

**A Comparative Evaluation of Project Management Software for Engineering Projects:
Trello, Notion, and ClickUp**

Amey Mahendra Thakur: 110107589

Faculty of Engineering, University of Windsor

Engineering Project Management

Dr. James Linton

May 23, 2023

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A Comparative Evaluation of Project Management Software for Engineering Projects: Trello, Notion, and ClickUp

In the field of engineering project management (PM), the effective coordination and organization of tasks and resources are essential for project success. With the advent of PM software, engineers now have a wide array of tools at their disposal to streamline project workflows, enhance communication, and facilitate problem-solving. This comparative analysis focuses on three PM software programs—Trello, Notion, and ClickUp—and evaluates their capabilities, limitations, and potential benefits in the context of engineering projects. By examining their PM features, problem-solving facilitation, communication enhancement, reporting capabilities, user experience, and recommendations, engineering professionals can make informed decisions about selecting the most suitable software for their projects. An analysis of these software programs provides valuable insights into the strengths and weaknesses of these tools, enabling engineers to optimize PM practices and drive project success.

PM Software

Trello

(Johnson, 2017) Trello is a popular visual PM software that offers a user-friendly and intuitive interface that allows teams to effectively collaborate by organizing tasks into boards, lists, and cards. Users can create customizable boards to represent projects, lists to track different stages or categories, and cards to represent individual tasks. Team members can easily add comments, attachments, due dates, and labels to cards, providing clarity and context. (Abd El-Migid, 2022) The visual nature of Trello makes it easy to track progress, assign tasks, and prioritize work. Overall, Trello provides a simple yet powerful solution for visualizing and managing projects in a collaborative and efficient manner.

Notion

(Notion, n.d.-a) Notion is a versatile all-in-one workspace that integrates PM, note-taking, and collaboration functionalities. It offers a comprehensive platform for organizing and managing projects, capturing, and organizing information, and facilitating team collaboration. (Prokopets, 2020) Notion's flexible structure allows users to create customized pages, databases, and boards to suit their specific project needs. It supports various media types—including text, images, files, and embedded content—thereby enabling rich content creation and documentation. With its intuitive interface and extensive range of features, Notion provides a centralized hub for project planning, task management, knowledge sharing, and seamless collaboration within teams.

ClickUp

ClickUp is a robust PM software that provides extensive features and customization options to facilitate team collaboration and task management. (Donato, 2023) It offers a comprehensive platform for organizing and tracking projects, assigning tasks, setting deadlines, and monitoring progress. (Kumar, 2022) ClickUp enables users to create customizable workflows, set priorities, and manage resources efficiently. It provides various views—such as lists, boards, calendars, and timelines—to visualize and manage tasks effectively. ClickUp is a powerful PM solution for teams of all sizes with its rich feature set and integrations with popular tools.

Project Summary

Mobile App: Taskify

Trello was implemented to manage the software development project for creating a mobile app called Taskify. The project's goal was to design and develop a task management application that would enable users to create, assign, and prioritize tasks with due dates and priority levels. The scope included developing features such as task creation, assignment, due dates, and priority levels, along with user authentication and data storage. Trello provided an intuitive platform to create boards, lists, and cards to track tasks, assign team members, set due dates, and monitor progress. It allowed for seamless collaboration and visual organization of the project, ensuring efficient task management and successful app development.

Web Application: Trackify

Notion was utilized to manage the software development project for creating a web application called Trackify. The project's charter was to design and develop a time tracking and productivity tool that would allow users to register, log their time spent on tasks, generate reports, and integrate with popular productivity tools. The scope included building features such as user registration and authentication, time logging functionality, data visualization for reporting, and seamless integration with third-party productivity tools. Notion provided a versatile platform to create project boards, databases, and pages to track tasks, capture project documentation, collaborate with team members, and maintain a centralized repository of project information.

Mobile App: NoteMaster

ClickUp was employed to manage the software development project for creating the mobile application NoteMaster. The project's aim was to design and develop a feature-rich note-taking app that allows users to create, organize, and share notes seamlessly across various devices. The scope included building functionalities for sharing notes with other users. The functions include note creation, categorization, search, synchronization, and collaboration features. ClickUp provided a comprehensive PM solution, making it possible to create tasks, assign team members, set deadlines, track progress, and collaborate efficiently. Its customizable workflows and task views helped to effectively manage the development process of the NoteMaster app.

PM Capabilities

Table 1

Software Capabilities Comparison

| Software | PM Features | Collaboration Features |
|----------|--|--|
| Trello | <ul style="list-style-type: none"> Boards for different stages of app development Cards representing specific tasks with details (Butkus, 2019) Task assignment and progress tracking | <ul style="list-style-type: none"> Commenting on cards File attachments Moving cards across lists for progress tracking |

| | | |
|---------|--|--|
| Notion | <ul style="list-style-type: none"> Dedicated workspace with pages for different project aspects (Prokopets, 2020) Content organization and customization | <ul style="list-style-type: none"> Real-time collaboration (Notion, n.d.-b) Comments and discussions Embedding project documents, mockups, and interactive prototypes |
| ClickUp | <ul style="list-style-type: none"> Spaces and folders to organize project-related tasks Lists for different project stages (ClickUp, n.d.) | <ul style="list-style-type: none"> Task assignment and due dates Descriptions and file attachments Subtask creation (ClickUp, n.d.) |

Software Complexity

Each of the software programs offer different functionality. For example, Trello is primarily a task management tool rather than a comprehensive project scheduler. (Johnson, 2017) It provides a visual and intuitive interface for managing tasks and tracking project progress. While it may not have advanced features for managing complex project aspects—such as resource allocation, task dependencies, dates, or costs—it allows users to organize and prioritize tasks effectively. Alternately, Notion is a comprehensive PM tool that goes beyond a simple scheduler. It manages various aspects of PM. Lastly, ClickUp is a complex PM software that manages various aspects of project planning and execution (Donato, 2023). Their respective functions are outlined in Table 2.

Table 2
Software Complexity Comparison

| Capability | Trello | Notion | ClickUp |
|-----------------------|--------|--------|---------|
| Task Management | Yes | Yes | Yes |
| Resource Management | No | Yes | Yes |
| Task Dependencies | No | Yes | Yes |
| Due Dates | Yes | Yes | Yes |
| Cost Tracking | No | Yes | Yes |
| Collaboration | Yes | Yes | Yes |
| Reporting & Analytics | No | Basic | Yes |
| Integration | Yes | Yes | Yes |

PM Limitation

Table 3
Software Limitation Comparison

| Software | Limitations |
|----------|--|
| Trello | <ul style="list-style-type: none"> Limitations on the number of boards and file attachments in the free version |

| | |
|---------|---|
| | <ul style="list-style-type: none"> • Lack of advanced PM features (Butkus, 2019) |
| Notion | <ul style="list-style-type: none"> • Potential information overload and steep learning curve for new users • Collaboration features may not be as refined as dedicated tools (Prokopets, 2020) |
| ClickUp | <ul style="list-style-type: none"> • Steep learning curve due to the extensive feature set • Some advanced features only available in paid plans, limiting accessibility for free users (Kumar, 2022) |

Problem Solving

Table 4

Software Problem Solving Features

| Software | Applications |
|----------|--|
| Trello | <ul style="list-style-type: none"> • Facilitates problem-solving through seamless communication and collaboration • Team members can discuss and address issues within card comments (Trello, n.d.) • Enables mentioning relevant developers and working together to find solutions |
| Notion | <ul style="list-style-type: none"> • Facilitates problem-solving by providing a centralized platform for organizing project information • Allows the creation of dedicated pages to document and share issues (Notion, n.d.-b) • Supports real-time collaboration, comments, and mentions to foster teamwork and find solutions (Prokopets, 2020) |
| ClickUp | <ul style="list-style-type: none"> • Facilitates problem-solving through customizable workflows and task management (ClickUp, n.d.) • Developers can create tasks, assign them, and add descriptions or comments • Collaboration features enable team members to work together on finding solutions (Kumar, 2022) |

Communication Enhancement

Table 5

Communication Enhancement Comparison

| Software | Communication Enhancements |
|----------|---|
| Trello | <ul style="list-style-type: none"> • Provides a centralized platform for team members to collaborate (Trello, n.d.) • Allows moving completed cards to notify the team about progress |
| Notion | <ul style="list-style-type: none"> • Enables commenting on pages and tagging relevant individuals • Supports real-time editing for simultaneous collaboration (Notion, n.d.-b) |
| ClickUp | <ul style="list-style-type: none"> • Offers collaboration features like task comments and tagging team members • Provides notifications to ensure effective communication • Reduces the need for excessive emails or meetings through streamlined communication channels (Kumar, 2022) |

Reporting Software

Table 6

Comparison of Reporting Capabilities

| Software | Reporting Capabilities |
|----------|--|
| Trello | <ul style="list-style-type: none"> • Integrations with third-party tools like Butler or Bridge24 • Generate reports on task completion rates, team productivity, etc. (Trello, n.d.) |
| Notion | <ul style="list-style-type: none"> • Basic reporting capabilities through tables and databases (Prokopets, 2020) • Track project progress, task assignments, and deadlines |
| ClickUp | <ul style="list-style-type: none"> • Robust reporting and analytics features (ClickUp, n.d.) • Custom reports on task progress, team productivity, etc. (Kumar, 2022) |

User Experience

Table 7

Comparison of User Experience

| Software | Practical Experience |
|----------|--|
| Trello | <ul style="list-style-type: none"> • User-friendly interface with intuitive drag-and-drop functionality • Customizable boards, lists, and cards |
| Notion | <ul style="list-style-type: none"> • Highly customizable and flexible workspace (Notion, n.d.-b) • Extensive feature set can be overwhelming for new users |
| ClickUp | <ul style="list-style-type: none"> • Clean and intuitive user interface (Kumar, 2022) • Customizable views and layouts |

Software Recommendations

Trello for Agile PM

Trello is recommended for small to medium-sized software development projects with straightforward task management requirements. (Johnson, 2017) Its simplicity, visual interface, and collaborative features make it suitable for agile teams that value flexibility and ease of use.

Notion for Empowering Collaboration

Notion is recommended for software development projects that require a versatile workspace to organize project-related information, collaborate, and centralize documentation (Notion, n.d.-a). Its flexibility makes it suitable for projects that extend beyond traditional PM needs, such as incorporating design, documentation, and knowledge sharing within the same platform. However, for teams seeking more advanced PM functionalities like advanced scheduling or resource management, dedicated PM tools may be more suitable.

ClickUp for Comprehensive PM

ClickUp is recommended for software development projects that require comprehensive PM capabilities, including task management, collaboration, and reporting. (ClickUp, n.d.) Its customizable workflows and extensive feature set make it suitable for teams of varying sizes and

project complexities. Additionally, the availability of advanced features like workload management and Gantt charts in paid plans provides added value for teams seeking more advanced project planning and resource management functionalities (Pasarič, 2022).

Software Comparison

To evaluate which software is most effective as a project manager, it is important to compare how each of them performs. Table 1 outlines a comparison table highlighting the key features and capabilities of Trello, Notion, and ClickUp.

Table 8
Software Comparison

| Features | Trello | Notion | ClickUp |
|----------------------------|--|---|---|
| PM | Visual boards, lists, and cards | Customizable pages, databases, and boards | Tasks, subtasks, and customizable workflows |
| Collaboration | Commenting, file attachments, and mentions | Real-time collaboration and comments | Team collaboration and communication tools |
| Task Tracking | Task assignment and progress tracking | Task sequencing and status tracking | Task dependencies and time tracking |
| Resource Management | Limited resource management features | Limited resource management features | Resource allocation and management |
| Reporting | Limited reporting capabilities | Limited reporting capabilities | Reporting and analytics tools |
| Integration | Limited integrations | Integrations with third-party tools | Extensive integrations with various tools |
| Complexity | Simple and intuitive | Simple and flexible | Comprehensive and feature-rich |
| User Experience | Easy-to-use and visually appealing | Intuitive and customizable | Feature-packed with a learning curve |

Conclusion

Each PM software/app offers unique features and capabilities that cater to different PM needs. Trello's visual interface and simplicity make it suitable for smaller, agile projects, while Notion's flexible workspace accommodates projects with diverse requirements beyond traditional PM. ClickUp, with its comprehensive feature set and customization options, is well-suited for projects that demand robust task management, collaboration, and reporting capabilities. The choice of software/app depends on the specific project requirements, team size, complexity, and desired level of customization and integration. Ultimately, it is recommended to evaluate the needs of the project, consider the desired features, and test each software to determine which one aligns best with the PM requirements.

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