

Web-Based System Integration in Digital Transformation of Bureaucracy and Company Management Using Agile Methods


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ABSTRACT

Digital transformation has become a fundamental need in improving bureaucratic efficiency and company management. In this context, the implementation of web-based systems and Agile methods at PT Lion Mentari Airlines aims to speed up administration, reduce manual errors, and improve information accessibility. This study examines the integration of web-based systems in digital transformation using an Agile approach consisting of the Product Backlog, Sprint Planning, and Development stages. The developed system includes key features such as user management, attendance, leave application, and FAQ, which significantly improves operational efficiency and service quality. The results show that the application of Agile in the development of web-based systems has succeeded in reducing the potential for errors, speeding up administrative processes, and improving interaction between users and management. Thus, the integration of this system makes a great contribution to improving the company's efficiency and providing more effective solutions in managing administration and services to employees.

Keyword : Digital Transformation, Web-Based Systems, Agile Methods

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1. INTRODUCTION

Digital transformation has fundamentally changed the traditional way of public administration and corporate management. The use of information and communication technology in public administration includes data collection, analysis, decision-making, and more efficient public services (Lukman et al., 2024). This change is also felt in the corporate sector, where companies are faced with increasingly complex and dynamic global competition (Putra et al., 2024). In an effort to improve competitiveness and operational efficiency, companies are beginning to adopt a web-based approach to support digital transformation. This approach helps to speed up administrative processes, reduce manual errors, and improve information accessibility. The application of Agile methods is also one of the strategies to manage system development in a gradual and controlled manner, so that risks can be minimized and optimal results can be achieved (Dwi Inayah, 2024).

In addition, technological developments have become an inevitable necessity. The ability to leverage technology effectively allows for increased productivity, which ultimately impacts company performance, increased revenue, and reduced operational costs (Adawiyah et al., 2023).

This study aims to analyze the integration of web-based systems in the digital transformation of bureaucracy and management at PT Lion Mentari Airlines. With an Agile method-based approach, the study highlights the development process of key features, such as user management, attendance, leave application, and FAQ, which aims to improve the company's operational efficiency and provide better service

2. RESEARCH METHOD

- a. Defining the Product Backlog: In the early stages of system development, it is important to define the Product Backlog, which is a comprehensive list of all the tasks and features needed to build the system or product. This backlog serves as a key guide in planning and development, identifying the priorities of the various features that will be added to the system. Each item in the backlog needs to be clearly defined, from user management to other administrative features. The determination of this

Product Backlog is the basis for compiling a more detailed development plan, and is a reference in measuring the progress of product development (Rachman Iskandar et al., 2023).

- b. Defining Sprint, Sprint planning functions to plan the tasks that will be done in each Sprint, ensuring that the development team can work in a focused and efficient manner in achieving the goals that have been set. Generally, each Sprint is designed to produce features that can be used and tested, leaving room for continuous evaluation and improvement. The main goal of Sprint Planning is to organize the tasks that will be completed in the Sprint period, so that development can run in a directional manner and the results can be evaluated periodically (Nadira & Prasetyo, 2024).
- c. Development, In the Development stage, the system development process focuses on the integration of key features that have been planned in the Product Backlog. This phase includes a wide range of development activities, from user interface design to the implementation of functions related to user management, attendance, leave requests, and FAQs. Each feature developed through Sprint aims to produce a system that runs effectively and efficiently, taking into account the feedback received at each stage of testing. This development process also includes testing and debugging to ensure that each feature is working properly before being integrated into the system as a whole. During this phase, the development team works collaboratively to ensure that the developed system meets operational needs and provides users with an efficient solution.

3. RESULTS AND DISCUSSION

A. Determining the Product Backlog

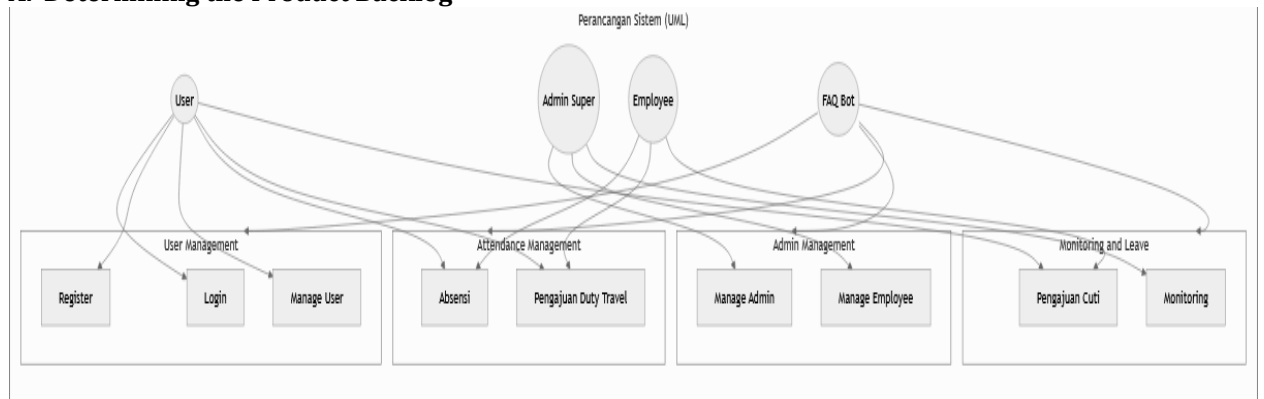


Fig 1. Determining the Product Backlog

In Figure 1, the determination of the Product Backlog is identified based on the roles that exist in the system. For users, the tasks associated with it include User Management (registration, login, and user management). Super admins are responsible for Admin Management (Manage Admin, Manage Employee) and monitoring and leave (Leave Submission). Employees are involved in Attendance Management (Attendance, Duty Travel Submission), and Monitoring and leave (Monitoring). Meanwhile, the FAQ bot functions to help in the User Management and Monitoring and Leave areas.

B. Defining Sprint

Table 1. Sprint and Task Details

Sprint	Product Backlog	Task
Sprint 1	- Usecase Diagram	- System Planning
	- UML (Activity Diagram, Sequence Diagram)	- Close Diagram
Sprint 2	- Login Features	- Design Screen Login
		- API and User Login Database
	- Register Feature	- Design Screen Register
	- User Management Features	- API and Database Register
Sprint 3	- Employee Management Features	- Design Screen User Management
		- Design Layout Sidebar, Navbar
	- Super Admin Management Features	- Employee Management Screen Design
		- API and Employee Database
	- FAQ Features	- Design Screen Management Super Admin
	- Super Admin API and Database	
	- Design Screen FAQ	

		- API and Database FAQ
Sprint 4	- FAQ Upload Feature	- Design Screen FAQ dan create ticket
		- Fix bugs
	- Leave Application Feature	- Leave Application Screen Design
	- Attendance Monitoring Feature	- Design Screen Absensi
		- Design Screen Absensi
Sprint 5	- Attendance Feature	- Front end redesign
	- FAQ Features	- Connect API and Employee Database
	- Apply Leave Feature	- Report and Value Screen Design
	- Employee Database Features	- API and Database Reports and Values
	- Logout Feature	

C. Development

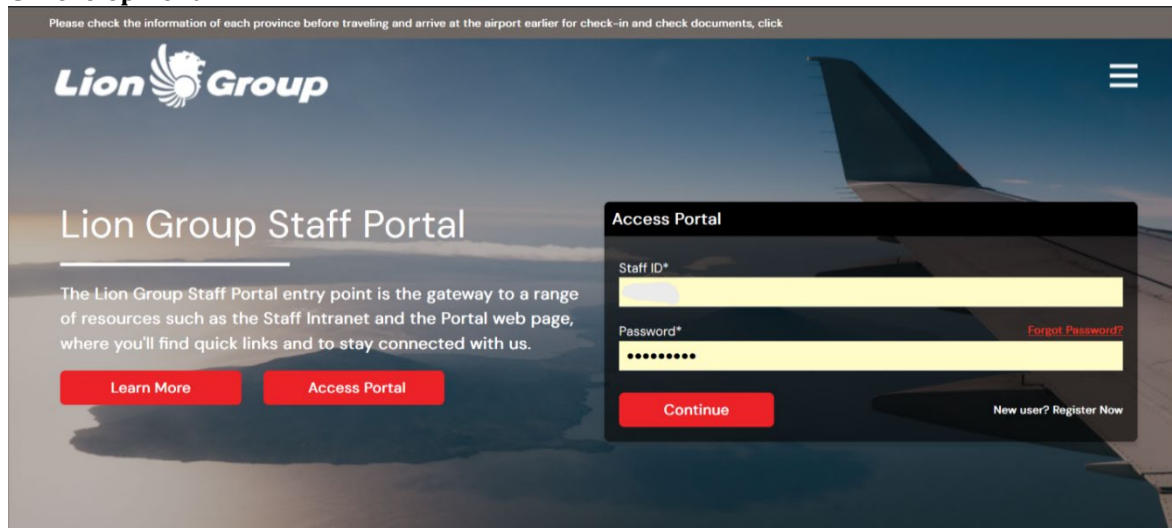


Fig 2. Login Page

Figure 2 shows the login page on the application, which is the first interface that appears for users who want to access the system. On this page, users can enter their account information, such as staff ID and password, to proceed to the existing system features.

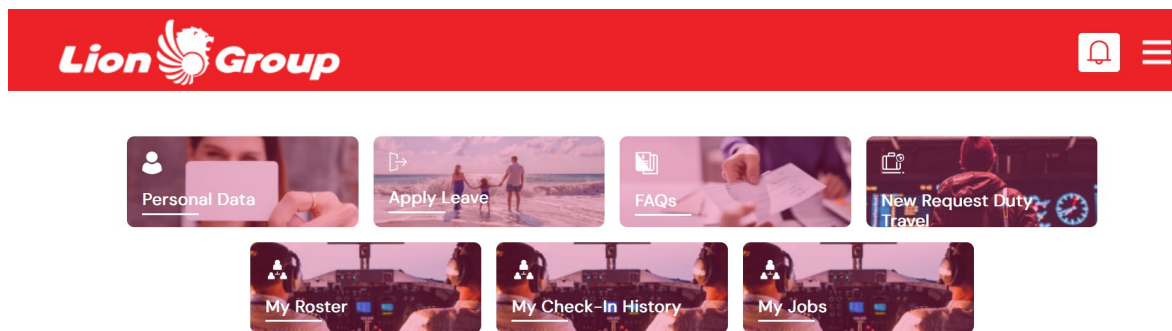


Fig 3. Menu dashboard

Figure 3 shows the dashboard menu on the app, which includes the various feature options that the user can access. These features include Personal Data, Apply Leave, FAQs, New Request Duty Travel, My Roster, My Check-In History, My Jobs.

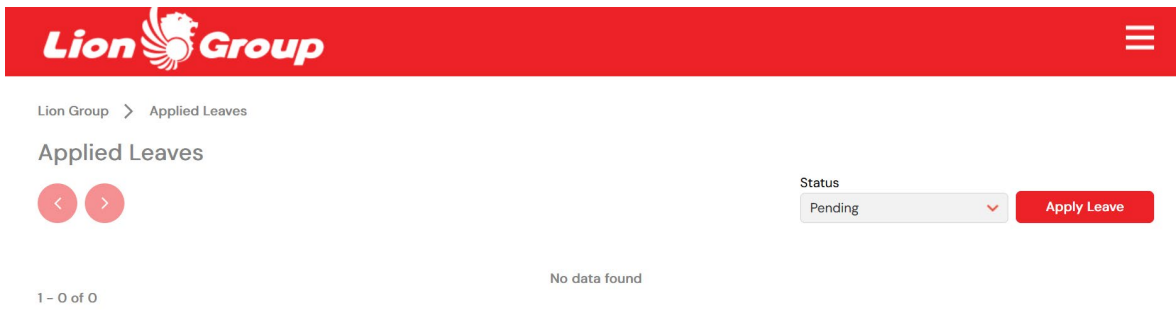


Fig 4. Apply leave feature

Figure 4 shows the Apply Leave feature on the app, which allows users to apply for leave.

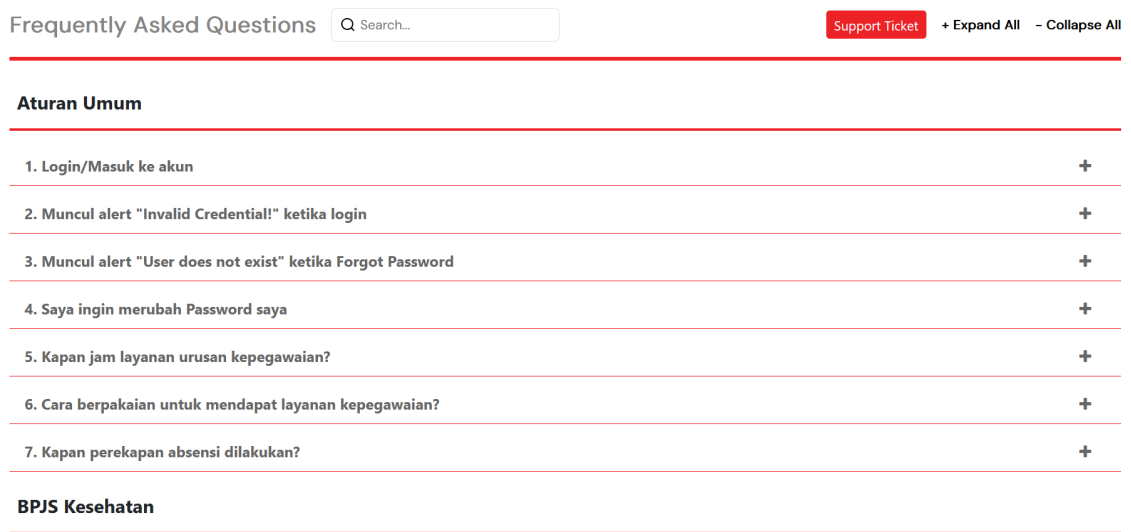


Fig 5. FAQ Features

Figure 5 shows the FAQ (Frequently Asked Questions) feature of the app, which provides a list of frequently asked questions and their answers. This feature makes it easy for users to quickly find important information without the need to contact customer support.

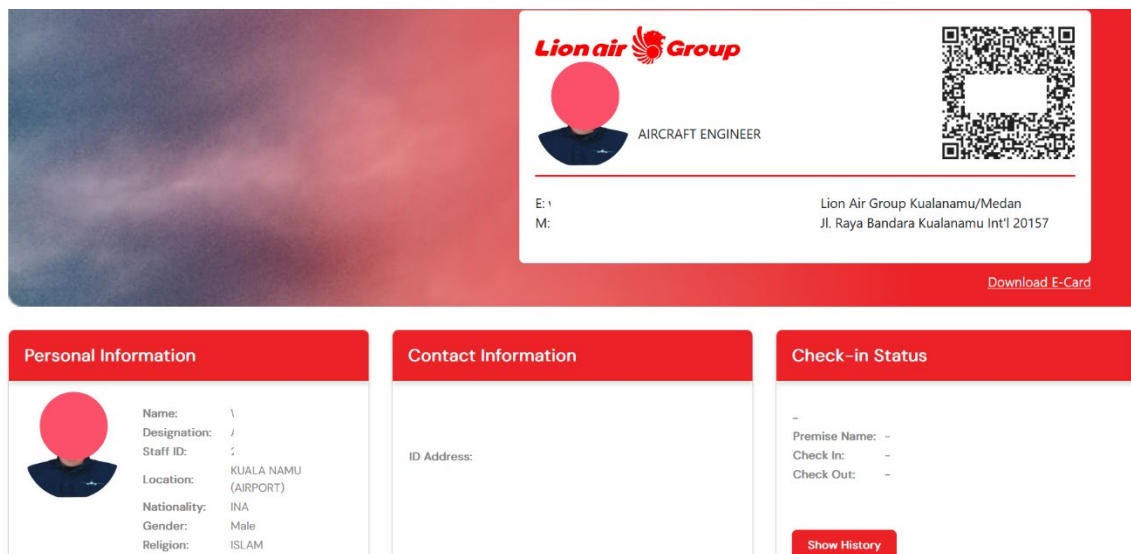


Fig 6. Employee data features

In figure 6, this feature displays user profile information, such as Personal Information which contains personal data, Contact Information which contains contact details, and Check-in Status which shows the user's attendance status.

Check-In History November, 2024

Non-Aircrew Aircrew

STAFF NAME	WIKO PRATAMA	STAFF ID	232602	JOB TITLE	AIRCRAFT ENGINEER
COMPANY NAME	PT. BATAM AERO TEKNIK	CLUSTER NAME	LINE MAINTENANCE	UNIT	KORHUB 2

Total Shift	12	Hadir on Time	12	ALPA	0	SAKIT	0
POIN KEHADIRAN	100.00 %	Total JAM KERJA EFEKTIF	139:08	TERLAMBAT/PULANG CEPAT	0	CUTI	0
IJIN	0	POIN KEDISIPLINAN	100.00 %	SPD	0	Absen Tidak Lengkap	0

Date	Shift Name	Shift In	Shift Out	Check In	Check Out	Atd. In	Atd. Out	Atd. Status
01/11/2024	P47 (08:00-20:00)	08:00	20:00	07:59	20:07	Tepat Waktu	-	Hadir on time
02/11/2024	P47 (08:00-20:00)	08:00	20:00	07:57	20:10	Tepat Waktu	-	Hadir on time

Fig 7 Attendance Feature

Figure 7 shows the Attendance feature on the application, which provides staff attendance history with various related information, such as staff name, company name, staff ID, cluster name, position, unit, total shift, on-time attendance, alpa, sickness, attendance points, total effective hours, tardiness/early discharge, leave, permit, discipline points, SPD, and incomplete attendance. The data grid on this feature displays details per day, including date, shift name, shift entry hours, shift exit hours, check-in, check-out, ATD In, ATD Out, and ATD status.

4. CONCLUSION

This study examines the application of a web-based system in the digital transformation of bureaucracy and company management at PT Lion Mentari Airlines, using the Agile method approach. The results of the system development show that the application of the Agile method, which involves the stages of Product Backlog, Sprint Planning, and Development, can improve the company's operational efficiency and service quality. The key features developed, such as user management, attendance, leave requests, and FAQs, have been successfully implemented to support smooth administration and interaction between users. The use of this web-based system not only speeds up operational processes, but also reduces the potential for manual errors and improves the accessibility of information that is important to users and management. Overall, the implementation of this web-based system with an Agile approach has contributed significantly to the company's efficiency and provided more effective solutions in managing administration and services to employees.

REFERENCES

- Adawiyah, R., Fauzi, A., Indriyanah, A., Safitri, A., Nabila, E. P., Maidani, M., & Nurul, S. (2023). Pengaruh Keamanan Informasi dan Perkembangan Teknologi di Era Revolusi 4.0 Terhadap Kinerja Perusahaan (Literature Review Manajemen Kinerja). *JURNAL ILMU MULTIDISIPLIN*, 2(1), 2829–4599. <https://doi.org/10.38035/jim.v2i1>
- Dwi Inayah, A. (2024). ANALISIS TINJAUAN IMPLEMENTASI METODE AGILE DALAM MANAJEMEN PROYEK SISTEM INFORMASI. *JURTIKOM*, 1(2), 58–63. <https://doi.org/10.69714/3sq3mj97>
- Lukman, J. P., Ahmad, D., Sakir, R., & Sakir, A. R. (2024). Transformasi Digital dalam Administrasi Publik: Peluang dan Tantangan. *MULTIPLE: Journal of Global and Multidisciplinary*, 2(1), 1042–1049. <https://journal.institercom-edu.org/index.php/multiple>
- Nadira, W., & Prasetyo, M. A. W. (2024). PENERAPAN STRATEGI PRODUK ROMAN PICHLER PADA PRODUK E-LEARNING SEKOLAH APLIKASI. *Jurnal Ilmiah Sain Dan Teknologi*, 7(2), 123–130.

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- Putra, R. D., Wijaya, T., Kartika, N. A., Lazumi, S. I., Mukti, I. Y., & Husada, C. (2024). PERAN TRANSFORMASI DIGITAL DALAM MEMBENTUK MASA DEPAN BISNIS GLOBAL. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 159(5), 159–165. <http://jurnal.kolibi.org/index.php/neraca>
- Rachman Iskandar, N., Guntara, R. G., & Maesaroh, S. S. (2023). Implementasi Pengelolaan Transaksi Usaha Berbasis Android pada UMKM Menggunakan Metode Pengembangan Scrum. *Madani : Jurnal Ilmiah Multidisiplin*, 1(6), 903–913. <https://doi.org/10.5281/zenodo.8160738>
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