



# Enterprise Architecture Design For Creative Project Management Systems Kuy Studio Uses The Zachman Framework

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## Abstract

Kuy Studio as a creative company faces challenges in managing complex and collaborative projects. The absence of a structured information system leads to suboptimal workflows, coordination, and supervision of projects. This research aims to design an enterprise architecture using the Zachman Framework to support a creative project management system that suits the needs of the organization. This approach accommodates all aspects of the organization from a business standpoint to technical implementation. The results of this research are in the form of an enterprise architecture blueprint that maps business processes, information, and IT infrastructure in an integrated manner. This design is expected to be the foundation for the development of effective and efficient systems in the future.

**Keyword:** Enterprise Architecture, Zachman Framework, Project Management System, Kuy Studio.

## 1. Introduction

The creative industry, particularly in the field of digital content such as video production, graphic design, and social media, is experiencing very rapid growth. This condition requires companies to be able to complete projects quickly and still maintain high quality. However, managing complex and multidisciplinary creative projects is a challenge for many companies (Rezgui et al., 2009; Vissers & Dankbaar, 2002), including Kuy Studio, a creative company based in Malang. Problems that often arise include lack of team coordination, unstructured project documentation, and delays in job completion. This is due to the lack of an integrated information system, where the work process still relies on communication through group chats and the use of spreadsheets, which has proven to be inefficient in supporting overall project management (Badii & Sharif, 2003, Gaie et al., 2025; Ismael & Salama, 2025).

To answer these challenges, an approach is needed that is able to map organizational needs in terms of business, information, and technology in a comprehensive and systematic manner (Kotusev, S., & Kurnia, 2021; Haminah, S., & Pakaja, 2024; Ilin et al., 2021). One relevant approach is the Zachman Framework,

which provides an enterprise architecture framework through six perspectives (planner, owner, designer, builder, subcontractor, and functioning system) as well as six key aspects (data, function, network, people, time, and motivation) (Andry et al, 2021; Zachman, 2003). This approach allows the system design process to be carried out in a structured and documented manner, thereby improving work efficiency, accelerating the decision-making process, and maintaining the quality of services provided by the organization.

This research departs from the main questions related to how to design an appropriate enterprise architecture to support the creative project management system at Kuy Studio, how the mapping of business and technology components can be done using the Zachman Framework approach, and how the results of the design can be used as a reference in the development of integrated information systems in the future.

The purpose of this research is to design an enterprise architecture that supports a creative project management system according to Kuy Studio's organizational needs. In addition, this research aims to apply the Zachman Framework approach in the design process to produce a systematic and comprehensive system blueprint, as well as provide design documentation that can be used as a basis for the development of integrated information systems in the future.

## **2. The Art of Research**

Enterprise Architecture (EA) is a systematic approach to designing and managing organizational structures, business processes, and information technology to align with a company's business strategy (Fawazzi et al., 2025; Maulana et al., 2023). EA provides guidance in the development of complex and integrated information systems (Anthony Jnr, 2021). Ross et al., (2006) in their book *Enterprise Architecture as Strategy* explain that EA is an organizational logic of business processes and IT infrastructure that reflects the need for integration and standardization of organizational operational models. With this approach, companies can efficiently align IT systems with the company's strategic direction.

The Zachman Framework as one of the models in the development of enterprise architecture was introduced by Zachman (1987) argue that's defines the Zachman Framework as a classification framework that maps the representation of enterprise systems from various perspectives, from planners to technical implementers, as well as from various focuses such as data, functions, networks, and so on. It does not provide an implementation method, but it does provide a strong conceptual structure for managing organizational information as a whole (Ningtyas et al., 2025).

In supporting project implementation in an organizational environment, a project management system is an important element that must be considered. According to the Project Management Institute (2017), a project management system is a structured approach to planning, implementing, controlling, and closing projects in order to achieve project objectives effectively and efficiently. It combines the processes, methods, and tools needed to complete projects on time, on budget, and meet quality standards.

Kuy Studio as a case study in this study is an entity in the creative industry that runs various design and digital content projects. Referring to the case study approach according to Yin (2014), Kuy Studio was chosen as the research object to describe in depth the application of enterprise architecture and project management systems in a real context, especially in the creative industry-based business environment.

The application of the Zachman Framework in designing creative project management systems at Kuy Studio allows for the creation of systematic, consistent, and easy-to-develop system documentation in the



future. This framework can help understand the interconnectedness between business elements and technology as a whole, as well as support digital transformation that aligns with the needs of creative projects (Bondar et al., 2017). Thus, the integration between enterprise architecture approaches, project management systems, and the Zachman Framework becomes a strong foundation in the development of adaptive and efficient information systems for companies in the creative industry such as Kuy Studio.

### **3. Method**

#### **1. Types of Research**

This research is a qualitative descriptive research using a Research and Development (R&D) approach, which aims to produce products in the form of an enterprise architectural design of a creative project management system that can be applied in the Kuy Studio environment. This method not only focuses on understanding a phenomenon, but also creates applicable solutions based on the results of the analysis of organizational needs.

According to Spewak (1992), the R&D method is an approach used to develop and validate educational products or technologies through systematic measures. In the context of this research, the product developed is an enterprise architecture blueprint based on the Zachman Framework (Saha, 2009).

#### **2. Data Collection Techniques**

##### **a. Interview**

Interviews were conducted with internal stakeholders such as project managers, production teams, and creative teams to explore the needs of the system, the problems faced, and expectations for the project management system to be developed.

##### **b. Observation**

It was done by directly observing project activities and team workflows at Kuy Studio. This observation aims to understand the work pattern, information needs, and ongoing coordination process.

##### **c. Document study**

Review internal documents such as project proposals, work reports, team communication records, and organizational structure to get a comprehensive picture of the existing system.

#### **3. Development Framework**

This system development framework uses the Zachman Framework, which is an approach that divides the system design process into six perspectives: Planner, Owner, Designer, Builder, Subcontractor, and System in Operation. Each perspective looks at the system from a different point of view, from the initial planning to the system being used in real life. In addition, the framework also considers six important aspects: what is needed, how it works, where the system is used, who is involved (Who), when activities are carried out (When), and why the system is needed (Why).

In designing an enterprise architecture for a creative project management system at Kuy Studio, each perspective in the Zachman Framework is implemented as follows:

- **Planner:** Determine the vision, direction, and goals of the system to be built, namely to create a creative project management system that is more structured, efficient, and able to improve coordination between teams at Kuy Studio.
- **Owner:** Identify user needs from the owner's side, such as the need for project progress reports, timeline monitoring, and approval of work stages and distribution of team tasks.

- Designer: Design systems logically through data and process modeling. In this stage, tools such as the Entity Relationship Diagram (ERD) are used for the data structure, and the Activity Diagram to describe the overall project workflow.
- Builder: Determine the technical specifications and platforms to be used in the development of the system, such as the use of PHP programming language, MySQL databases, and LAN/Wi-Fi network infrastructure to support internal access.
- Subcontractor (Technical Implementer): Carry out technical implementation based on previous designs, including program code creation, system component integration, as well as functional tests and debugging.
- System in Operation: Evaluate the system through direct testing by end users, namely Kuy Studio's internal team such as project managers, designers, editors, and other stakeholders. The goal is to ensure that the system runs as needed and supports the work process optimally.

#### 4. Result

This chapter presents the results of designing a creative project management system at Kuy Studio using the Zachman Framework approach. The main objective of this design is to compile a blueprint of a system that is organized and in accordance with the characteristics of collaborative and dynamic work in the creative industry environment. Previously, Kuy Studio still relied on spreadsheets and group chats in managing projects, so a more structured system was needed to support work efficiency, strengthen team coordination, and increase transparency of project progress.

##### 1. Characteristics of Research Objects

Kuy Studio is a creative company based in Malang City engaged in the production of digital content such as videos, graphic design, and social media campaigns. Each project is worked on by a team consisting of various roles such as project manager, designer, editor, and client. Complex work processes without a centralized system often give rise to the following problems:

- Difficulty monitoring project progress in real-time

Table 1. Zachman's Perspective

Zachman's Perspective	Focus Areas	Description
Planner	System Scope	The project management system includes project modules, tasks, progress, revisions, and reports.
Owner	Business Needs	Real-time progress reports, deadline reminders, task distribution visibility, revision approval controls, and client monitoring.
Designer	Logical Design of the System	ERD for project and task data, Activity Diagrams for workflows, user-role structures, and responsive web-based interface design.
Builder	Technical Specifications	The system is built with PHP (Laravel/CI), MySQL, HTML/CSS/JS, and operates on a LAN/cloud network for internal team collaboration.
Implementer (Subcontractor)	Implementation Environment	XAMPP/on-premises/cloud servers, role-based multi-user access, security features, and user activity logging systems.
User (System in Operation)	Simulation of System Use	Project managers create projects and divide tasks, creative teams update progress, clients provide revisions, and owners view reports.



- Delays in task distribution and revision
- Undocumented coordination between teams

Therefore, a web-based project management system is needed that is able to facilitate scheduling, progress tracking, task sharing, collaboration, and project reporting in an integrated and efficient manner.

## 2. Design results based on Zachman's framework

The design of the system is based on six Zachman perspectives and includes six main aspects of the system: data, processes, networks, actors, time, and motivation. The design results are summarized in the following in table 1.

## 3. Elaboration of Perspectives in the Zachman Framework

The system design in this study was developed using the Zachman Framework, which presents an enterprise architecture approach through a two-dimensional matrix format. This framework is nailed as follows

### **A. Planner's Perspective**

#### 1. What (Data)

The data that is at the core of the creative project management system at Kuy Studio includes various main entities, namely:

- Project Data: Information about the project such as project name, description, client, start date, deadline, and status.
- Task Data: Job details such as task name, description, deadline, status, and priority.
- Team Members: Information about system users that includes roles such as designers, editors, and project managers.
- Revisions/Comments: Notes from clients and project managers related to feedback or improvements.
- Project Files: Work documents such as designs, videos, or storyboards that are uploaded and stored in the system.

#### 2. How (Process)

The main processes designed in this system include:

- Creation of new projects by project managers.
- Assign tasks to creative team members according to their skills.
- Update on task progress by the team and upload work results.
- Review of results by managers or clients, including the revision process.
- Automatic project completion and file archiving.
- All processes are supported by a web-based system that documents activities in real-time.

#### 3. Where (Network/Location)

The system will be implemented in the Kuy Studio work environment located in Malang. The system is designed to be web-based and can be accessed from:

- Studio office computers by project managers and creative teams.
- Laptops or mobile devices by the owner or client remotely.
- Internal network (LAN) and internet connection to ensure flexible access in multiple locations.

#### 4. Who (People)

Parties involved in the use of the system include:

- Owner: Monitors the entire project, approves revisions, and accesses performance reports.

- Project Manager: Manages project creation, shares tasks, and verifies teamwork.
- Creative Team: Update task status, upload work, and respond to comments.
- Client: Provide feedback and approval of the final result.

#### 5. When (Time)

Activities in the project management system take place dynamically based on the project stages:

- Project planning is carried out at the beginning, before the work begins.
- Task sharing and progress updates are carried out daily.
- The review and approval of the results are carried out according to the agreed deadline.
- Weekly reports and filing are done after the project is completed.

#### 6. Why (Motivation)

The main objectives of the development of this system are:

- Simplify project management processes that were previously manual and unstructured.
- Improve the efficiency of coordination between team members in one centralized system.
- Provide real-time visibility of project progress to management and clients.
- Ensure quality and timeliness in the completion of creative projects.
- It is the foundation for the digitalization of Kuy Studio's operations to be more professional and competitive in the creative industry.

### **B. Owner's Perspective**

This perspective explains how the creative project management system will be run from the point of view of the owner or top management at Kuy Studio. The main focus is directed at the information structure and the need for a system that supports the overall supervision of the project, in accordance with the expectations of the studio manager.

#### 1. What (Data)

From an owner's perspective, the data of primary concern includes:

- Project Master Data: Project information such as name, client, implementation team, schedule, and work status.
- Project Progress Data: Daily and weekly reports related to the achievement of work stages.
- Revision Data: Revision history or feedback from clients that shows improvements and iterations of work.
- Team Performance Data: A summary of each team member's involvement and contribution to the project.
- Consent Request Data: Information about tasks or changes that require owner verification.

This data is used by owners to evaluate project performance, review the effectiveness of teamwork, and make strategic decisions regarding resource allocation and business development.

#### 2. How (Process)

The project management process from the owner's point of view includes:

- Monitor project progress reports on a regular basis.
- Review milestone achievements and the effectiveness of task distribution.
- Provide approval to revisions, schedules, or changes to tasks.
- Evaluate project completion and team performance.



The designed system must be able to display information in a visual and concise form, such as a dashboard or graphical report, to make it easier for owners to make quick and accurate decisions.

### 3. Where (Network/Location)

From the owner's point of view, the project management system must be accessible in a flexible and integrated manner. The system is web-based so that it can be accessed via a local network (LAN) in the studio as well as remotely via an internet connection (Wi-Fi), allowing the owner to monitor the progress of the project anytime and anywhere.

### 4. Who (People)

Parties who interact with the system from the owner's perspective include:

- Studio Owner: A key decision-maker in a project, approving revisions, evaluating progress, and monitoring the overall performance of the team.
- Project Manager: Drafts and executes projects based on the owner's direction, and reports progress and issues that arise.
- Creative Team: Provide task status updates and carry out work as assigned.

### 5. When (Time)

Development and evaluation activities from the owner's point of view are carried out based on the following schedule:

Table 2. Schedule of Designing Activities from the Owner's Perspective

No.	Activity Name	Target Output	M1	M2	M3	M4
1.	Identify system requirements	List of owner's needs and expectations	✓			
2.	Stakeholder interviews	Owner & manager interview documentation	✓	✓		
3.	Formulation of the scope of the system	Project system scope document		✓		
4.	Review of business processes running	Map of old processes and revision needs		✓	✓	
5.	Initial draft approval	Minutes & proof of initial design approval			✓	✓

### 6. Why (Motivation)

The owner's goals and expectations for this project management system include:

- Improve the overall efficiency of project oversight.
- Ensure all projects run on time and according to quality standards.
- Provides real-time visibility of project progress.
- Reduce miscommunication between teams with data-driven systems.
- Supporting strategic decision-making based on actual and accurate reports.

## C. Designer's Perspective

The Designer's Perspective in the Zachman Framework describes the system in a logical form that forms the basis for the technical process of developing a project management system at Kuy Studio. At this stage, the design of the system is structured based on the functional needs that have been previously identified by the studio owner and the system users. The main focus is on compiling the data structure, process flows, network design, user actors, design schedules, and system logic rules to be implemented.

## 1. What (Data)

On the data side, a relational model between entities is prepared that represents the information structure in the creative project management system. The main entities used include:

- Project: Stores core project information such as name, client, deadline, status, and description.
- Tasks: Are the units of work in the project, containing information on tasks, deadlines, status, and priorities.
- Team Members: Data of system users who are responsible for each task (designer, editor, content creator).
- Comments/Revisions: Notes or feedback from clients and project managers for each task.
- Document/Output: Work output files such as designs or videos uploaded by teams.
- System Users: Consists of Admin, Project Manager, Creative Team, and Owner.

These relationships between entities are visualized through the Entity Relationship Diagram (ERD) and form the foundation for the design of relational databases. This model is designed to ensure project flows are accurate, complete, and traceable.

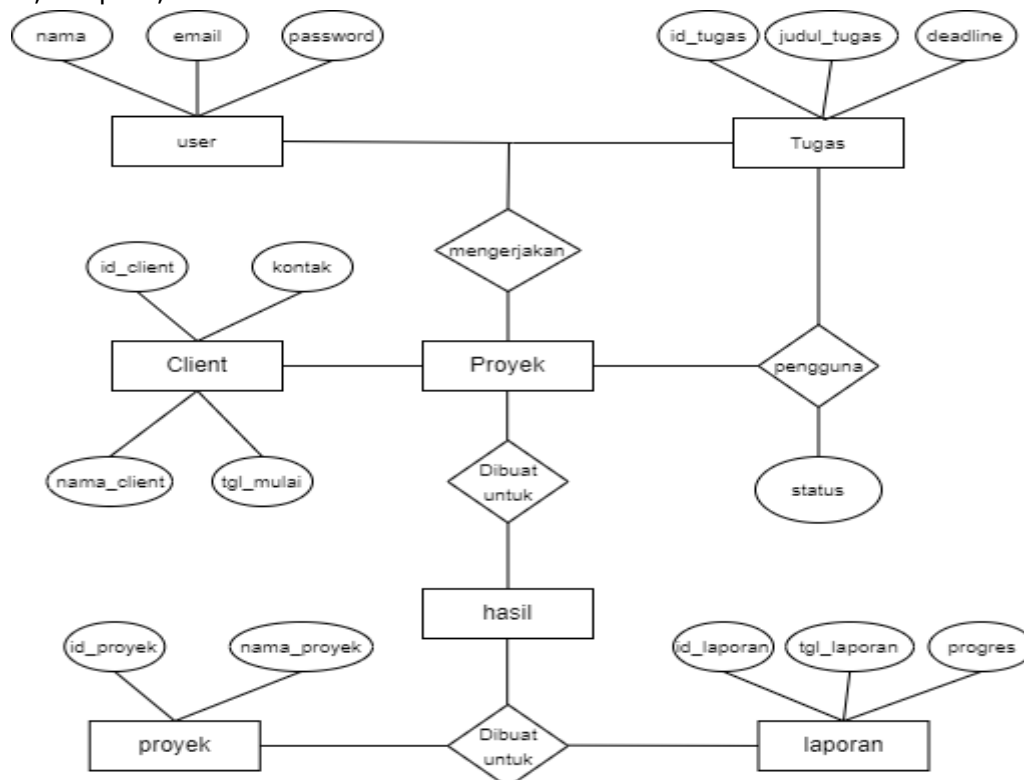


Figure 1. Entity Relationship Diagram (ERD)

## 2. How (Process)

The business processes that take place in the system are described using Activity Diagrams to visualize the workflows of each key feature. Key activities in the system include:

- System Login: Each user must log in to access the system based on their role.



- New Project Creation: The project manager creates the project and sets descriptions, clients, and deadlines.
- Task Assignments: Tasks are assigned to the creative team based on their respective competencies.
- Task Progress Update: Team members update the status of work (worked, revised, completed).
- Upload Work Output: The team uploads the work into the system.
- Review and Revision: The client or manager provides feedback or approves the work.
- Project Completion: The project is marked complete and documented.

This activity diagram is a reference for developers to understand the sequence of activities and interactions between modules.

### 3. Where (Network/Location)

Kuy Studio's system network design uses a simple topology based on local network (LAN), with the possibility to be developed into a cloud/web-based system. Its main components include:

- Local/Cloud Server: Stores database and system applications.
- Project Manager Computer: For project management and task distribution.
- Creative Team Laptop: Used to access tasks and upload work.
- Admin Computer: Manages user data and project documentation.
- Routers and Switches: A link between devices for LAN and Wi-Fi connectivity.

This network structure ensures efficient collaboration within a single studio and supports the development of remote access in the future.

### 4. Who (People)

The three main roles designed in this system include:

- Project Admin: Responsible for managing project data, tasks, and user access rights.
- Project Manager: Sets a timeline, shares tasks, and monitors progress.
- Creative Team (Designers, Editors, etc.): Work on tasks and upload results as assigned.

The allocation of access rights is carried out specifically according to the role, to ensure information security and data consistency.

### 5. When (Time)

The series of design activities is carried out in stages with the following schedule:

Table 3. Project Management System Design Activity Schedule

No.	Activity Name	M1	M2	M3	M4
1.	Identify entities and attributes	✓			
2.	Drafting of the ERD and database structure		✓		
3.	Use-case and system flow planning		✓	✓	
4.	Network design and access structure			✓	
5.	Initial design validation with stakeholders				✓

### 6. Why (Motivation)

The main goal of system design in this perspective is to produce a system that is logical, systematic, and ready to be translated into technical form. Some of the rules of system logic designed include:

- Unique code for projects and tasks: Avoids duplication and makes tracking easy.
- Authentication and access restrictions: The system supports role-based login and access sharing.
- Data input validation: Ensures the accuracy and consistency of task and progress data.
- Trail audit: Every user's activity is recorded complete with the user's time and identity.

With this logical structure, the project management system is expected to improve coordination between teams, minimize miscommunication, and support timely project completion.

#### **D. Builder's Perspective**

The Builder's perspective is the fourth line in the Zachman Framework. At this stage, the focus shifts from the logical design of the system (designer level) to the physical and technical implementation form. System designers at this level are in charge of translating design specifications into real form, both software and hardware that can be directly used by system users.

##### 1. What (Data)

The physical implementation of the data entity is carried out by building databases and tables that are compliant with the ERD scheme. The core components used include:

- Database: db\_manajemen\_proyek\_kuy
- DBMS: MySQL or MariaDB
- The structure of the main table and its relationships:
  - tb\_user → Stores data of system users such as admins, project managers, and creative teams.
  - tb\_proyek → Creative project data such as project name, client, deadline, and status.
  - tb\_tugas → Data detail of tasks in the project, including description, deadline, status.
  - tb\_tim → Stores information about the team that handles the project.
  - tb\_anggota\_tim → Relationship between the user and the project team.
  - tb\_klien → Client information such as name, contact, and company.
  - tb\_log\_aktivitas → Updated history of user task status and activity.
  - tb\_file → Storage of work files (videos, designs, documents).
- Relationships between tables (foreign keys):
  - tb\_tugas.id\_project → tb\_proyek.id\_project
  - tb\_anggota\_tim.id\_user → tb\_user.id\_user
  - tb\_anggota\_tim.id\_team → tb\_tim.id\_team
  - tb\_log\_aktivitas.id\_assignment → tb\_tugas.id\_assignment
  - tb\_proyek.id\_client → tb\_klien.id\_client

##### 2. How (Process)

Business processes are translated into system modules (program code) developed with a modular approach. The main components of the system include:

- Login & Authentication Module:
  - Validate username and password.
  - Redirect users based on roles (admin, creative team, manager, owner).
- Project Management Module:
  - Input and update project data.
  - Team allocation and deadline setting.
- Task Assignment Module:
  - Task division by project managers.
  - Status updates by the creative team (process, revision, completion).
- Upload & Revision Module:
  - Upload work files and comments by managers/clients.



- Monitoring & Reporting Module:
  - Daily/weekly reports of project progress.
  - Recap of team contributions and task status.
- Tools used:
  - Backend: PHP (Laravel / CodeIgniter)
  - Database: MySQL / MariaDB
  - Frontend: HTML, CSS, JavaScript

### 3. Where (Network/Location)

The technical design of the network is implemented into a real infrastructure that supports the running system:

- Server:
  - Can use a local server in a studio or cloud service.
  - Running web servers (Apache/Nginx), PHP, and MySQL.
- Client Devices:
  - Project manager computer for project input & monitoring.
  - Creative team laptops for task updates and file uploads.
  - The studio owner's laptop to review reports and approve the work.
- Network Infrastructure:
  - Routers and switches as a link between devices.
  - Static IP for on-premises servers (if not using the cloud).

### 4. Who (People)

The use of the system is divided by role, with the development of the UI according to the respective functions:

Table 4. Implementation of User Roles in Kuy Studio System

No.	Role	Primary Access Rights	Featured UI
1	Studio Owner	Project verification, report review, strategic decision	Verification dashboard and project progress reports
2	Project Manager	Manage projects and tasks, work distribution, monitoring	Project forms, to-do lists, reports and graphs
3	Creative Team	Progress updates, file uploads, comments	Personal to-do list, file upload form, task status

### 5. When (Time)

The system implementation stages are scheduled weekly during the development process:

Table 5. Kuy Studio Project Management System Development Schedule

No.	Implementation Stages	M1	M2	M3	M4
1.	Server & database environment setup	✓			
2.	Login & UI module development		✓		
3.	Development of main modules (projects & tasks)		✓	✓	
4.	Progress reporting & monitoring module			✓	
5.	System testing & debugging				✓

## 6. Why (Motivation)

The motivation of this stage is more technical, to ensure that the system can function reliably, safely, and according to the needs of the user. Aspects that were observed include:

- Form Validation:
  - There are no blank columns.
  - Input format is appropriate (date, text, number).
- Authentication & Authorization:
  - Login verifies roles and access rights.
  - Each role is limited to only relevant features.
- Data Integrity:
  - Automatic updates of project progress.
  - All activities are recorded with a timestamp.
- System Security:
  - Password encryption using bcrypt.
  - Protection from SQL Injection on input forms.
- Audit Trail:
  - All important activities are logged for tracking.
  - History of task changes, file uploads, and comments is recorded.

## E. Builder Implementation Perspective

The Builder perspective describes how the system is built technically and physically. Its main focus is to form a real database structure, write program code in the form of modules, connect the system to the network infrastructure, build a user interface based on roles, compile a technical implementation schedule, and ensure the system functions optimally through testing and validation.

### 1. What (Data)

The physical data structure of the system is defined in `db_proyek_kuy` database using MySQL/MariaDB. Tables and relationships are designed to support real-time creative project management.

Table 6. Kuy Studio Implementation Physical Data Structure

No.	Table	Foreign Key	Relationship To
1	tb_proyek	id_klien	tb_klien.id_client
2	tb_tugas	id_proyek, id_pelaksana	tb_proyek, tb_user
3	tb_user	id_role	tb_role.id_role
4	tb_komentar	id_tugas, id_user	tb_tugas, tb_user
5	tb_file_proyek	id_proyek	tb_proyek.id_project

Technical:

- DBMS: MySQL 8.0 / MariaDB
- Security: Passwords are encrypted using bcrypt
- Index: Columns such as `id_proyek`, `id_user`, and `tgl_update` are indexed for query performance optimization.

### 2. How (Process)

The system module is built using PHP and the Laravel or CodeIgniter framework. Each feature is designed in the form of a separate module to make it easier to develop and test.



Table 7. Kuy Studio System Module

No.	Module	Technical Functions
1	Login & Authentication	User verification, role switching, login session security
2	Project Management	CRUD project data, team allocation, and deadline setting
3	Duties & Assignments	Input and update tasks, status changes, progress tracking
4	Request for Consent	The manager or client provides feedback and approval to the task
5	File Management	Upload project work results and revision attachments
6	Reports & Monitoring	Filter reports by project, progress, and team member activity

### 3. Where (Network/Location)

The system is deployed with a local network architecture (LAN), with the possibility of expansion to cloud hosting for cross-site access.

Table 8. Kuy Studio's Physical Infrastructure

No.	Component	Function
1	On-Premises/Cloud Servers	Storing databases and applications, running Apache/PHP/MySQL
2	Computer Admin	User and project data management, access to the system backend
3	Laptop Manager	Manage projects, assign work, monitor progress
4	Creative Team Laptops	Access assignments, upload work, comment revisions
5	Routers & Switches	Connecting devices, servers using static IP

Note: A star-shaped network topology with a server as the center, the system can be accessed via Wi-Fi and LAN in the studio environment.

### 4. Who (People)

The user interface is designed to be responsive using a combination of HTML, CSS, and JavaScript, and is differentiated by roles and access rights.

Table 9. Kuy Studio User Interface Design

No.	Role	Accessible Modules
1	Project Admin	User management, projects, tasks, reports
2	Project Manager	Manage projects, assign tasks, review progress
3	Creative Team	View tasks, update progress, upload work results
4	Owner / Pemilik	View reports, approve projects/tasks, evaluate team performance

Note: Access rights are restricted based on roles through the dynamic login session system

### 5. When (Time)

The stages of system implementation are planned within a period of 1 month, divided per week.

Table 10. Kuy Studio System Implementation Schedule

No.	Development Stage	M1	M2	M3	M4
1	Server installation & database setup	✓			
2	Creation of SQL table structures		✓		
3	Login & UI module development		✓		
4	Development of project & task modules			✓	
5	Development of file & comment modules			✓	
6	Report & evaluation module				✓
7	Final testing & debugging				✓

## 6. Why (Motivation)

The application of technical rules is carried out to ensure that the system runs well, stable, and safely.

Table 11. Kuy Studio Technical & Security Implementation

No.	Rules/Features	Technical Implementation
1	Data Validation	Validation in the frontend & backend of all project and task input forms
2	Authentication	Session-based login system, redirects based on user roles
3	Access Restrictions	Laravel middleware or CI filters for each module's access rights
4	Automatic Progress Update	Automate task status updates whenever there is a new progress input
5	Audit Trail	Logging user activity (data changes, file uploads, approvals)
6	Password Encryption	Passwords are encrypted using bcrypt or password_hash()
7	Database Backup	Weekly database backups via cron job (if server supports)

## F. Participant Perspective (Sub-Contractor)

The Participant's perspective represents a system that has been running or tested in the form of a functional prototype. The main focus of this stage is the implementation of system tests by users, user training, functionality validation, and evaluation of system performance before being fully implemented in studio operations.

### 1. What (Data)

The system was tested using real data reflecting project management activities at Kuy Studio:

- Test Date:
  - o New project data input.
  - o Assignment and status updates of tasks.
  - o Request for approval of a task by a manager or client.
  - o Upload work files and revision comments.
  - o Creation of project progress reports.
- Validation Test:
  - o Check the completeness and format of the input (validation of fields and files).
  - o Do task and progress statuses change as per system logic?
  - o Automate system reports and notifications.
- Sample Output:
  - o Weekly report on project progress.
  - o Creative team activity history (task updates, file uploads).
  - o Approval of a task marked as complete.

### 2. How (Process)

The system test is carried out through a scenario that resembles a real Kuy Studio workflow:

- Functional Test Steps:
  - o Sign in using an account with different roles (admin, manager, creative team).
  - o Admins create projects and record clients.
  - o The manager assigns tasks to the team.
  - o The team updates progress and uploads files.
  - o The manager approves or comments.



- o Progress reports are automatically generated by the system.
- Test Method:
  - o Black-box Testing: Ensures features run as they function without looking at the code.
  - o User Acceptance Test (UAT): Tests whether the user feels the system is as needed and easy to use.

Note: Test tools: test case spreadsheets, user feedback forms, and evaluation checklists.

### 3. Where (Network/Location)

The system was tested in Kuy Studio's actual work environment:

- Location: Studio Kuy, Malang
- Device:
  - o Studio admin computer
  - o Project manager laptop
  - o Creative team laptops (designers, editors)
- Network: Built-in LAN and Wi-Fi for multi-user access, additional Requirements:
  - o Local IP customization if using an internal server (XAMPP).
  - o Modern browser installation, text editor, and document viewer (PDF viewer).

### 4. Who (People)

Table 12. Role-Based System Test Activities

No.	Role	Activities in Testing
1	Admin	Project and user data input, simulate system flow
2	Project Manager	Task division, progress monitoring, approval of task results
3	Creative Team	Update tasks, upload files, respond to revisions
4	Developers/Test Team	Assist users, log bugs, and gather feedback

Note: Basic training is provided on each role before testing is conducted, to ensure an understanding of the system.

### 5. When (Time)

System testing is conducted during the last week of the implementation phase, with a flexible schedule as per user availability.

Table 13. Kuy Studio System Test Schedule

No.	Testing Activities	Implementation Time
1	Simulation of new project inputs	Day 1
2	Assignment and update of tasks	Day 2
3	Task approval requests	Day 3
4	Upload work and revision comments	Day 4
5	Testing of reports & system notifications	Day 5
6	User evaluation & system revision	Days 6–7

### 6. Why (Motivation)

The motivation of this stage is to ensure that the system is ready for use in real operational conditions. The objectives include:

- Guarantee the system doesn't just run on paper, but is actually worth using.
- Know if all features are working according to the studio's operational needs.
- Avoid errors in progress calculations, task inputs, and reporting.

- Provides an easy, efficient, and error-free user experience.

The Final Result of This Stage:

- A list of technical bugs/errors that users have found.
- A list of revisions needed before the system is officially launched.

## 5. Discussion

The results of the study show that the implementation of the Zachman Framework in designing a creative project management system at Kuy Studio effectively addresses various issues that previously arose due to the absence of a structured information system. By dividing the design process into the six Zachman perspectives—from Planner to System in Operation—this research successfully developed a system blueprint that comprehensively covers data, process, network, actor, time, and motivation aspects. The system provides essential features such as task delegation, daily progress monitoring, project document uploading, and structured reporting, which were previously managed manually using spreadsheets and chat groups.

These findings support the theory by Ross et al. (2006), which states that enterprise architecture serves as an organizational logic that bridges business processes with IT infrastructure to achieve better integration and standardization. Furthermore, the results align with the studies by Rezgui et al. (2010) and Vissers & Dankbaar (2002), which highlight the importance of knowledge management and coordination within multidisciplinary teams in the creative industry. The use of the Zachman Framework has proven to provide clarity in documentation, process consistency, and the ability to define the roles and responsibilities of each actor in the system. This is crucial for improving work efficiency in collaborative and fast-paced project environments like Kuy Studio.

Although the designed system has been tested on a limited scale and demonstrated appropriate functionality, there remains potential for further development. This study recommends enhancing the system toward a more scalable solution with cloud hosting and mobile access support to accommodate large-scale or cross-team projects. Additionally, integrating the system with external applications such as financial management, HR, or collaboration platforms could increase the system's added value and usability. From a managerial perspective, the implementation of this system can accelerate decision-making, enhance transparency, and strengthen Kuy Studio's position as a creative company that is adaptive to digital transformation.

## 6. Conclusion

This research successfully designed an enterprise architecture for the creative project management system at Kuy Studio using the Zachman Framework approach comprehensively. This approach has proven to be able to map organizational needs from various perspectives, from the level of strategic planning to technical implementation, as well as from the dimensions of data, processes, location, user roles, time, and motivation. The results of this system design provide solutions to various problems previously faced by Kuy Studio, such as miscommunication between teams, lack of visibility of project progress, and delays in task completion due to the absence of an integrated information system.

The developed system provides essential features such as task scheduling, daily progress reporting, access rights management, and structured uploading and management of project documents. Through the



implementation of a web-based system, the coordination process between teams becomes more efficient and transparent, and can be accessed from various locations. This not only provides practical benefits in improving work efficiency and information accuracy, but also managerially strengthens the role of project managers in making quick and precise decisions based on real-time data. This system also supports Kuy Studio's efforts to build an image as a creative company that is professional and adaptive to technology.

However, this study has some limitations. The implementation of the system is still carried out on a limited scale, only in Kuy Studio's internal environment, so it has not been tested in the conditions of large-scale projects or multi-projects running simultaneously. In addition, the designed system does not yet support integration with other external applications and still relies on local network infrastructure (LAN), which limits the flexibility of full remote access. Some advanced features such as support for mobile devices, thorough trail audits, or simultaneous cross-team project management have also not been fully implemented.

Given this, this system has great potential to be further developed. In the future, this architectural design can be used as a foundation for the development of a more scalable and flexible system, with cloud support, mobile access, and additional features that support Kuy Studio's future growth. This research also shows that the Zachman Framework can be adapted effectively in the context of the creative industry, so that it can be a reference for similar organizations in implementing structured and planned digital transformation.

## **Acknowledgments**

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