 56 hours. The company was also losing contracts due to unhappy customers who took their business to other aerospace companies, costing Kali Aero several thousand dollars. The company determined that the source of this issue was employees needing more direct access to workstations, causing a delay in daily operations.

As previously stated, the root of the problem was that not all employees had access to a work computer when needed. Employees constantly waited for a workstation to become available, leading to unnecessary downtime. This was a significant problem for production employees, who continually needed access to several software and applications to complete their tasks. The software and applications required to complete these tasks were only available on company-provided workstations. Sometimes, an employee had to complete a task on an aircraft that might be located away from their regular work area; the employee traveled from one side of the building to the other to gain access to a workstation. Due to the lack of workstations available, morale in the workplace had decreased drastically, causing employees to become frustrated and impatient with not only having limited access to the materials needed to complete

their work but also with working mandatory overtime, which took away their time from their families. Kali Aero looked to outsource an IT company to assist with this obstacle to rebuild employee morale, regain customer trust, and save the company time and money. Monreaux Consultants, an IT company, was contracted to find a fast yet reliable solution that could be implemented to help compensate for the lack of workstations and improve the workflow process.

Kali Aero solved these challenges by contracting Monreaux Consultants, who proposed developing and implementing a Cross-Platform Employee Access Application. With this application, employees could securely access all software and applications needed to complete any task while connected to the company's network. These resources could be accessed remotely or from a mobile device. Employees could access the application's documents, software, and production tools. This would help to reduce downtime, improve productivity, and reduce project delays. Employees would be more efficient on the job and would not have to worry about mandatory overtime, boosting morale. Monreaux Consultants would also ensure that the application complied with industry security standards and that employees only had access to what was needed based on their roles within the company.

The implementation plan to create and launch an application that enabled employees at Kali Aero to use work-related tools from any device was accomplished in multiple phases. These phases included Initiation and Planning, Design and Development, Testing and Quality Assurance, Deployment, and Post-Deployment Support. Each phase was implemented as follows:

- Initiation and Planning: During this phase, Monreaux Consultants worked closely with Kali Aero stakeholders to define project objectives, scope, and requirements. Detailed project plans, timelines, and resource allocations were developed.
- Design and Development: The design phase involved creating wireframes and Cross-Platform Employee Access Application prototypes. The development team built the application based on these designs, ensuring it met all specified requirements.
- Testing and Quality Assurance: Comprehensive testing was conducted to identify and resolve bugs or issues. This phase included user acceptance testing (UAT), where actual employees tested the application to ensure it met their needs and expectations.
- Deployment: The application was rolled out to the employees in stages to minimize disruption. The initial deployment involved a pilot group gathering feedback and making necessary adjustments before a full-scale rollout.
- Post-Deployment Support: Monreaux Consultants provided ongoing support and maintenance after deployment. This included addressing technical issues, implementing updates, and gathering user feedback for future improvements.

Every stage was designed to ensure the project's success, timely delivery, and adherence to budget constraints. The project was executed with the involvement of stakeholders and users, continuous improvement through iterations, and comprehensive testing to ensure the project fulfilled all specifications and provided value to the company. This approach reduced risks, ensured it matched users' requirements, and allowed for ongoing enhancement, ultimately resulting in the successful implementation and acceptance of the application among Kali Aero employees.

Review of Other Work

Review of work 1

This blog compares native and cross-platform mobile development. This resource was used to research the difference between native and cross-platform implementation to determine the best fit for the application. According to Schmitt, "There are two ways of developing mobile applications: native development, targeting a specific operating system, and cross-platform development, targeting multiple operating systems. (Schmitt, 2023)." After reviewing the article, we decided that the best platform to use is a cross-platform because this would allow us to target multiple operating systems, which aligns with the goal of employees using any device to utilize the app.

Review of Work 2

Postman is a collaborative API(application programming interface) development platform enabling users to design, test, and document APIs efficiently. It provides tools for creating and managing API requests, automating tests, and monitoring performance. With features like collections, workspaces, and environments, Postman facilitates teamwork and simplifies development workflows. It also integrates with CI/CD pipelines, making APIs more accessible to maintain and scale. Developers widely use Postman to ensure that APIs work as intended at different stages of development. The Postman website states, "An API platform is a software system with integrated tools and processes that allow teams to build, manage, publish, and consume APIs effectively. An API platform helps API producers manage the entire API lifecycle—from design to production—while engaging directly with API

consumers (Postman, 2023).” This was an excellent resource for this project because it provided many tools that helped develop the app, including design, testing, and documentation tools.

Review of Work 3

“Material Design is an adaptable system of guidelines, components, and tools that support the best practices of user interface design. Backed by open-source code, Material Design streamlines collaboration between designers and developers and helps teams quickly build beautiful products. (Google, n.d).” This website was helpful in the design of the application's user interface. The site was also valuable for application development because it consisted of tools for customization, ensuring consistency across web, mobile, and other platforms.

Changes to the Project Environment

Original: The implementation and development of the cross-platform employee application aligns with the current organizational culture, environment, and strategy in several ways. The current organizational structure values employee empowerment, innovation, and efficiency. With this new application, employees can access all applications needed to complete their tasks, which aligns with prioritizing productivity and efficiency and allows employees the flexibility to work from any device. Regarding the environment, Kali Aero is a large aerospace organization that handles complex and tedious projects. This application can accommodate a large workforce (tailored to those using different devices and working in other areas), which will alleviate the problem promptly, and all the existing documents, systems, and applications will be readily accessible on the app, resulting in a continuous workflow. Lastly, when it comes to strategy, all major companies have a common goal of enhancing operational efficiency,

improving processes, and retaining their employees. This application will satisfy employees because they will be better equipped to perform their tasks effectively, reducing delays and improving the workflow.

Changes: We saw a more flexible and efficient work environment after the application was introduced to the company. Employees gained access to vital tools and resources, resulting in greater productivity and job satisfaction. The organization benefited from streamlined operations and a more flexible workforce closely aligned with its operational efficiency and employee retention goals. The application was developed to support a large and diverse workforce, making it available to users using different devices and operating in various locations. This flexibility allowed employees to work more efficiently away from their workstations, which was beneficial in aerospace, where tasks are often distributed across multiple sites. The system's flexibility adopted an agile approach, enabling it to respond effectively to the evolving demands of large-scale projects.

Methodology

To implement the project completion, the agile methodology ensured flexibility, provided incremental updates, and gathered feedback throughout the project. The agile software development lifecycle included five stages: ideation/planning, development, testing, deployment, and operations. In the ideation or planning stage, the product owner worked with stakeholders, developers, and future app users to determine the requirements for the app. For example, they identified the need for the application to support remote and mobile access to ensure employees could work from any device. This phase involved detailed discussions about user needs,

including features such as secure login and the ability to access various software and documents from different locations. During the development phase, developers designed and implemented features for the app. They created user interfaces, integrated the necessary applications and tools, and ensured the platform was compatible with various devices. Regular check-ins with stakeholders allowed the team to provide updates on progress and make adjustments based on feedback. For instance, the development team developed the user interface based on early user feedback to ensure easy navigation and functionality. In the testing phase, they underwent tests to provide functionality as features were added. This stage consisted of quality tests validating that all software integrations worked as expected and that users could securely access their tools and documents. Beta testing involved a select group of employees who tested the application in real-world scenarios and reported any issues or suggestions for improvement. In the deployment phase, the app was released for use. This stage involved a staged rollout, beginning with a pilot group of users trained to use the new system. Feedback from this group was used to make final adjustments before a company-wide release. The deployment also included comprehensive documentation and training materials to help all employees transition smoothly to the new application. The final stage, operations, involved ongoing support and improvements based on user feedback. After the full deployment, users provided input on their experience with the application, which led to several updates and enhancements. For example, additional features were added to improve user experience, and performance improvements were implemented to address any issues identified by employees. The project was completed successfully, resulting in an application that enhanced employee access to necessary tools and improved overall productivity.

Project Goals and Objectives

	Goal	Supporting objectives	Deliverables enabling the project objectives	Met/Unmet
1	Create a cross-platform employee application	1.a. Planning	1.a.i. Meet with stakeholders	Met
			1.a.ii. Create a schedule/milestone	Met
		1.b. Design and Development	1.b.i. Create prototype	Met
			1.b.ii. Build App	Met
		1.c. Testing	1.c.i. Validate app functionality	Met
			1.c.ii Beta Testing	Met
		1.d. Deployment	1.d.i. Training	Met
			1.d.ii. Final Release	Met
		1.e. Post Deployment	1.e.i. Support	Met

• **Goal 1:** The project aimed to develop and implement a cross-platform employee application that provided employees secure access to company documents, software, and applications from any device on the company network. The project successfully developed and implemented a cross-platform employee application that worked on any device connected to the company network.

- **Objective 1.a:** This objective involved the planning phase, during which a meeting was held with stakeholders to determine project goals, scope, and key deliverables and to discuss potential risks. Roles were assigned to build a team to carry out the project. The

project planning phase was successful, allowing Monreaux consultants to meet with stakeholders to discuss their needs and desires for implementing the app.

- **Objective 1.b:** This objective focused on creating a detailed app design based on the requirements provided. The app was developed iteratively, ensuring that feedback was obtained throughout the process. The app design met all of the requirements outlined in the project phase.
- **Objective 1.c:** This objective was centered on testing the app for functionality, individual components, and the integration of all elements. The integration of legacy and third-party applications was successful, and testing was extensive to ensure app functionality.
- **Objective 1.d:** The deployment objective involved the official rollout to the production environment for employee use. The app deployment had minimal disruptions after it was successfully rolled out to employees in the production environment.
- **Objective 1.e:** The final objective focused on monitoring the app's performance and collecting data and metrics. Data and metrics being collected proved that the application showed positive results; this indicated that, overall, the development of the application was a success.

Project Timeline

Milestone	**Planned Duration (hours or days)**	**Actual Duration**	**Actual Start Date**	**Actual End Date**
Project planning	Two weeks	Two weeks	September 15, 2023	September 28, 2023
Prototype and Design Completion	Three weeks	Three weeks	September 29, 2023	October 20, 2023
Completion of App Development	Five weeks	Seven weeks	October 23, 2023	December 11, 2023
Release for Beta Test	Two weeks	Two weeks	December 12, 2023	December 26, 2023
Final App Release	Two weeks	Two weeks	December 27, 2023	January 10, 2024

There was only one deviation from the project timeline during the completion of app development. We anticipated this would take five weeks, but due to the challenges the team experienced when integrating the legacy system, this milestone was extended to seven weeks. The extra two weeks were spent addressing the compatibility issue and coming up with a solution completed by implementing middleware software that would allow for the legacy software to be successfully integrated into the application.

Unanticipated Scope Creep

During the implementation of the cross-platform employee application, a few requirements related to hardware and software emerged that were not initially anticipated. Regarding the hardware, some employees used older devices that needed to be compatible with the app's advanced features. To resolve this issue, developers developed a simpler app version that reduced the functionality and made it compatible with older devices. There were some delays when it came to the software due to the company's legacy system not being as easy to integrate with the new application. To solve this issue, the developing team worked closely with the IT department to develop middleware software to be able to connect legacy software with the middleware software,

Conclusion

The anticipated outcome of the project was the successful design and implementation of a cross-platform employee application that allowed Kali Aero employees to access work-related applications from any device on the company's network. The app was designed to integrate with existing company systems, support third-party applications, and include a user role management system. Employees were given access to all work documents, software, and production tools within the application. The completion of the app addressed the issue of delayed production caused by the shortage of workstation availability. The immediate effect of the completed project will allow employees to have instant access to all work-related applications from any device, resulting in reduced downtime and less interruption on critical work tasks. This application will result in the implementation of digital transformation into Kali Aero's work culture.

Key performance indicators (KPIs) were used to track and measure the project's overall success. Employee utilization was monitored within three months after the app was released,

achieving at least 80% utilization. Job completion rates were tracked to assess whether the time required to complete a job was reduced by 25% within the first six months following the app launch. A survey was conducted to gauge user satisfaction, with a target satisfaction rate of 85% or higher. When employee utilization reached 98%, the application was considered a success. Within three months of tracking, the metrics were over the projected outcome, indicating the success of the app launch.

References

References

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Appendix A

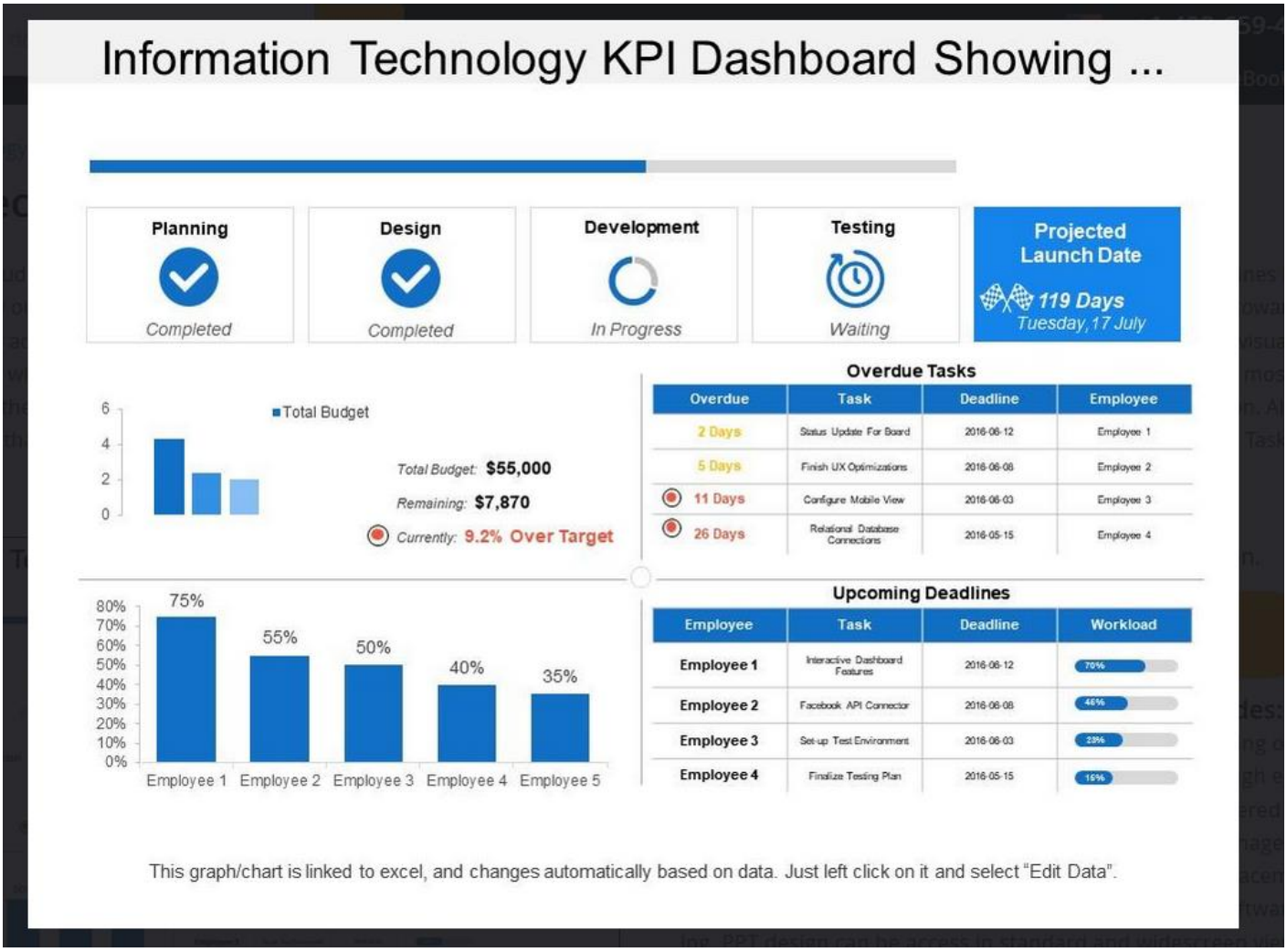
Application Interface

Appendix A shows the application interface. This shows the login screen; then, it shows different sections of the application, which include documents, work orders, drawings, and other applications employees use for their tasks. It also shows the progress of a specific task.

Appendix B

Metrics

Appendix B shows the metrics of the KPIs that were used to measure the progress and success of the project. It shows the different milestones with their completion dates and progress.



Appendix C

Application Training Materials

Appendix C contains the training materials provided to the employees on how to use, install, and troubleshoot the application if needed.