

# Leadership Configurations Supporting TOGAF-Based Information System Architecture at Jenderal Achmad Yani University

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## ABSTRACT

**Digital transformation** in higher education institutions demands integration between information technology, organizational culture, and adaptive leadership. **This study aims** to analyze the configuration of leadership styles in supporting The Open Group Architecture Framework (TOGAF) based information system architecture at Jenderal Achmad Yani University (UNJANI), a tertiary institution under the TNI Army Foundation which is building a transformation towards a Smart Military University. This research uses a **qualitative approach with a case study method**, relying on data from in depth interviews, participant observation and institutional documentation. **The research results** show that the success of digital transformation in UNJANI is supported by a combination of four leadership styles: military leadership (emphasizing discipline and command), transformational leadership (focusing on vision and empowerment), distributed leadership (emphasizing collaboration and collective decisions), and e-leadership (utilization of information technology in leadership). These four styles play a role in various phases of TOGAF, especially in Architecture Vision, Business Architecture, and Implementation Governance. **This study shows** that contextual, flexible, and values based leadership is a key factor in the success of information systems architecture in higher education environments.

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## 1. INTRODUCTION

Digital transformation has become a strategic foundation in the development of global higher education. This change isn't just about applying information technology; it also involves organizational re-engineering processes, work culture, and decision-making systems that support overall institutional performance [1]. In this context, digital transformation in higher education also plays a crucial role in achieving the Sustainable Development Goals (SDGs), particularly in promoting quality education, innovation, and partnerships for these goals. To ensure the structured integration of digital strategies, enterprise architecture frameworks like TOGAF are widely used, facilitating coherent information system planning that aligns with the institution's vision [2].

However, the success of TOGAF based digital transformation is highly dependent on leadership effectiveness. Studies such as those conducted by [3, 4] emphasize that digital leadership (e-leadership) must be able to mediate ICT based communication and build trust in virtual teams. This is especially important in higher education environments that are adopting hybrid work and online information systems.

General Achmad Yani University (UNJANI), as a tertiary institution under the TNI Army Foundation, is adopting the Smart Military University concept [5, 6]. The organizational character influenced by military values gives rise to the need for a leadership model that is able to combine command structure, technological flexibility, and cross unit collaboration [7].

Based on these challenges this research raises the following problems How does the leadership style configuration at UNJANI support the implementation of TOGAF in the transformation towards a Smart Military University The aims of this research are to identify the leadership styles applied in digital transformation at UNJANI analyze the contribution of each leadership style to the TOGAF phases and formulate an effective leadership configuration that is adaptive and contextual [8].

## 2. LITERATURE REVIEW

Digital transformation has emerged as a strategic cornerstone in the evolution of global higher education, extending beyond mere information technology application to encompass organizational re-engineering processes, work culture, and decision-making systems that bolster overall institutional performance. Within this context, enterprise architecture frameworks such as TOGAF are widely utilized to integrate digital strategies through structured information system planning. However, the success of TOGAF implementation and the overall digital transformation is highly dependent on leadership effectiveness. In higher education environments, especially those adopting hybrid work and online information systems, the ability of digital leadership (e-leadership) to mediate ICT-based communication and build trust in virtual teams becomes crucial. Therefore, understanding the configuration of adaptive and contextual leadership styles is paramount.

### 2.1. TOGAF Based Enterprise Architecture

TOGAF is an enterprise architecture framework designed to align business needs with organizational information systems [9, 10]. In the context of higher education, TOGAF can be adopted to manage academic, financial, HR and online learning systems in an integrated manner [11, 12]. Emphasize that the success of digital transformation in educational institutions cannot be separated from the use of TOGAF which supports the digital innovation process [13, 14].

### 2.2. Leadership Style in Digital Transformation

In the context of digital transformation, leadership style plays a crucial role in shaping the direction and success of change. Each leadership style carries unique characteristics that can significantly influence the effectiveness of digital strategies implemented within an organization.

- Transformational Leadership: Motivating, inspiring, and encouraging cultural change and HR empowerment [15].
- Distributed Leadership: Emphasizing collaboration, active participation, and collegial leadership in educational organizations [16, 17].
- E-Leadership: A leadership style that uses digital technology for communication and virtual team management [18, 19].
- Military Leadership: Characterized by a command structure, high discipline, and efficiency in decision making. This style is relevant in semi-military institutions such as UNJANI [20].

Understanding these different leadership styles allows organizations to select the most appropriate approach according to their needs and conditions. With the right leadership configuration, the process of digital transformation can be more effective, structured, and sustainable [21].

### 2.3. Leadership and Educational Information Systems

Effective leadership is very important in bridging the implementation of enterprise architecture based information systems with the dynamics of organizational culture [22, 23]. Revealed that institutions that successfully digitize are those that combine a digital architecture framework with strategic leadership [24].

## 2.4. Novelty and Theoretical Contribution

This study enriches the literature by holistically integrating four leadership styles in the TOGAF context. In addition, this research also fills the gap in studies in the context of semi-military educational institutions, strengthening the importance of contextual and adaptive leadership style configurations to support digital transformation [25].

## 2.5. Conceptual Model of Leadership Style Configuration

This study develops a conceptual framework that illustrates the integration of various leadership styles in the context of a Smart Military University [26, 27]. The framework highlights the configuration of transformational, distributed, e-leadership, and military leadership, emphasizing how these styles interact to form an effective leadership model [28]. Each leadership dimension contributes specific values and competencies, ensuring adaptability, collaboration, and strategic decision-making within a digitally driven environment.

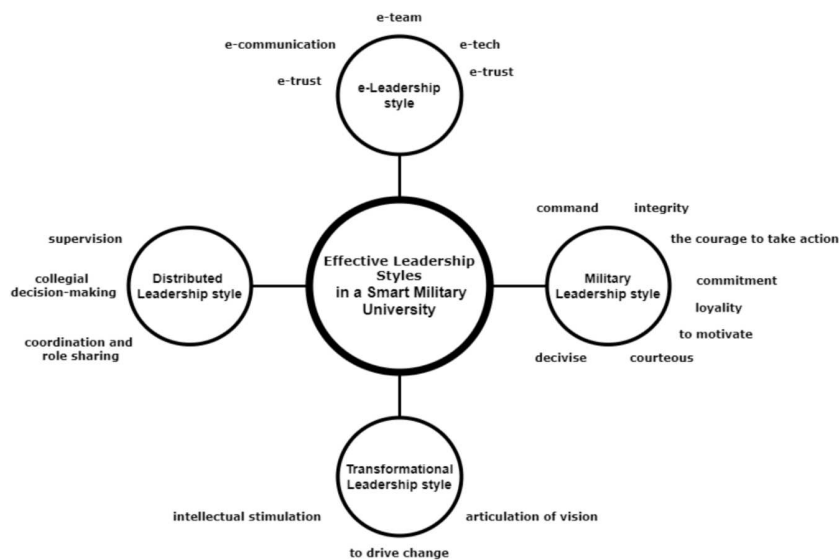


Figure 1. Leadership style configuration as a conceptual framework

Figure 1 presents the leadership style configuration which is used as the conceptual framework in this research. This model was formulated based on relevant leadership theories, including transformational leadership, distributed leadership, e-leadership, and military leadership [29, 30]. This model is the basis for formulating interview instrument indicators that explore vision articulation, role division, coordination and ICT based decision making [31].

Each leadership style in this model is associated with specific dimensions [32]. For example, e-leadership styles include e-communication, e-team, and e-tech as forms of digital leadership skills [33]. While the military style includes values such as command, courage to take action, and loyalty. This model not only forms the basis for qualitative data analysis, but also becomes a reference in building a leadership style integration structure to support TOGAF [34].

## 3. RESEARCH METHODOLOGY

This section outlines the methodological approach employed to achieve the research objectives. Focusing on an in-depth exploration of leadership style configurations within the context of TOGAF-based digital transformation, this study adopts a qualitative framework. This methodological choice is based on the need to understand complex phenomena in a real-world setting, allowing for the collection of rich and nuanced data from various key informant perspectives at Jenderal Achmad Yani University (UNJANI).

### 3.1. Research Design

This research uses a qualitative approach with an exploratory case study method. This approach was chosen to explore in depth the configuration of leadership styles applied in supporting TOGAF-based digital transformation within the UNJANI [35].

### 3.2. Location and Research Subjects

The research was conducted in UNJANI, Cimahi, West Java. Research subjects include foundation leaders in the education sector, university leaders (rector, vice chancellor and head of center), deans, heads of information systems units, heads of HR bureaus, lecturers and digital transformation teams. In total there were 14 key sources who were interviewed in depth.

### 3.3. Data Collection Techniques

Data was collected through three primary and complementary techniques to ensure the depth and validity of the findings. Firstly, in-depth interviews were conducted with key informants to gain detailed insights into their perceptions, experiences, and perspectives regarding leadership styles and TOGAF implementation at UNJANI. Secondly, participatory observation allowed researchers to directly observe interactions, work processes, and leadership dynamics within UNJANI daily environment, providing rich empirical context for the interview data. Thirdly, the institution's internal and strategic documentation, such as reports, policies, and strategic plans, was analyzed to verify and complement information obtained from interviews and observations, as well as to understand the existing formal framework.

### 3.4. Data Analysis Techniques

Data were analyzed using a thematic approach (thematic analysis) through transcription, coding, thematic categorization based on the leadership theory framework and TOGAF, as well as validation through triangulation.

### 3.5. Preparation of Instruments and Interview Guidelines

The interview guide was prepared based on the theoretical dimensions of each leadership style: transformational leadership [36], distributed leadership [37], military leadership [30], and e-leadership [28]. Questions are designed to explore how these forces are integrated in the TOGAF phases.

### 3.6. Instrument Validation

The content validity of the interview instrument was tested through expert judgment by an expert panel consisting of three senior academics with expertise in information systems, digital transformation and higher education leadership [38]. The aim of this process is to ensure conformity between the theoretical dimensions of leadership style and the indicators formulated in the interview guide [39]. Apart from that, it's done peer debriefing with fellow researchers as well member checking with two key informants post-interview to ensure accuracy of interpretation and representativeness of initial findings to the empirical context [40].

## 4. RESULT AND DISCUSSION

The leadership style configuration model in Figure 1 was validated through a thematic analysis process that mapped the relationship between theoretical dimensions and empirical findings. The four main styles identified in the field show a synergistic relationship according to their respective roles in the TOGAF based digital transformation phase [41]. For example, the e-tech and e-communication dimensions in e-leadership are in accordance with efforts to develop leadership dashboards and online-based information systems [42]. In this context, military leadership ensures adherence to architectural standards and security policies in the Implementation Governance phase through clear command lines, using digitized checklists and regular audits to monitor implementation [43]. Decision making processes here are top-down, but supported by efficient performance reporting systems [44].

Meanwhile, in the Business Architecture phase, cross-functional teams led distributively utilize digital collaboration tools such as project management platforms to map business processes, identify system requirements, and develop architectural blueprints. Decisions regarding process design and system integration are often reached through team consensus facilitated by virtual meetings and centralized document-sharing systems. The role of data analytics and feedback systems becomes crucial; leadership dashboards not only present performance data but also facilitate real-time trend analysis and identification of areas for improvement [45]. Digital feedback systems, such as automated user satisfaction surveys or incident reporting mechanisms, allow leaders to continuously adjust their strategies and tactics. Furthermore, in the context of transformation towards a Smart Military University, the integration of cutting-edge technological trends such as big data analytics for deep operational insights, machine learning for process automation and anomaly detection, and the potential of blockchain for enhanced security and transparency in data governance within UNJANI information

system architecture, significantly strengthens e-leadership capabilities and offers broader practical implications for strategic decision-making.

Meanwhile, the dimensions of vision articulation and intellectual stimulus in transformational leadership are reflected in the internalization strategy of Smart Military University’s vision through internal socialization [46]. The military style remains the foundation in maintaining organizational structure and discipline, but is starting to be combined with a participative style through a distributive approach that allows for delegation of responsibility and coordination across units. The dynamic interaction of these forces creates an adaptive and contextual foundation for each stage in TOGAF, making the information system architecture more responsive to the needs of institutional change.

Moreover, the strategic integration of cutting-edge technologies, such as Artificial Intelligence (AI) for predictive analytics in system demand forecasting and resource allocation, Machine Learning (ML) for automating the identification of system performance anomalies and security threats [47], and potentially Blockchain for enhancing the transparency and immutability of data governance within UNJANI’s information system architecture [48], could significantly bolster the effectiveness of e-leadership and support strategic decision-making across various TOGAF phases [41], especially in Opportunities & Solutions and Implementation Governance. The application of AI, for example, can assist leaders in processing vast volumes of data from disparate systems, providing deeper insights into operational efficiency, student engagement patterns, and resource utilization, thereby enabling more proactive and evidence-based decisions for the Smart Military University’s ongoing transformation.

This research reveals that the leadership configuration implemented at Jenderal Achmad Yani University (UNJANI) plays a crucial role in supporting the implementation of TOGAF as a framework for higher education information system architecture. Four main leadership styles military, transformational, distributive, and e-leadership were strongly identified from qualitative data collected through in-depth interviews, observations, and institutional documents.

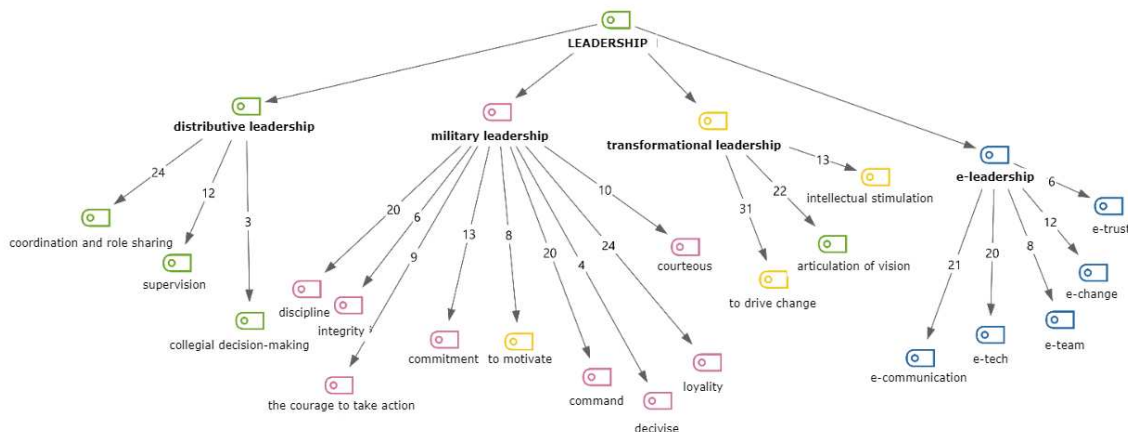


Figure 2. Thematic Coding Structure of Triangulative Interviews

Figure 2 shows the triangulation results from in-depth interviews analyzed using a thematic approach. Each node and branch in this diagram reflects the connection between the identified leadership style dimensions (military, transformational, distributive, e-leadership) with the informants’ responses coded into thematic nodes. This structure strengthens the validity of the findings, showing that leadership style configurations do not stand alone, but are interconnected and play a simultaneous role in supporting TOGAF-based digital transformation.

#### 4.1. Integration of Leadership Styles

The military leadership style dominates the top management structure, ensuring discipline and speed in decision making, in accordance with TOGAF principles in the Preliminary and Implementation Governance phases [35]. This connection is explicitly evident from how our thematic coding identified a high frequency of "Command" and "Discipline" themes among informant responses related to the initial and implementation governance phases [49]. For instance, in the Preliminary phase, military leaders directly oversee the establishment of the Architecture Board and the definition of architectural principles, ensuring strict adherence to

schedules and initial deliverables. In Implementation Governance, they enforce a rigorous oversight framework, often utilizing matrix-based performance reviews to ensure projects align with specified technical and security standards. Practically, this style ensures that technical implementation and adherence to information system governance policies proceed efficiently and directionally [50].

This is evident from the strong themes of "Vision Articulation" and "Driving Change" in our thematic analysis. In the Architecture Vision phase, transformational leaders actively conduct brainstorming sessions and workshops to articulate the Smart Military University's vision into concrete architectural goals. They not only communicate the vision but also inspire staff to embrace digital change, ensuring that every technological initiative aligns with the university's long-term aspirations. Transformational leadership becomes important in the Architecture Vision phase, where leaders encourage the Smart Military University vision and staff empowerment.

Meanwhile, distributed leadership appears in the Business Architecture and Information Systems Architecture phases, encouraging cross-unit collaboration. The thematic analysis shows that "Coordination and Role Sharing" and "Collegial Decision-making" themes are highly prominent in the context of these phases [51]. In Business Architecture, this style facilitates cross-departmental workshops to map existing business processes and design target processes, where decisions are based on collective input to ensure alignment with end-user needs. For Information Systems Architecture, teams of architects from various units collaboratively define functional and non-functional requirements, and select appropriate technologies through brainstorming sessions and peer reviews emphasized by distributive leadership [52].

E-leadership begins to develop in the Implementation phase through leadership dashboards and digital management systems [53]. The application of these leadership dashboards, for example, leverages business intelligence technology to present real-time performance data, enabling UNJANI leaders to make faster and more informed decisions, especially in the Opportunities & Solutions phase of TOGAF [54]. Furthermore, UNJANI also utilizes collaboration software for cross-unit coordination and e-learning platforms for staff competency development, all of which strengthen the role of e-leadership in supporting the information system architecture. Four main leadership styles military, transformational, distributive, and e-leadership were strongly identified from qualitative data collected through in-depth interviews, observations, and institutional documents.

#### 4.2. Implementation Challenges

The research results show that although the integration of the four leadership styles has resulted in significant progress, several challenges still arise. Among these are cultural resistance to digitalization, limitations in the optimal use of information technology in decision making, and the uneven distribution of e-leadership competencies at all levels of management. This also includes the limited number of key competent human resources related to the development and operationalization of the information systems that have been built. However, the configuration of leadership styles implemented at UNJANI actively helps mitigate these challenges [55].

Transformational leadership, with its focus on vision and empowerment, plays a crucial role in overcoming cultural resistance to digitalization by inspiring staff and fostering a change in mindset, ensuring acceptance of TOGAF initiatives. The military leadership style, which emphasizes discipline and command, ensures compliance with new policies and accelerates the adoption of digital systems, minimizing inertia from individual reluctance [56]. To address limitations in the optimal use of information technology in decision-making, e-leadership directly leverages technology for communication and virtual team management, and promotes the use of leadership dashboards for data-driven decision making. Furthermore, distributed leadership, emphasizing collaboration and collective decisions, facilitates knowledge exchange and peer learning, thereby helping to address the uneven distribution of e-leadership competencies and optimizing the utilization of limited human resources through effective delegation and solid teamwork.

#### 4.3. Theoretical Discussion

This finding strengthens previous literature that leadership is not one-dimensional in complex organizations [57]. Contextual integration of styles is more effective in supporting transformations based on frameworks such as TOGAF [58]. UNJANI success reflects that a mix of styles with a foundation of organizational values can become a digital leadership model in semi-military educational institutions.

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## 5. MANAGERIAL IMPLICATION

This research enriches the study of information systems and leadership by presenting a semi-military value-based leadership configuration model in the context of the TOGAF architecture. This model can be used as a reference in further research to evaluate the effectiveness of adaptive leadership styles in the digital transformation of the education sector.


## 6. CONCLUSION


This research concludes that the success of digital transformation at Jenderal Achmad Yani University (UNJANI) is significantly determined by existence and configuration four complementary leadership styles, that is: military leadership, transformational leadership, distributed leadership, And e-leadership. This configuration enables the integration of the disciplinary values and structure typical of a semi-military organization with the innovative and collaborative vision required in a TOGAF based digital transformation.

Each leadership style plays a functional role in supporting the key phases of TOGAF: the military style strengthens stability in the phases Preliminary And Implementation Governance; Transformational style builds motivation and vision in phases Architecture Vision; Distributive style increases the effectiveness of coordination across internal units Business Architecture; and e-leadership supports data based decision making in phases Opportunities & Solutions.

Overall, the findings of this research emphasize that the successful implementation of a TOGAF based information system architecture does not only rely on the technical and structural framework, but is strongly influenced by the quality and consistency of institutional leadership that is adaptive, collaborative, and strategically integrated with the organizational culture and change cycles of higher education institutions.

### 6.1. About Authors

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### 6.2. Author Contributions

Conceptualization: SA; Methodology: SA; Software: SA; Validation: AN and SA; Formal Analysis: SA and AN; Investigation: AN; Resources: SA; Data Curation: SA; Writing Original Draft Preparation: AN and SA; Writing Review and Editing: SA and AN; Visualization: SN; All authors, SA and AN, have read and agreed to the published version of the manuscript.

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The data presented in this study are available on request from the corresponding author.

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Not applicable.

### 6.6. Informed Consent Statement

Not applicable.

### 6.7. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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