



POLITECNICO MILANO 1863

Iqueue Project Feasibility Study

Software Engineering for Automation (2022-2023)

Giacomelli Gianluca, 10615105
Gottardini Andrea, 10617000
Veronese Niccolò Enrico, 10620278

Professors: Rossi Matteo Giovanni
Lestingi Livia

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Feasibility Study helps to objectively decide whether to proceed with a proposed project. It beholds considerations concerning the development of our new project. It will present aspects such as technological limitations, the marketplace, marketing strategy, staffing requirements, schedule and financial projections.

Executive Summary

After a brief description of Iqueue application and its provided services, an analysis concerning the technological aspects and market considerations will take place to lay out the feasibility of this project. Following, a marketing strategy to boost its diffusion will be proposed. Then, we imagine ourselves as Iqueue project proposers inside a company to which we furnish also the organizational, staffing and financial prospects. In the end, the global results of the analysis are displayed.

1. Description of Application Function and Goals

Iqueue is an application whose primary goal is to keep track of the queue outside many different shops of small and medium sizes (such as bakeries, perfumeries, hair saloons, ...). The expected users are costumers and shop owners. Iqueue provides a double functionality: on one side it grants the client to monitor queues and book time slots to reserve his visit to a shop, on the other one it permits the shop owner to register its facility on the application to better manage the relative incoming people and to boost the promotion of its activity. The shops will be divided into categories to offer multiple choices in the user's selection process. The main functionality of the Iqueue application is the following: a user, for example a costumer, signs in in the application. Then the costumer selects from a specific menu the category of shop he/she wants to visit. Once the costumer has selected the typology of shop the Iqueue app will show the map with the location of the shops and the queue in front of each one. The client selects the specific shop where he/she wants to go and from another menu it selects the time slot in which he/she will arrive. After that a QR code will be generated for the costumer and a notification will be sent to the shop owner. Once the client arrives at the shop, the shop owner will scan the QR code and the Iqueue app will remove the client from the queue of the shop.

After a broad analysis of the available market solutions, we discover that similar applications already exist but none of them addresses this kind of facility so we entrust in the market diffusion of the application.

2. Technology Considerations

To develop Iqueue, firstly the knowledge in the domain of small and medium-sized shops has to be deepened to better identify their characteristics and possible implementations.

An integration of Iqueue with available localization systems (e.g. Maps) is needed: this will ease the software realization and the shop insertion in the application.

To develop the application prototype, the team will strengthen its understanding of the chosen programming language Python employing Django, in particular to the realization of the application interface. Users demand a simple and easy way by which are detected different possible shops of the selected field (e.g. bakeries) and their queues. It is imperative that all people flows are monitored properly. In addition, functionalities must be implemented to allow shop owners to properly promote their activity, for example through targeted advertisements or special product offers. In this way, a possible lock-in effect is generated between customers and the shop.

For sure, maintenance operations will be needed to guarantee the correct working of the system and anticipates likely future changes and accommodate them cheaply and reliably.

3. Product Service Marketplace

The marketplace for this type of application is quite wide, especially after the COVID 19 pandemic which has increased the interest into this field. According to MarketsAndMarkets the global queue management systems in terms of revenue was estimated to be worth \$0.5 billion in 2020. Due to the increasing interest in this segment, it is expected to grow at a rate of 4% per year and to reach a value of \$0.6 billion by the end of 2026. Up to now the most relevant applications in the market, and thus our main competitors, are Qminder, Waitwhile and Qwaiting. All of them have, on one hand, important strengths like the ease of use - especially for Qwaiting – but on the other hand they are characterized by weaknesses like the cost, the low economic gain for the shop owner and the fact that they are focused mainly on clothes shops. For a more detailed list of stakeholders and competitors see the RASD document. Considering the present situation, our application wants to address the general environment of small-medium shops, not only of clothes, with close to zero initial cost in terms of infrastructure for the owners and with possible economic advantages for them in terms of visibility, advertising and clients managements. In addition to that, our application could bring considerable profits to the customers, not only in terms of time saving but also economically - with special prices and conventions for the shops having the app.

Sources:

www.marketsandmarkets.com/Market-Reports/queue-management-system-market-23961354.html

www.qminder.com

www.waitwhile.com

www.qwaiting.com

4. Marketing Strategy

Iqueue differentiates itself from its competitors by focusing specifically on small and medium-sized shops, which is a market sector that has not been fully explored by similar apps, generally targeting larger businesses; additionally, Iqueue provides a double functionality, catering to both consumers and shop owners, which provides a unique value proposition compared to other queue management apps.

The algorithms behind this app allow, in fact, both customers and shop owners to gain valuable benefits: the former will be driven towards the most convenient and less crowded shops to optimize their time and savings, while the latter will be able to better understand customer behaviour and foster their business.

To promote Iqueue, a highly visible social media campaign will be adopted. The app will maintain a strong presence on social media platforms such as Facebook and Instagram, to promote its features and attract potential users. This will involve creating engaging content, sharing customer reviews, and running targeted social media ads. Partnering with local influencers in the cities where the app is available will help generate buzz and drive more users to the app. Influencers will share their experiences using Iqueue and how it has helped them in their daily lives.

To increase interaction with the audience, valuable content such as blog posts, how-to guides, and video tutorials will be created to attract and engage potential users. This content can be shared on the app's website and social media channels.

Another marketing instrument concerns referral programs: offering referral incentives to existing users who refer new users to the app can help increase user acquisition and retention. This can include rewards such as discounts or exclusive access to new features.

For the upcoming sections, we imagine ourselves in a company in which we need to consider also organizational and timing aspects.

5. Organization and Staffing

For Iqueue, the app's introduction is not expected to have a significant impact on the organizational structure of the company. However, a few additional staffing positions are required to successfully implement the app's features. These positions will be integrated into the existing departments and report to the respective department managers:

- **App Development Manager** - This full-time position will oversee the development and maintenance of the Iqueue app, ensuring that it runs smoothly and efficiently. This person will report to the IT Director and will work closely with the app development team.
- **Sales and Marketing Manager** - This full-time position will lead the sale policies and marketing efforts for the app, identifying target customer groups and conducting advertising and marketing campaigns to maximize app downloads and usage. This person will report to the Director of Marketing and will work closely with the sales and marketing teams.
- **Customer Support Representative** - This part-time position will provide customer support for the app, answering questions and addressing concerns from users. This person will report to the Director of Customer Service and will work remotely, handling inquiries through email or chat support.

Overall, the organization and staffing plan for Iqueue is designed to ensure that the app is developed and marketed effectively, while also providing exceptional customer service and support to its users. The addition of these staffing positions will help to ensure the success of the app and its long-term growth in the market.

5.1 Schedule

The Iqueue app development is expected to take 12 months from project approval to the launch of the app. The following is a high-level schedule of some significant milestones for this initiative:

1. **January 1, 2024:** Initiate Project.
2. **February 1, 2024:** Project kick-off meeting.
3. **March 1, 2024:** Complete the app's design and architecture.
4. **April 1, 2024:** Develop and test the app's core functionalities, including user registration and booking system.
5. **June 1, 2024:** Complete beta testing trials of the app with a limited group of users.
6. **July 1, 2024:** Incorporate feedback from beta testing and finalize the app's features and user interface.
7. **August 1, 2024:** Launch the app in a few selected locations for testing and user feedback.
8. **October 1, 2024:** Implement any necessary changes based on user feedback and launch the app in additional locations.
9. **December 1, 2024:** Launch the app in all targeted locations and begin promoting it through social media, influencer marketing, content marketing, and referral programs.

Upon approval of this project, a detailed schedule will be created by the assigned project team to include all tasks and deliverables. This schedule will also identify any potential challenges or delays and develop contingency plans to mitigate risks.

6. Financial Projections

Financial projections are one key aspects of our new project Iqueue. The monetizing strategy adopted for the app allows to ensure its economic success of it and augments the investment return:

- **In-app purchases:** this will be implemented by proposing purchasable priority accesses for new shops to the customers. Shop owners could buy advertisements realized by Iqueue communication channels or privileged positions inside Iqueue itself.
- **In-app advertising:** visualizing commercial advertisements inside the mobile app and so have payments from publicity networks. Of course, only pertinent advertisements will be proposed to Iqueue utilizers.
- **Freemium:** Iqueue provides a base free version that could be upgraded to a premium version for a fee. The premium version will include additional benefits such as priority booking, special discounts and early accesses. The promotion of it will be done through a free month trial, similar to Amazon Prime strategy.

In the table below are highlighted the figures accounting for projected earnings, additional staffing requirements, contract support for IT and training needs, and web server and hosting costs. All the quantities reported are in euros.

Measure	Year 1	Year 2	Year 3	Year 4	Year 5	5 Year Total
Additional Staffing Costs	60000	60000	60000	48000	48000	276000
Additional Web Server and IT Hosting/Maintenance	2000	2000	1300	13000	1000	19300
Training for Sales and Marketing Staff; Initial app advertsing	1500	0	0	0	0	1500
Incomes from In-app purchases, advertising and freemium	50000	55000	78000	110000	100000	393000
Total Additional Costs for Iqueue	63500	62000	61300	61000	49000	296800
Cash Inflow	-13500	-7000	16700	49000	51000	96200

Assumptions for these projections are all milestones performed in accordance with the schedule and all transactions are closed yearly with no carry-over to subsequent years.

7. Findings and Recommendations

Based on the information presented in this feasibility study, it is recommended the development of Iqueue proposal and begins project initiation. The findings of this feasibility study show that this initiative will be highly beneficial and has a high probability of success. Key findings are as follows:

Technology:

- Will utilize existing technology which lowers project risk, particularly for localization systems.
- Once in place, this technology is simple to operate and maintain for a relatively low cost.

Marketing:

- Queue market in a significant growth phase.
- Small-medium shops queue managing is an uncovered market sector.
- Lock-in effect between customers and vendors.

- Iqueue can differentiate itself from its competitors and will utilize incentive programs to target new consumers.

Organizational:

- No changes to organizational structure.
- Minimal increases to staffing are required.
- No new facilities or capital investments are required.

Financial:

- Strong and tested app monetizing strategy.
- Five-year projections show Iqueue provides a cash flow equal to 96200€.
- Iqueue will be in a position to capture greater market share by providing advertisements for shop owners and so create competition among them inside small-medium shops areas which will favor the adoption.

Different scenarios and corresponding solutions will be analyzed in the RASD.