CSIT214

Group Project Final Report

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# Justification for project selection

Fly Dream Air aims to further its progress as a stellar service for travel both domestically, and worldwide. To achieve this, Fly Dream Air will work to digitize its business processes and operations. Three projects have been conceived to fit this vision:

• Project 1: develop an IT software system to manage customers and allow them to book flights, manage flight reservations, seat selections, purchasing in-flight services such as food and drinks.

• Project 2: develop an IT software system to manage loyalty programs (e.g., frequent flyer points and rewards including a wide range of ways to earn points, use points, status upgrade, etc.).

• Project 3: develop an IT software system to manage the airline’s lounges across the world (e.g., customer membership, pay-per-use, bookings, cancellations, occupancy management, search for lounges, etc.)

Each of these projects have their own intricate benefits and detriments. These are best judged by analysing each of their abilities to satisfy the Fly Dream Air organizational needs, to be feasible as an IT project for the company and to be feasible and profitable financially.

## Organisational Needs Analysis:

Before we start delving into the specifics of how particular projects do or don’t satisfy Fly Dream Air’s organizational needs, we need to define those needs. Fly Dream Air as an organization has many needs. For this project, the following needs are relevant:

• To continue and improve operations in a more digital world

• To provide more avenues to use our service

• To continue to produce a profit for our stakeholders

Project 1 satisfies the organizational needs of Fly Dream Air very well. It involves providing another avenue into using our service, specifically through a website. This satisfies the need to continue and improve operations in a more digital world. Younger and more technology experienced customers may prefer to or exclusively book, manage and customize their flights through mediums such as websites or mobile apps.

By going forward with project 1, this gives that untapped market of customers the ability to use our service. This shows how the need to provide more avenues to use our service is also satisfied by project 1, as a website is yet another way to book flights with Fly Dream. Project 1 would also satisfy our need to continue to produce a profit for our stakeholders, as the market of paying customers who prefer to or exclusively book/customize flights is a new source of revenue.

Projects 2 and 3 do not satisfy organizational needs as well as project 1. The need to continue and improve operations in a more digital world is somewhat met by projects 2 and 3. One of the main problems with projects 2 and 3 is that they don’t satisfy the need to provide more avenues to use our service. They instead just expand/add to our services. This is how the two projects somewhat satisfy the need to improve operations, but not necessarily the need to provide more avenues to use our service. Because they don’t add any new avenues, projects 2 and 3 are reliant on our current customer base to potentially pay more or spend more time than they normally would using our service to engage with the new features brought by the projects.

Then there's satisfying the need to continue to produce a profit for our stakeholders. Project 2 could somewhat satisfy this need, as it has been seen with other airlines how loyalty programs can increase profit from the same customers, however project 1 is still superior as project 2 incurs a risk of Fly Dreams current customer base simply ignoring the new programs to continue to use our service how they have already been doing.

## Weighted Scoring model Analysis

Having outlined the organizational needs of Fly Dream Air, a weighted scoring model was made to quantify not only how well each project meets the needs of Fly Dream, but also the feasibility, logistics and public reception of each project. This model includes the following factors, weighted in the following proportions:

• Supporting organizational needs (30%)

• Build Time (10%)

• Matching/Outperforming Competition (20%)

• Risk of Backlash (10%)

• Profitable (30%)

The weights went through multiple different iterations, but we decided the previous weights fit the best. Build time was weighted at only 10% because Fly Dream is currently profitable and as such, we can afford to spend time improving ourselves even further. Risk of backlash gets the same weight, as Fly Dream doesn’t have many negative perceptions at the moment and public rejections of company decisions are usually both a loud minority of the company’s customer base and don’t actually result in customers switching to an entirely different unfamiliar service.

Matching/outperforming competition is weighted at 20% because whilst it may not always align with Fly Dreams specific organizational needs, it may provide insights into how are competitors are doing well when we are not. Fly Dream’s organizational needs being met and the profitability of the project are weighted the highest as we always need to meet our needs as a company and continue to produce a profit for our stakeholders.

Here are the results of the weighted scoring model:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Weight | Project 1 | Project 2 | Project 3 |
| Supports Org Needs | 30% | 90 | 60 | 40 |
| Build Time | 10% | 90 | 70 | 80 |
| Matching/Outperforming Comp | 20% | 70 | 90 | 70 |
| Risk of Backlash | 10% | 90 | 65 | 80 |
| Profitable | 30% | 80 | 80 | 60 |
| TOTAL WEIGHTED | 100% | 83 | 72.5 | 60 |

A picture containing chart

Description automatically generated

## Threats Destroyed and Opportunities Provided by this Project

Most Competing airlines already have services similar to project 1 in place, and these services are always a benefit to them. Project 1 provides an opportunity to match our competitors and reap the same success they’ve found with their services. Not only can we reach the same standard as our competitors, but we can also rise above by looking at what does and doesn’t work well for our competitors services and choosing aspects that make our services preferable and profitable.

By not having the services detailed in project 1, it will be harder for Fly Dream Air to become a well-known/established airline, whilst our competitors with similar services to those proposed in project 1 either already are or are on their way to being known airlines amongst our customer base. This is a threat to Fly Dream, as without project 1’s services, customers could tend to stick with airlines they know or have heard of before, making us miss out on a nice portion of our potential customers.

# Business Case

**Background information**

FlyDreamAir (our company) is a major airline that covers a wide range of routes throughout the world, has a large fleet of aircraft and has a large network of travel agencies and customers across the world. But we found that our company has a lack of IT software system that can provide better customer experience and increase customer loyalty compared to other flight companies. Therefore, we decided to start an IT project to develop our software system in order to give our customer better support.

**Business Objective**

Our company aims to provide a comfort trip to all our customers, and we are renowned for that in the aviation industry. Nowadays, software systems are widely used in the aviation industry because applied IT software systems have many advantages to both company and customers, most of the customers are using online apps or websites to help them plan for a trip. Setting up a website or software can help customers know more clearly about the flights and have better trip planning. So we wanted to start a project which can increase customer loyalty and satisfy our company’s goal.

We decided to make a software system on managing customers for their flight booking and purchase in-flight services. As the website designed for flight booking and in-flight services can provide a clear user interface for the customer to choose their flight and seat, they can also choose extra in-flight service for customized service. The system can help customers to book their flight more easily with the flight booking system, therefore we believe that creating a software system for customers can achieve our business objective better.

**Situation analysis of existing business**

Nowadays, many businesses in the aviation sector already have set up software systems on flight booking. Developing an easier way for booking a flight brings out many benefits to those companies, more customers are attracted by the online flight booking system, and the aviation companies can reduce employers’ workload. Setting up a software system can digitalize the operations with lots of benefits.

**Cost vs Benefits**

Building a website can make the procedure of flight booking easier. Therefore, having a system can attract potential customers as the system allows people to book the flight online, this will let customers book our flight more easily.

Also, making a website for flight booking can handle a large number of customers at the same time, which is much better than having lots of customer service for the flight booking procedure. A software system only requires some daily maintenance once the system is set up. Setting up a software system for flight booking can bring out many benefits, although there will be new problems, but the benefits of setting up such a system can cover the costs of building the system. The website can handle customer’s request for flight booking and purchases in flight automatically, which can reduce the workload and only need less resources for operation. Therefore, compared to the cost, creating a software system is worthy for our company.

**Feasibility**

The IT team has 500 full-time employees and 100 part-time employees, most of the employees can work on this project while others need to maintain systems and hardware for daily operations, but there are still sufficient workers to run the project. The Aviation Company has allocated $500,000 for this project, which is enough to run the project and buy the web domain. As there are lots of successful cases of making a similar website around the world, the certainty of requirements of the software system are known, therefore we have a clear scope about the project.

# Project Charter

**Project Title:** FlyDream Air Website development

**Date of Authorization:** 7th March 2022

**Project Start Date:** 7th March 2022 **Project Finish Date:** 27th May 2022

**Key Schedule Milestone**

* Complete the project documentation and have a prototype of the website ready by 11th April 2022
* Have the website approved and functioning by 27th May 2022

**Budget Information:** The Aviation Company has allocated $500,000 for this project and is willing to provide more funds if needed. Majority of the costs is of the IT support and developers hired for the project. While a little of the funds are spent on the domain purchased.

**Project Manager:** Jay Jones

**Project Objectives:** The purpose of FlyDream Air Software system project is to create a user friendly website for Customers to be able to book their flights, seats and any in-flight services online at the tip of their fingers.

**Major Project Success Criteria:** The software is to meet all the written criteria, be thoroughly tested for any errors and be completed by the expected finish date.

**Approach:**

* Hire a programmer to write all the software to create a website and for it to function properly as per the needs of the stakeholders.
* Hold weekly meetings to discuss the progress of the project.
* Have all the documentation including the scope ready by the second week of the project start.
* Purchase the domain for the website.
* Conduct thorough software testing.

**Roles and Responsibilities:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Roles** | **Position** | **Contact Information** |
| Zahra Bandukwala | Team Member | HR Manager | zb992@uowmail.edu.au |
| Jay Jones | Project Manager | Manager | jaj633@uowmail.edu.au |
| Quinn Bruckmann | Team Member | Document Developer | qpb967@uowmail.edu.au |
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| Oliver Lambert | Team Member | Document Developer |  |
| Issac Bankier | Team Member | Senior Software Engineer | iwb435@uowmail.edu.au |
| Partha | Sponsor | Investor |  |

**Sign-off:**

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# Project Scope Statement

**Project Deliverables**

A web-based application to support the passengers flying with FlyDreamAir.

The application allows passengers to book flights, manage reservations and

seat selections, as well as facilitating the purchase of in-flight services

such as food and drinks.

**Project Scope Description**

The system is to used globally by passengers and employees of FlyDreamAir.

**Acceptance criteria**:

* **passengers**:
  + book flights
  + manage flight reservations
  + change seats
  + cancel reservation
  + reserve additional seats
  + select seats
  + purchase of in-flight services
* **flight attendants**:
  + view food and drink a passenger has ordered
  + mark which food and drink has been served
  + check which seat a passenger has booked
  + view empty seats
* **airport service desk**
  + check which seat a passenger has booked
  + view empty seats
* **system requirements**
  + store all data to a database
  + database can be easily accessed from multiple systems
  + system can be used on a plane

# Effort Analysis

**Albrecht / IFPUG function points**

🟢 Low Complexity 🟡 Medium Complexity 🔴 High Complexity

**External Inputs**

🟢 airport terminal number

🟢 airport

🟡 dates and times of travel

🔴 passenger identification

🔴 payment information

**External Outputs**

🟢 airport terminal number

🟢 airport

🟡 dates and times of travel

🟡 basic passenger identification

**External Queries**

🔴 digital ticket

**Internal Logical Files**

🟡 passenger in-flight services

**External Interface Files**

🟢 seat availability

🔴 flight database

🔴 passenger database

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Low Complexity** | **Medium** **Complexity** | **High** **Complexity** |
| **EI** | 2 | 1 | 1 |
| **EO** | 2 | 2 | 0 |
| **EQ** | 0 | 0 | 1 |
| **ILF** | 0 | 0 | 1 |
| **EIF** | 0 | 0 | 0 |

# Risk Management

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Risk Description | Likelihood of the risk occurring | Impact if the risk occurs | Mitigating action | Person Responsible if the risk occurs | Status of the risk |
| Project specifications are not clearly defined. | Medium | High. | Complete a business case and ensure purpose is well defined in the project charter. | Project Sponsor | Close |
| Project schedule is vague and not understood. | Low | Medium | Hold scheduling workshops with the team so the plan is understood, and the chances of missed tasks is reduced. | Project Manager | Close |
| Slippage in Schedule. | Medium | Medium | Track schedules daily and include schedule review as an agenda item in every project team meeting. | Project Manager | Open |
| Team Members become unavailable due to an illness or emergency. | Medium | Medium | Book resources as early as possible. Keep backups for each human resource on the project. | Project Manager | Open |
| No alignment between the teams working on different parts of the project. | Low | High | Maintain good Communication within the team. Regular team meetings to ensure everyone’s on the same page. | Project Manager | Close |
| Unplanned work that must be accommodated. | Medium | Medium | Document all assumptions made in the planning of the project. | Project Manager | Open |
| Cost Estimating errors | Medium | High | Carefully track costs and forecast at completion adjusting as necessary. | Project Manager | Close |
| Lack of Communication causing confusion. | Medium | Medium | Write a plan which includes frequency, goals and tasks appointed to teach member of the project team. | Project Manager | Close |
| Scope Creep | Medium | High | Document the project scope in the project charter and refer to it through the project. | Project Manager | Close |
| Software Crash | Medium | High | Prototyping, keep heavy traffic in mind when writing the code. | Coding Team | Open |
| Inadequate Customer testing | High | High | Ensure customers prepare test cases and quality checks | Project Manager | Open |
| Cyber threats | High | High | Conduct a risk assessment to determine vulnerabilities. Establish network access controls. Continuously monitor network traffic. | Coding Team | Open |
| Increase in workload or time requirements due to change in policy. | Low | Medium | No ability to reduce likelihood | Project Sponsor | Open |

# WBS Dictionary

|  |  |
| --- | --- |
| **Task** | **Task description** |
| **Business Case** | To develop the business case document, justifying why we are undertaking this project. |
| **Requirements gathering** | To undertake a variety of requirements gathering techniques and activities and recording the raw results, for the purpose of developing project documentation. |
| **Requirements Analysis** | To analyse and conclude results from the requirements gathering phse, which will describe what requirements and objectives this project and its end user needs. |
| **Create Requirements Document** | To produce a document containing the results and conclusions from the requirements analysis. |
| **Define key stakeholders** | To produce documents defining and categorising our stakeholders of the project; e.g. end users, investors, persons involved, etc… |
| **Project Charter** | To develop the project charter document. |
| **Resource allocations** | To develop the guiding document for allocating resources, both financial and personnel. |
| **Project Scope Statement** | Develop the document detailing the boundaries and limits of the project's development and scope. |
| **Develop WBS** | Create a series of documents which highlight all tasks and activities involved in the project development life cycle |
| **Create Sitemap** | To develop documents containing information about the pages and resources to be used on the website project, and the relationships between them. |
| **Create Wireframes/Mock-up** | To develop a variety of models, both wireframes and mock-ups, to prototype the structure and relationships between components of the website project. |
| **Interview & Obtain Stakeholder Approval** | To interview all relevant stakeholders to obtain their opinion, perspective and ultimately their approval of our current understanding of the project requirements and needs and our plans for the project's development. |
| **Choose tools/tech** | To consult our team and make a selection of the most appropriate tools and software which we will use to develop our project in each of its phases. |
| **UX Design Documentation** | Develop a document which details UI design, user flows for users and functionality for our development team. |
| **Select Content** | To select all the possible content that will be used in the website, e.g. images, text, graphics, videos, etc… |
| **Create page layout** | Models and documents detailing the placement and arrangement of website content e.g. text, images, videos, graphics, etc… |
| **Stakeholder Meeting** | To hold a meeting with our contracted company and their appropriate stakeholders (e.g. administrators) in order to verify our current progress and plans for the project product. Their opinions and requests will be recorded and evaluated later. |
| **Implement changes** | To review and implement the appropriate record stakeholder requests, given that they heed to our project scope. |
| **Develop models** | Some more models detailing the UX, website structures and prototypes may be required for our project teams for effective project development. |
| **Select Visual themes & Colour palette** | Visual themes of the website should decided in accordance with the contracted company image and the needs of the UX. |
| **Content Management** | Organise, optimise and format the content involved the project for our contractors benefit and their customers. |
| **Coding** | All coding activities that involved in the process of building the website and its server e.g. html, css, react, etc… |
| **Debugging** | All activities involved in debugging the written code so that the website is errorless and stable against exploits. |
| **Browser Compatibility Fixes** | Implement changes and bug fixes involved in making the website more available on different browsers, such as chrome, firefox, smartphone browsers, etc... |
| **Deploy website** | Going through the series of activities involved in launching the website for public use. |
| **Observe/record Major issues** | To observer and record all issues reported on the devloper's and end-user's side of the website. |
| **Test & upload website to server** | To go through the series of activities involved in uploading the website to a server and testing it's stability. |
| **Maintenance & updates** | To actively monitor the website logs and implement fixes and changes over a long, as of yet undefined, period of time |
| **Add user report system** | To develop and implement a simple system that is apart of the website which allows the end-users (e.g. customers and service-operators) to record and submit logs/comments detailing issues in the website. |
| **End User Documentation** | Develop documents which will provide written support and details components of the system for end-users for their benefit. |
| **Obtain Stakeholder Approval** | To have a final meeting with our stakeholders and present them with our final product and obtain their final thoughts and requests for possible implementation. |
| **Fix bugs** | Fix any final bugs and issues which were produced from recent version. |

# Project Closing

Our company, FlyDreamAir, wanted an IT software system that would significantly improve or upgrade their business services and features, whether it already existed or not.

In our weighted scoring model, we determined that we could achieve maximum profitability if we developed an IT software system that would allow us to manage customers, and for our customers to:

* book flights,
* manage their flight reservations,
* make seat selections, and
* manage in-flight services, such as food and drinks.

It is because these services are the most basic services which can be provided to customers of an aviation company, that we determined an IT system should be developed to maximise the efficiency and effectiveness of such services, ultimately maximising FlyDreamAir’s profitability.

With our requirements solidly defined, we concluded that a website would be the most appropriate piece of IT system software for such a project. As outlined in the business case, a website is relatively cheap and one of the most common and feasible systems to be used by customers for accessing these types of services.

With this in mind, we have developed a report which details how we would go about developing a website that meets the aforementioned requirements, with a working prototype to display.

By examining our prototype, one can determine that our prototype can allow for customers to:

* book flights
* manage flight reservations
* select seats
* manage in-flight services

while also allowing FlyDreamAir employees, both administrators and customer service agents to assist customer queries.

Within our assigned budget, we have cost and time effectively met our expectations for producing a report detailing the profitable development of a project IT system to boost FlyDreamAir’s services and business.

# Lessons Learned

We started the development of this report on the 7th of March, 2022, and from then till now, throughout the process of developing this report, we have learnt many lessons in project management.

We had estimated that we would have a working prototype for this project by the 11/05, which was a major underestimation of the amount of work required to create such a prototype. It was not till near the end of the report that we had a near-complete and working prototype, thanks to the hard work of our senior software engineer.

In our cost-estimation analysis, we determined that …

Our approach to this project had us employ one senior software engineer who willingly took on the role of developing our entire prototype system himself. With almost the entirety of the coding left to them, the rest of our members went about developing appropriate project documentation and reports to guide our project development. In future projects, it may be more beneficial to divide coding work among more members of a project so that the risk of failure is lowered and so that a greater collective understanding of our overall project is achieved.

We had weekly meetings which allowed us to examine our progress from the week before and plan for the currents weeks progress and goals. This strategy kept all of our project members up to date with our work progress and the progress of the prototype. It would have been more beneficial to project development in the long-term if we had each member write up a summary of what will be included in their assigned documents. This would ensure correctness of content and promote motivation.

While we couldn’t keep to our goal of having a project scope ready before commencement of our second phase documents due to unavoidable absence of some members, our weekly meetings allowed our members to develop a united vision of our project, and proceed ahead to developing a sound project and prototype.