



# Transformational Leadership In The Automotive Industry Can Adapt Digital Technology

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## Abstract

This study explores transformational leadership in automotive companies' adaptation to digital technological changes. The automotive industry is facing transformation through automation, artificial intelligence (AI), the Internet of Things (IoT), and intelligent robotics-based production systems. The results show that visionary and communicative transformational leaders are able to accelerate technology adoption, minimize employee resistance, and build a culture of innovation. Key challenges include psychological resistance, limited digital literacy, technical barriers, and a lack of organizational cultural integration. Effective adaptation strategies include intensive training, technical mentoring, cross-divisional collaboration, and adjustments to operational policies. Transformational leadership plays a crucial role in aligning digital visions, enhancing human resource competencies, and creating an adaptive work environment for optimal digitalization acceptance. These findings emphasize that successful digital transformation is not solely about technology, but also about leadership quality and organizational culture.

**Keyword:** Transformational Leadership, Digital Adaptation, Automotive Industry.

## Introduction

The automotive industry is one of the sectors experiencing the most rapid transformation in the last decade. Advances in digital technologies such as artificial intelligence (AI), the Internet of Things (IoT), big data analytics, autonomous driving, and smart manufacturing have transformed nearly every aspect of the automotive value chain, from production processes and quality management to distribution systems and after-sales service. These significant changes require automotive companies to strategically adapt to compete in the new, increasingly complex, dynamic, and technology-driven industrial landscape (Nguyen et al., 2020).

Transformational leadership is a leadership style capable of inspiring, motivating, and directing significant organizational change (Llopis-Albert et al., 2021a; Lopez-Vega & Moodysson, 2023). Transformational leaders focus not only on achieving short-term targets but also on creating a clear long-term vision and fostering innovation and creativity across the company. In the automotive industry, which is currently shifting towards electric vehicles, autonomous vehicles, and the digitalization of business processes, transformational leadership is becoming increasingly important to ensure that organizations can move adaptively, quickly, and sustainably.

One of the biggest challenges in the automotive industry today is the inability of some companies to effectively assimilate changes in digital technology. Many companies remain trapped in traditional work patterns that rely on conventional mechanical systems, even though global trends indicate that the future of the automotive industry is largely determined by companies' ability to integrate high-speed digital technology

(Muhammad Fauzan Effendi & Nuri Aslami, 2023). For example, global automotive companies are now racing to develop electric vehicles (EVs), smart sensor-based safety features, and connected car infotainment systems.

In Indonesia, the automotive industry continues to grow rapidly and has become a strategic sector with a significant contribution to the national economy. However, this development is also accompanied by various challenges related to digitalization. Many automotive companies face a gap between the demands of digital technology and the readiness of their human resources and organizational structures. In some cases, companies lack a clear digital roadmap or are unable to create an environment that supports continuous innovation (Llopis-Albert et al., 2021b).

Digital transformation in the automotive industry also has significant consequences for human resource competency. The traditional mechanic role has evolved into a digital technician who must understand software, technological sensors, robot programming, and data analysis. This requires a targeted upskilling and reskilling process. Transformational leaders play a crucial role in ensuring that human resource competency development is effective and aligned with the needs of new technologies. When leaders are able to create a strong learning culture, companies will be better prepared to adapt to rapid and frequent digital change (Llopis-Albert et al., 2020).

Furthermore, adapting to digital technology is also closely related to companies' need to increase production speed, operational efficiency, and product quality. Many automotive companies have shifted to production systems based on automation and intelligent robotics. However, the successful implementation of these technologies depends heavily on leaders' ability to manage change, overcome employee fears of human labor being replaced by machines, and ensure collaboration between humans and technology. Transformational leaders play a crucial role in ensuring that technological change is perceived as an opportunity, not a threat (Higón, 2012).

Another problem that arises in the digital adaptation process is the lack of integration between technology and organizational culture. Many companies experience cultural misalignment,

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such as low digital literacy, a conventional work culture, and a lack of courage to take risks in innovation (Lopez-Vega & Moodysson, 2023). Transformational leaders are needed to build an organizational culture that supports digitalization, such as collaboration, openness to new ideas, and the courage to try innovation without fear of failure. With an aligned organizational culture, digital transformation can be more effective (Llopis-Albert et al., 2021).

## Research Method

This study uses a qualitative approach with the aim of deeply understanding how transformational leadership plays a role in helping automotive companies adapt to changes in digital technology. A qualitative approach was chosen because it allows for a comprehensive exploration of the meanings, experiences, strategies, and perspectives of automotive industry leaders and players through direct interactions in the field. According to Creswell (2016), qualitative research emphasizes the holistic exploration of phenomena through subjective understanding of informants and the natural context in which they occur. This approach is highly appropriate for the research focus, which seeks to examine the dynamics of leadership in guiding the digital transformation of automotive companies.

Data collection techniques included in-depth interviews and direct observation in the automotive industry workplace. In-depth interviews were used to explore the perspectives, experiences, leadership styles, and transformational strategies implemented by leaders in addressing changes in digital technology such as automation, artificial intelligence (AI), the Internet of Things (IoT), and the digitalization of production processes. This technique enabled researchers to understand informants' interpretations of the challenges, opportunities, and change processes occurring (Miles, Huberman, & Saldaña, 2014). Meanwhile, participant observation was used to directly observe how transformational leadership is implemented in production areas, meeting rooms, and company digitalization projects. Observations provided empirical data on work interactions, innovation activities, and the application of digital technology that are not always addressed in interviews (Spradley, 2016).

The interviewees were selected using purposive sampling, selecting informants deemed to have relevant knowledge and experience in transformational leadership processes and digital technology adaptation. Data were analyzed using thematic analysis, identifying key patterns, categories, and themes emerging from interviews and observations. Thematic analysis enabled researchers to gain an in-depth understanding of how transformational leadership influences automotive companies' readiness to embrace digital technology change (Braun & Clarke, 2006).

## Results And Discussion

### Research result

#### 1) Challenges and Resistance in Implementing Digital Technology

Digital transformation is not without its challenges. All interviewees agreed that employee resistance, limited digital literacy, and technical difficulties are key challenges. On the production line, SA explained that the biggest challenge was initial resistance from senior employees. He said, "The biggest challenge was the initial resistance from senior employees who felt less confident in dealing with automated systems." Furthermore, integrating new technology also required workflow adjustments and equipment investment. SA described these challenges by stating that workflow adjustments "require time and a well-thought-out strategy."

In the digital transformation division, KL highlighted similar obstacles. He stated, "The biggest obstacle is the lack of digital literacy among some employees and limited initial infrastructure." Some employees even feel that technology could threaten their jobs, raising concerns. KL also emphasized

that this fear is addressed through intensive training and communication. At the operational level, HU also stated that the biggest challenge is employees' limited initial understanding of digital technology. He said, "The main challenge is employees' lack of initial understanding of digital technology and the need for quite intensive training." From a technical perspective, obstacles are more related to the technical aspects and complexity of modern vehicle electronic systems. HJK explained, "The biggest challenge is understanding complex and frequently changing electronic systems." Furthermore, some tools require specialized software, making the adaptation process lengthy. Another obstacle arises when new technology is introduced without adequate training. He stated, "The main obstacle is limited initial understanding and lack of experience using new devices."

IT staff face equally significant challenges, particularly in integrating legacy and new systems. JH and TY stated that obstacles often arise in the form of "integrating legacy systems with new technology, network disruptions, software bugs, and the need for additional equipment." This situation is exacerbated by the fact that some divisions are unfamiliar with digital systems, requiring IT staff to provide more intensive mentoring.

In addition to technical challenges, cultural barriers also arise in the form of employee resistance. SA explained how to overcome this resistance through open communication. He said, "My approach is open communication, explaining the reasons for change, and providing direct examples of the benefits of technology." Communication barriers between divisions are also a significant issue in the digitalization process. HU explained that he overcomes this by strengthening coordination through digital platforms and regular briefings.

Thus, the challenges of digital implementation are multidimensional, encompassing psychological resistance, technical limitations, human resource capacity, and coordination barriers. All of these challenges require a comprehensive strategy that encompasses not only technical aspects but also managerial and cultural aspects.

#### 2) Automotive Companies' Adaptation Strategies to Digitalization Based on Transformational Leadership

Automotive companies employ various strategies to ensure effective digital transformation. These strategies include training, mentoring, cross-divisional collaboration, and changes to operational policies. From a managerial perspective, SA explained that training is a key strategy. He stated that priority training includes "the use of automated machines, production monitoring software, and basic troubleshooting." Furthermore, employee involvement in decision-making is also a crucial strategy, as SA stated: "I involve the team in discussions regarding system changes, including selecting technology, defining workflows, and assessing risks."

KL from the Digital Transformation Division added that the implementation strategy was carried out through pilot projects, gradual evaluations, and mentoring. He stated that "the main strategies are pilot projects, gradual evaluations, intensive training, and direct mentoring." This strategy ensures that technology is tested before widespread implementation. Furthermore, collaboration between divisions is also a crucial strategy. KL emphasized that, "Collaboration between divisions is crucial... technology implementation is faster, more targeted, and can solve problems collectively."

At the operational level, HU revealed that company policies needed to be adjusted to support digitalization. He explained that the company updated its SOPs, reporting systems, and safety standards. HU stated that, "We adjusted policies related to workflow, safety standards, reporting systems, and the use of digital tools." Performance evaluation using digital systems was also a crucial strategy to gauge the effectiveness of the changes. HU stated that evaluation was conducted through "operational data, automated reports, and efficiency indicators such as work duration, error rate, and production output."

HJK, a technician, emphasized the importance of training and technical assistance. He said that training on scanner use and ECU programming was very helpful. He explained: "The training provided by the company was quite helpful, such as on scanner use, ECU programming, and vehicle data analysis." Another strategy was providing hands-on examples and clear instructions so technicians could adapt more quickly.

From an IT perspective, the company's strategy included strengthening infrastructure, intensive coordination, and budgeting. JH and TY stated that they needed "a budget for IT equipment, ongoing training, and policies that facilitate technology implementation." They also emphasized the importance of coordination through regular meetings and field mentoring. All of these findings demonstrate that digital adaptation is not just a matter of technology, but also a matter of cultural change, communication patterns, and leadership commitment. The company's strategy has successfully created a work environment that is more prepared and responsive to change, while simultaneously improving human resource competency and operational effectiveness.

### Discussion

#### 1) A. Digital Transformation as a Leadership-Based Organizational Change Process

The discussion of digital transformation in the automotive industry demonstrates that successful adaptation depends not only on technology, but primarily on the organization's ability to manage change. Kotter's (2012) change management theory emphasizes that major change requires leaders capable of creating urgency, building coalitions, establishing a vision, and driving new behaviors. In this study, digital transformation is understood as an organizational restructuring process, in which work patterns, operational standards, and individual competencies undergo major adjustments. Transformational leadership plays a key role in shaping the structure of these changes. According to Bass & Riggio (2006), transformational leaders develop a long-term orientation, reinforce the meaning of change, and facilitate collective learning.

#### 2) Implications of Digitalization on Work Structure and Human Resource Competencies

The discussion shows that digitalization brings significant changes to work structures, coordination patterns, and competency requirements in the automotive industry. According to Armstrong (2020), digital transformation requires changes in job design, namely shifting tasks from manual to data-based, digital control, and interaction between automated systems. Laudon & Laudon (2020) emphasize that digitalization creates new needs in the form of analytical skills, systems understanding, and the ability to manage digital devices. The research discussion indicates that organizations must strengthen upskilling and reskilling, especially at the technician and field operator levels, who now work with integrated systems.

This aligns with the concept of digital capability according to Westerman (2014), which states that organizations must simultaneously update human resource competencies, work design, and operational mechanisms to achieve a mature digital transformation.

#### 3) Strategy for Strengthening Organizational Digital Capabilities from a Strategic Management Perspective

The digital strategy theory according to Bharadwaj et al. (2013) emphasizes that organizations must develop a digital business strategy that encompasses technology integration, talent development, and new process design. In the context of this research, a digital strengthening strategy extends beyond training, encompassing system reconstruction, infrastructure provision, and policy alignment.

The resource-based view (Barney, 2001) explains that digital capabilities are strategic resources that enable organizations to

gain competitive advantage. The discussion suggests that companies need to restructure work processes, strengthen cross-functional coordination, and allocate technology investments sustainably. Armstrong (2020) adds that a digital HR strategy should include increasing digital literacy, integrating a culture of innovation, and creating a work environment that adapts to technological change.

### 4. Conclusion

Transformational leadership is key to successful digital adaptation in the automotive industry. Visionary, communicative, and learning-driven leaders accelerate technology adoption. Challenges include employee resistance, limited digital literacy, and technical barriers. Adaptation strategies include training, mentoring, cross-divisional collaboration, and adjustments to operational policies. This approach builds an adaptive work culture, improves human resource competency, and enhances operational effectiveness, ensuring optimal acceptance of digitalization at all levels of the organization.

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