

DEVELOPMENT OF A WEB-BASED TRAINING AND SEMINAR MANAGEMENT INFORMATION SYSTEM AT CV BIG TECHNOLOGY

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ABSTRACT

The management of training and seminar activities at CV Big Technology still faces challenges related to data organization, information retrieval, participant management, and report preparation. Manual and separate data management processes can increase the risk of data inconsistencies, require more time, and reduce administrative efficiency. This research aims to develop a web-based Training and Seminar Management Information System to support the integrated management of training activities, seminars, participants, and reports at CV Big Technology. The research employed the Research and Development (R&D) method with the Waterfall software development model, consisting of requirements analysis, system design, implementation, testing, and maintenance. Data were collected through observation, interviews, and literature review. The developed system provides several main features, including user authentication, dashboard monitoring, training management, seminar management, participant data management, search and filtering, and report generation. The implementation results indicate that the system provides an integrated platform for storing, managing, and retrieving training and seminar information in a more structured manner. The system also facilitates participant data management and supports activity monitoring and report preparation. Therefore, the developed system can support the improvement of administrative efficiency and information management for training and seminar activities at CV Big Technology.

Keywords: Information System, Training Management, Seminar Management, Web-Based System, Waterfall.

1 INTRODUCTION

The rapid advancement of information technology has significantly impacted various sectors, including administrative and information management processes within organizations and companies. Web-based technology has emerged as a widely adopted solution to facilitate data management, making processes faster, more structured, and more accessible. Traditional manual data management methods—such as recording information via documents, spreadsheets, or physical archives—suffer from various limitations, particularly as data volumes grow. These limitations can lead to prolonged data retrieval times, an increased risk of recording errors, and significant time and effort required for report compilation.

Training sessions and seminars are activities that require organized data management. Their execution involves recording and managing a wide range of information, including event details, schedules, materials, speakers, participants, and outcomes. Furthermore, participant data must be securely stored for future use in administrative tasks and report generation. A lack of integrated information management can result in data redundancy, difficulty tracking participant history, and inefficient reporting processes.

CV. Big Technology manages data related to its training and seminar operations. As the volume of activities and data increases, the company requires a system to streamline administrative processes more effectively. Relying on disjointed data recording and processing methods creates obstacles when the company needs to retrieve specific information quickly. For instance, retrieving participant data for a specific event or generating reports on training and seminar execution requires staff to search through previously stored records. This process is not only time-consuming but also carries the risk of data inconsistencies or loss.

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These challenges highlight the growing importance of an information system capable of integrating various data sets into a single platform. A web-based management information system for training and seminars offers a viable solution to meet these needs. An integrated system allows data management to be centralized, ensuring that information regarding activities, participants, and reports is stored in a structured manner. Web-based systems also facilitate easy information access via network-connected devices, eliminating reliance on physical document storage.

Developing an information system aims not only to replace manual workflows with computerized processes but also to enhance operational effectiveness and efficiency. Training and seminar data stored in the database can be managed systematically, simplifying tasks such as adding, modifying, searching for, and deleting records. Furthermore, linking participant data to specific activities enables better management of participation records. The stored information can also serve as a foundation for generating necessary corporate reports.

Reports are a crucial component of activity management, serving as both documentation and a basis for evaluation. Manual report generation often requires gathering and processing data from multiple sources. With an integrated information system, data entered during the activity management process can be reused to generate reports without the need for re-entry. This reduces administrative workload and minimizes the risk of errors during information processing.

Beyond efficiency, the accuracy and availability of information are key considerations in system development. Structured data storage makes information easier to retrieve when needed. Authorized users can access information relevant to their specific needs and roles. Thus, the information system functions not merely as a data repository but as a tool to support administrative processes and decision-making regarding training and seminar activities.

Given these conditions, an information system capable of managing data on training sessions, seminars, participants, and reports in an integrated manner is required. The system under development is designed to align with the operational needs of CV. Big Technology and facilitate information management for users. A web-based approach was selected due to its accessibility and ability to support centralized data management. The system aims to help the company reduce its reliance on manual administrative processes while improving data management organization.

This research focuses on developing a web-based Training and Seminar Management Information System for CV. Big Technology. The system encompasses the management of training and seminar data and participant information, as well as the generation of related reports. Through this development, the data management process is expected to become more structured, information retrieval easier, and report generation more effective. By implementing a system tailored to the company's needs, the use of information technology is expected to contribute significantly to enhancing the quality of administrative processes and activity management at CV. Big Technology.

Thus, the development of this information system is viewed not merely as the creation of a web-based application, but as a solution to the information management challenges faced by the company. The resulting system is intended to support the organized management of training and seminar activities while providing information that can be utilized quickly and accurately to meet the company's requirements.

2 RESEARCH METHOD

This study employs the Research and Development (R&D) method, aiming to produce a web-based management information system for training and seminars tailored to the needs of CV Big Technology. This method was selected because the research focuses not only on identifying and analyzing issues but also encompasses the design, development, and testing of the resulting system. The developed system is expected to facilitate the management of data regarding training, seminars, participants, and reports in a more structured and effective manner.

The software development process utilizes the Waterfall model. This model was chosen because its development stages are carried out systematically and sequentially, allowing each phase to be completed before proceeding to the next. The development stages include requirements analysis, system design, implementation, testing, and maintenance.

2.1 Data Collection Technique

The initial stage of the research involved gathering data and information regarding the training and seminar management processes at CV Big Technology. Data collection was carried out using several techniques: observation, interviews, and a literature review.

Observation involved directly examining the company's existing training and seminar data management processes. The observation focused on activity data recording, participant data management, information storage, and report generation. Through observation, the researcher was able to understand the current workflow and identify issues arising within the data management process.

Interviews were conducted with personnel involved in managing training and seminar activities. The aim was to gather information regarding user requirements, obstacles encountered during data management, and necessary system features. The interview results served as the basis for defining the system's functional requirements.

A literature review was conducted by examining various sources related to information systems, management information systems, web-based application development, databases, the Waterfall methodology, and software testing. This review served to strengthen the theoretical framework and provide a reference for the system development process.

2.2 Requirement Analysis

The requirements analysis phase is conducted to determine system requirements based on observations and interviews. System requirements are categorized into functional and non-functional requirements.

Functional requirements pertain to the functions the system must provide. The system being developed includes several key functions, such as the management of user, training, seminar, participant, and report data. Users can add, modify, delete, and search for data in accordance with their assigned access rights. The system is also designed to display event information and generate reports based on stored data.

Meanwhile, non-functional requirements relate to supporting aspects of the system, such as ease of use, access security, system availability, and the system's capability to store data in a structured manner. This requirements analysis serves as the foundation for determining the system design and the technologies to be employed in the subsequent phase.

2.3 Design System

Once system requirements have been determined, the next stage is system design. This phase aims to outline how the system will be built and how its various components will interact.

System design involves creating models using the Unified Modeling Language (UML). The diagrams employed may include Use Case Diagrams, Activity Diagrams, and Class Diagrams. Use Case Diagrams illustrate the relationships between users and the system's available functions. Activity Diagrams depict the flow of activities within specific processes, while Class Diagrams represent the data structure and relationships between classes within the system.

In addition to process design, database design is also conducted. The database is designed to store information regarding users, training activities, seminars, participants, and reports. Table structures are created with data relationships in mind to minimize redundancy and facilitate data management.

User interface design is also carried out during this stage. The interface is designed with usability in mind, ensuring that users can easily understand system functions and manage data more efficiently.

2.4 Implementation System

The implementation phase involves translating the results of the analysis and design stages into a web-based application. During this phase, the interface design, database, and system functions are implemented using the selected programming technologies.

Implementation is carried out by building the system's core modules, such as user authentication, training data management, seminar data management, participant data management, and reporting modules. Each module is developed based on the requirements established during the analysis phase.

Data managed by the system is stored in a database, allowing for reuse during search operations, data updates, and report generation. The system also employs an access control mechanism to ensure that users can only access functions corresponding to their authorized privileges.

2.5 Testing System

Once the system implementation was complete, testing was conducted to ensure that every system function operated according to requirements. The Black Box Testing method was employed for this purpose; this method involves testing system functions based on inputs and resulting outputs without directly examining the program code structure.

Testing covered several key functions, such as the login process, management of training and seminar data, participant data management, data searching, and report generation. Multiple input scenarios were applied to each function to verify whether the system produced the expected outputs.

Test results were recorded based on the alignment between expected and actual outcomes. A function was deemed successful if it operated according to requirements. If errors were detected, the problematic components of the system were rectified before the system was put into use.

2.6 Maintenance System

The final stage of the Waterfall model is maintenance. This phase takes place after the system has been tested and deployed. Maintenance aims to ensure the system continues to function correctly and to rectify any errors discovered that were not identified during the testing phase.

Maintenance may also involve adapting the system to new requirements that arise during the company's operations. Consequently, the developed system can remain in use and continue to evolve in line with the needs of CV. Big Technology.

3 RESULT AND DISCUSSION

3.1 Results

This research resulted in the development of a web-based Training and Seminar Management Information System designed to assist CV Big Technology in the integrated management of training activities, seminars, participant data, and reports. The system features a simple, structured interface that allows users to access key functions via the available navigation menu.

The system comprises several core modules: Dashboard, Training Management, Seminar Management, Participant Data, and Reports. Additionally, the interface includes user settings and information features. These modules work together to support the activity management process, covering everything from scheduling agendas to managing participants and presenting event information.

The results of the system implementation are demonstrated through the following key pages.

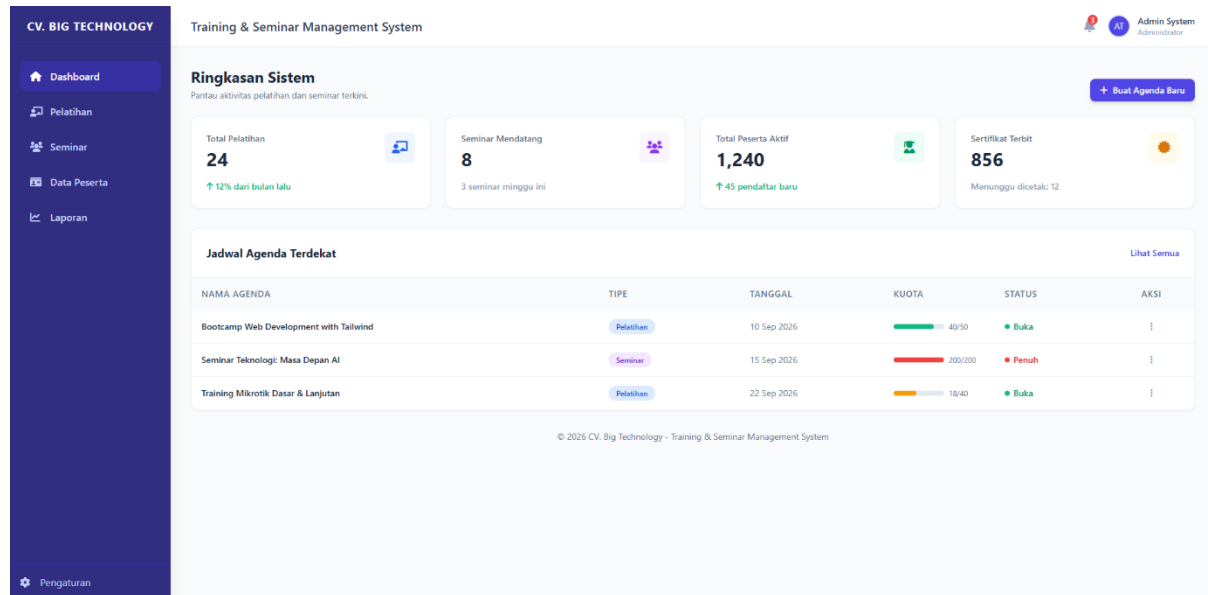


Fig. 1. Dashboard Page

The dashboard serves as the initial landing page, acting as an information hub that provides an overview of the status of training sessions and seminars. Based on the implementation, the dashboard shown in Figure 1 displays summary information via statistical cards, specifically: Total Training Sessions, Upcoming Seminars, Total Active Participants, and Issued Certificates.

In addition to statistics, the dashboard features an "Upcoming Agenda" section displaying the event name, activity type, date, capacity, status, and available actions. Capacity information is presented using visual indicators, allowing users to easily gauge participant enrollment levels.

The dashboard facilitates the monitoring process by consolidating key information onto a single page. Users do not need to search through multiple data sources to determine the number of activities or current registration status. Thus, the dashboard functions not merely as a landing page, but also as a tool for monitoring ongoing and upcoming activities.

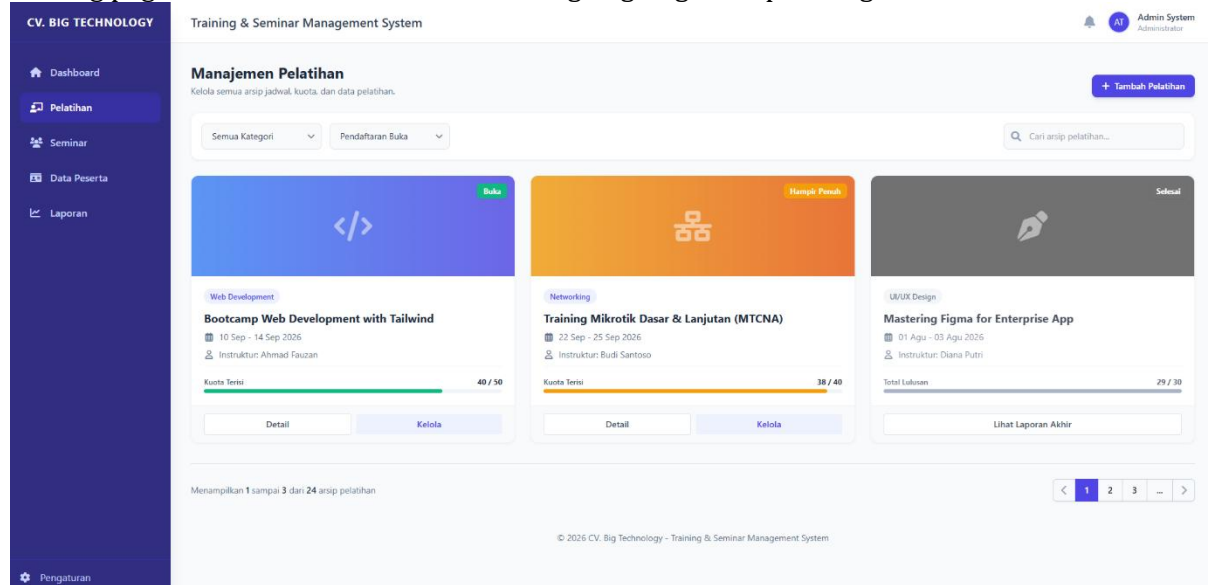


Fig. 2. Training Management Page

Fig 2. Is the Training Management Module is used to manage all data related to training activities. Following implementation, training data is displayed in a card format containing key activity information, such as the training category, activity name, schedule, instructor, participant quota, and activity status.

Presenting data via cards enhances readability, allowing users to grasp the status of a training session without needing to open a separate details page. The system also includes

search and filtering capabilities based on category or registration status, which assist users as the volume of training data grows.

Each training entry includes "Detail" and "Manage" functions, enabling users to view comprehensive information or perform administrative tasks. For completed activities, the system provides access to a "View Final Report" feature, ensuring that training data serves not only the registration phase but also the subsequent documentation of outcomes.

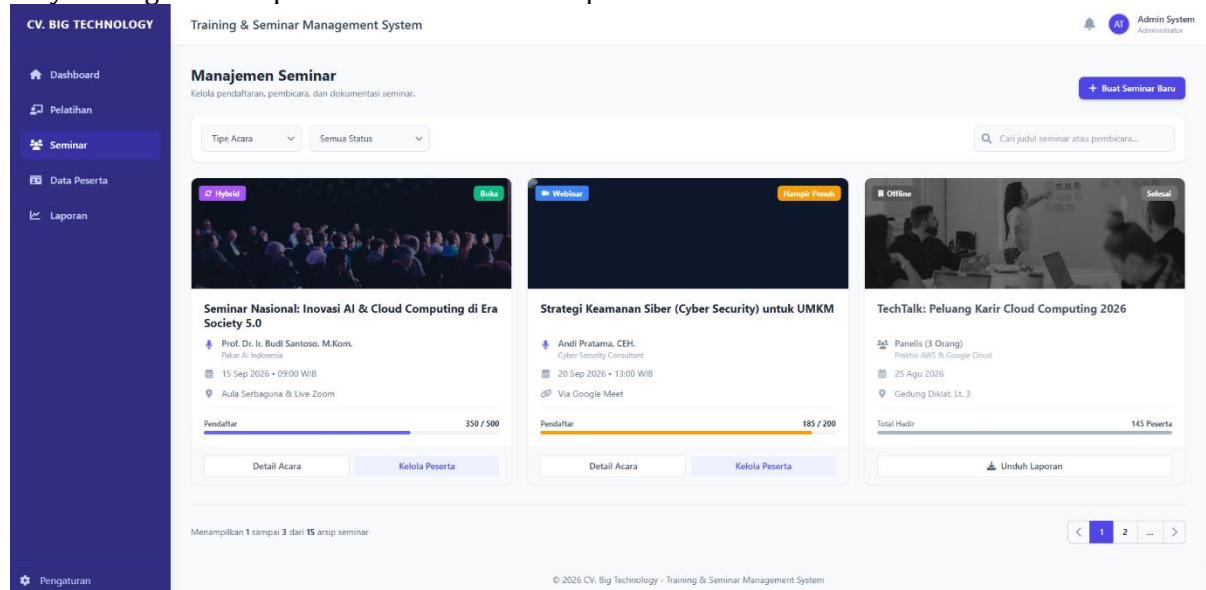


Fig. 3. Seminar Management Page

The Seminar Management Module is designed to manage seminar activities organized by CV Big Technology. Seminar information is presented in a card format containing details such as the activity type, status, seminar title, speakers or panelists, date, location or platform, and the number of participants, as shown in Figure 3.

Information regarding the number of registrants is also displayed using a quota indicator. The system assigns statuses—such as Open, Near Capacity, and Completed—to help administrators quickly assess the status of an activity.

Seminar management becomes more organized because information regarding speakers, schedules, locations, formats, and participants is managed within a single system. This reduces reliance on separate record-keeping and simplifies the process for administrators when retrieving information about a specific activity.

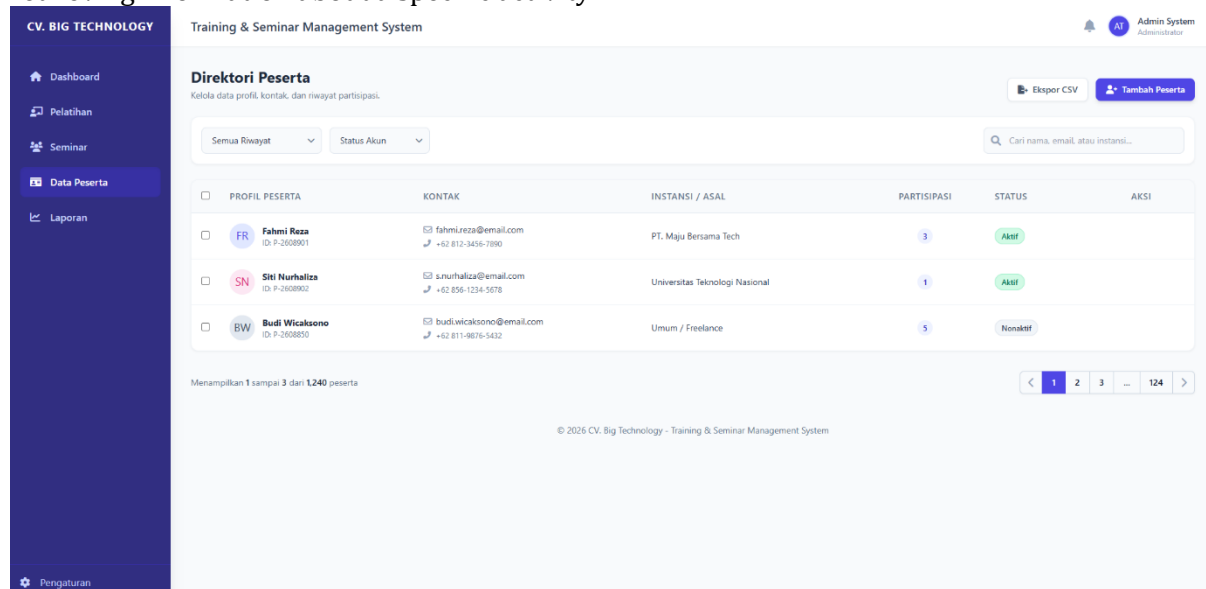


Fig 4. Participant Data Page

The Participant Data page serves as a centralized hub for managing information on participants attending training sessions or seminars. As shown in Figure 4, the system presents participant information in a tabular format that includes profiles, contact details, affiliated institutions or origins, participation counts, account statuses, and available actions.

Displayed participant data encompasses names, identification details, email addresses, phone numbers, and institutional affiliations. The system also tracks the number of events each participant has attended; for instance, the data might show participants with participation counts of three, one, or five events.

A search function based on name, email, or institution is available on the page. Additionally, the system offers filtering options based on participation history and account status, as well as a CSV export feature. This export capability assists administrators when they require participant data in a format suitable for further processing.

Centralized participant management offers the advantage of consolidating identity data and participation history within a single system. Consequently, administrators can access participant information without needing to search through separate event documents or archives.

3.2 Discussion

Development results indicate that the system successfully addresses the core requirements for managing training sessions and seminars at CV. Big Technology. Integrating multiple modules into a single application creates a more structured information management process; event data is managed through the training and seminar modules, while participant data is handled via the participant directory.

A key aspect of the system is the linkage between event information and participant data. In event management, participant data is inseparable from training or seminar details. Consequently, the system not only records events but also provides insights into registrant numbers, event capacity, registration status, and participant history. Regarding information presentation, the use of dashboards and visual indicators enables administrators to quickly grasp the status of events. Key metrics—such as the number of events, active participants, issued certificates, capacity, and event status—are displayed concisely. This approach reduces the time required to access fundamental information about the events being managed. Data search and filtering features are also integral to the system. As the volume of data grows, manual searching becomes inefficient; however, with search capabilities for participants, training sessions, and seminars, users can locate specific records using keywords or categories, thereby streamlining administrative processes.

Furthermore, the system accounts for the event lifecycle. Within the training and seminar modules, events are not merely displayed as "ongoing" but are assigned statuses such as Open, Near Capacity, or Completed. For completed events, the system displays outcome details and final reports. Thus, the system supports the entire management workflow, ranging from event preparation, registration, and execution to post-event documentation. In terms of the user interface, the system employs a consistent navigation pattern via a sidebar menu. This menu allows users to easily switch between the dashboard and modules for training, seminars, participant data, and reports. Visual consistency also helps users understand the function of each page without a lengthy learning curve.

Overall, implementation results demonstrate that the developed system serves as an integrated solution for managing training sessions and seminars at CV. Big Technology. The system serves not only as a data storage medium but also provides information for activity monitoring, participant management, and the preparation of documentation and reports.

However, the results at this stage focus primarily on system implementation and functionality. To scientifically substantiate the research findings, documented system testing—such as Black Box Testing—is required, alongside user evaluations to assess the system's ease of use and effectiveness. These test results can subsequently serve as a basis for objectively measuring whether the system meets user needs.

4 CONCLUSION

Based on the results of the research and development process, a web-based Training and Seminar Management Information System was successfully developed for CV Big Technology. The system was designed to address the limitations of manual and separate data management processes by integrating training activities, seminars, participant data, and reporting into a centralized information system. The development process employed the Research and Development (R&D) method with the Waterfall model, consisting of requirements analysis, system design, implementation, testing, and maintenance.

The developed system provides several main functions, including user authentication, training management, seminar management, participant data management, activity monitoring through a dashboard, data searching and filtering, and report generation. The integration of these functions enables administrators to manage activity and participant information in a more structured manner and facilitates faster retrieval of required data. The dashboard and status indicators also support monitoring of training and seminar activities, while centralized participant data helps maintain participation history and administrative records.

The implementation results indicate that the developed system can support the administrative management of training and seminar activities at CV Big Technology. By utilizing a centralized database and web-based access, the system reduces dependence on separate manual records and provides a more organized mechanism for storing, managing, and retrieving information. Furthermore, the system can serve as a foundation for generating activity reports and supporting the company's administrative and information management processes.

Overall, the developed system provides an integrated solution for managing training and seminar activities, participant information, and related reports. Further research is recommended to conduct comprehensive user acceptance and usability evaluations and to develop additional features according to the operational needs of CV Big Technology.

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