



ELECTRONIC ATTENDANCE AS A TOOL FOR STRENGTHENING SCHOOL ORGANIZATIONAL CULTURE: A CASE STUDY AT SMP NEGERI 2 ARJASARI, BANDUNG REGENCY

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ABSTRACT

This study aims to analyze the contribution of Electronic Attendance (Daftar Hadir Elektronik/DHE) to changes in school organizational culture, particularly in work discipline, accountability, transparency, and digital adaptation, as well as to identify the factors supporting and constraining its implementation. This study employed a qualitative approach with a case study design at SMP Negeri 2 Arjasari, Bandung Regency, Indonesia. Eleven informants were selected, comprising the principal, vice principals, school operator, civil servant teachers, and educational staff. Data were collected through semi-structured interviews, observations, and documentation and analyzed interactively through data condensation, data display, and conclusion drawing and verification. The findings indicate that DHE contributes to strengthening school organizational culture by promoting more disciplined work routines, improving accountability and transparency in attendance management, and supporting digital adaptation. These changes are reflected in more objective attendance records, real-time monitoring, reduced opportunities for attendance manipulation, and greater attention to punctuality. The implementation is supported by school leadership and digital literacy assistance, while technical constraints and varying levels of user readiness remain challenges. The findings suggest that DHE functions not merely as an attendance recording system but also as a supporting instrument for strengthening organizational practices and digital governance in schools.

Keywords: *Electronic Attendance; organizational culture; work discipline; accountability; transparency; school digitalization.*

INTRODUCTION

Digital transformation has changed the way organizations design, carry out, and evaluate their work processes, including in educational institutions. Schools are no longer expected merely to utilize technology for learning, but also to integrate it into administrative governance and human resource management. Digitalization in educational organizations is essentially a change that touches processes, interaction patterns, work values, and the habits of organizational members, so that its success cannot be measured solely by the availability of devices and applications. Elkordy and Iovinelli (2021) assert that digital transformation in the K–12 context is a systemic change that requires adjustments in competence, culture, and organizational work patterns. In line with this, Grover et al. (2022) explain that digitalization can alter organizational structures, work processes, and patterns of interaction among members, which ultimately has implications for organizational culture. In the school context, this indicates that the implementation of digital administrative systems, including electronic attendance systems, has the potential to become part of the process of work-culture change, as technology begins to influence the way school members carry out their routines, comply with regulations, and account for their work.

One concrete form of the digitalization of school governance is the implementation of electronic attendance, or *Daftar Hadir Elektronik* (DHE). This system shifts attendance recording from a manual mechanism to a technology-based one that allows attendance data to be recorded, stored, monitored, and recapitulated more systematically. In managing employee attendance, digitalization can reduce dependence on manual recording, which is prone to errors, delayed recapitulation, and difficulties in conducting periodic monitoring. Research on digital attendance systems shows that the implementation of such technology can improve administrative efficiency, recording accuracy, and organizations' capacity to monitor attendance (Maulana et al., 2025). Findings from educational settings also indicate that electronic attendance systems can support compliance with attendance regulations and strengthen discipline through more structured record-keeping (Sinthiya et al., 2021). Electronic attendance is therefore not merely an administrative instrument; it can also become an organizational mechanism that reinforces the values of punctuality, compliance, accountability, and responsibility in the working life of school members.

The issue, however, is that the presence of a digital system does not automatically produce the expected changes in behavior and organizational culture. Technology implementation can present opportunities as well as new problems, particularly when the system introduced alters work habits that have persisted for a long time. The shift from conventional attendance recording to DHE, for instance, can enhance transparency and accountability because attendance becomes easier to monitor, yet at the same time it may be perceived as a stricter form of surveillance if it is not accompanied by adequate communication and understanding. Perspectives on organizational change indicate that the readiness of organizational members, their perceptions of change, and the values and norms that develop within the organization play an important role in determining acceptance of a new system. Haffar et al. (2023), for example, found that the characteristics of organizational culture are related to members' readiness to face digital change. In a school environment, this issue becomes increasingly important because organizational culture is formed through habits, shared values, discipline norms, communication patterns, and work practices that are repeatedly carried out by principals, teachers, and education staff. The implementation of DHE therefore needs to be understood not only in terms of the technical functioning of the system, but also in terms of the accompanying changes in behavioral patterns and work values.

On the other hand, school organizational culture occupies a strategic position in determining how a technological innovation is accepted and internalized into daily work practice. A culture that is open to change and that encourages learning, collaboration, discipline, and continuous improvement tends to provide an environment more conducive to technology adoption. Conversely, a work culture that is overly dependent on old habits can cause technology to be used merely as an administrative obligation without producing substantive change in organizational behavior. Research in educational institutions shows that alignment between management practices and organizational values is required to build an environment that supports innovation and digital transformation (Nguyen et al., 2023). Sogalrey et al. (2022) likewise show a relationship among school leadership, school culture, and educators' digital literacy practices. These findings reinforce the understanding that technology, leadership, and organizational culture interact with one another in the process of school digitalization. In this context, the principal acts as a director and facilitator of change, while cultural change itself continues to take place through a process of acceptance, habituation, and internalization of technology by all members of the school.

Although research on digital transformation, digital leadership, and educational organizational culture continues to grow, studies that specifically position electronic attendance systems as a trigger for organizational-culture change at the junior secondary school level remain relatively limited. Much of the research on digital attendance has focused more on system design, administrative efficiency, data accuracy, or improvements in discipline, while studies on how such systems influence the values, habits, norms, and work patterns of school members have not been examined in great depth. Research on organizational-culture change through digitalization in schools shows that the use of digital systems, including electronic attendance, can influence work patterns, collaboration, and organizational values (Faried et al., 2025). Meanwhile, research on principals' digital leadership also shows that principals' ability to build vision, communication, digital resilience, and technology-based management practices is an important part of the school digitalization process (Hidayat & Patras, 2024; Ofita et al., 2024). These conditions open up space to examine, more specifically, how the implementation of DHE in the context of a public school may relate to changes in organizational culture, particularly in the practices of discipline, accountability, rule compliance, responsibility, and adaptation to digital work patterns.

Given these problems, opportunities, and phenomena, SMP Negeri 2 Arjasari in Bandung Regency provides a relevant context for examining the organizational-culture change that has taken place following the implementation of electronic attendance, or DHE. This study seeks to understand how the electronic attendance system functions not only as a tool for recording attendance, but also as a potential driver in shaping new work habits and values through its demands for punctuality, regularity, transparency, accountability, and procedural compliance. The context of a school located in Bandung Regency also provides an opportunity to observe how an administrative digital policy is translated into organizational practice at the level of an individual educational unit. This study therefore does not stop at the question of whether electronic attendance improves discipline, but extends its attention to how its implementation contributes to changes in school organizational culture. This study aims to analyze the influence of electronic attendance (Daftar Hadir Elektronik) implementation on school organizational culture at SMP Negeri 2 Arjasari, Bandung Regency; to identify the behavioral and work-value changes that emerge following the implementation of the system; and to understand the organizational factors that support and hinder its adaptation process. This focus is expected to provide an empirical understanding of the digitalization of personnel administration as part of the formation of a school work culture that is more disciplined, accountable, adaptive, and oriented toward continuous improvement.

RESEARCH METHOD

This study employed a qualitative approach with a case study design to obtain an in-depth and contextual understanding of the implementation of electronic attendance (Daftar Hadir Elektronik/DHE) and its implications for school organizational culture. A case study approach was chosen because it enables the researcher to comprehensively examine a contemporary phenomenon within its real-life context, particularly when the phenomenon and the organizational context are closely interrelated (Yin, 2018). The study was conducted at SMP Negeri 2 Arjasari, Bandung Regency, which was purposively selected because the school had implemented an electronic-based attendance system as part of the digitalization of personnel administration. Eleven research informants were selected using purposive sampling based on their direct involvement, experience, and knowledge of DHE implementation. The informants comprised 1 principal, 1 vice principal for human resources and public relations, 1 school operator, 2 vice principals for curriculum and facilities, 4 civil-servant (ASN) teachers consisting of 2 senior and 2 junior teachers, and 2 education

staff members. This composition was intended to capture a diversity of perspectives from school leadership, system administrators, educators, and education staff. Data were collected through semi-structured interviews, observation, and documentation study. Interviews were used to explore the experiences, perceptions, responses, and behavioral changes of school members following the implementation of DHE; observation was used to examine attendance practices, discipline, interaction, and school members' responses to using the system; while documentation study was used to complement the data through policy documents, standard operating procedures, and attendance recapitulations. To understand school members' acceptance of the technology, the interview guide also drew on two main aspects of the *Technology Acceptance Model* (TAM), namely perceived usefulness and *perceived ease of use* (Turnbull et al., 2021).

Data analysis was conducted interactively through the stages of data condensation, data display, and conclusion drawing and verification, as proposed by Miles et al. (2020). Interview data were transcribed, coded, and grouped according to themes relevant to the research focus, including the usefulness of electronic attendance, ease of use, discipline, accountability, compliance with regulations, changes in work habits, and the response of organizational culture to the digitalization of attendance administration. The interview results were then compared with observation and documentation data to obtain a more complete understanding of DHE implementation and the accompanying organizational-culture change. The validity of the data was maintained through source and technique triangulation, by comparing information from the principal, system administrators, teachers, and education staff, and by confirming interview findings against the results of observation and documentation. The researcher also conducted member checking on key information obtained from informants to ensure that the interpretation was consistent with the experiences they described. These procedures were carried out to enhance the credibility of the data and the accuracy of interpretation, so that the research findings could provide an empirical picture of how the implementation of electronic attendance contributes to the formation and change of organizational culture at SMP Negeri 2 Arjasari, Bandung Regency.

RESULTS AND DISCUSSION

Results

1. Implementation of Electronic Attendance at SMP Negeri 2 Arjasari

The study was conducted at SMP Negeri 2 Arjasari, Bandung Regency, which has 15 study groups comprising 399 students, supported by 28 teachers and 7 education staff members. In the 2024/2025 academic year, the school was led by a principal and held an "A" accreditation status. This indicates that the implementation of Electronic Attendance (DHE) took place within a school organizational environment that already possessed a relatively well-established institutional structure and governance.

According to the interview results, the implementation of DHE within the Bandung Regency Government began to be socialized to civil servants (ASN) in the education sector in early 2023. Before DHE was used, attendance recording at the school was conducted manually. This manual system was considered to have a number of weaknesses, including the possibility of proxy attendance ("titip absen"), attendance records that did not always reflect employees' actual presence, a time-consuming recapitulation process, and opportunities for errors or manipulation in reporting. The implementation of DHE subsequently changed the attendance-recording mechanism from manual, document-based methods to a digital system. According to the principal's explanation, the attendance process is carried out through an application that uses location verification (*geofencing*), facial photographs, attendance time, and GPS coordinates. The data are recorded in *real time*. In the early stage of implementation, the attendance-location radius was still relatively wide, but it was later tightened to improve the accuracy of attendance locations.

The DHE system also includes a control mechanism for absenteeism. If a civil servant fails to record attendance for three consecutive days without notice, the system issues a warning and the account may be locked, requiring the employee to provide clarification and receive guidance from the principal. DHE therefore functions not only as a recording tool, but is also linked to a mechanism for supervising and fostering employee discipline.

In addition, attendance data from DHE are integrated with the Sasicap personnel application to support the recapitulation of attendance percentages. This integration reduces the need for manual recapitulation and makes it easier for the school to monitor attendance. The principal also reported that network disruptions are relatively rare, although occasional problems occur when the system experiences *downtime* or *hangs* because of high simultaneous user traffic. The findings on DHE implementation are summarized in Table 1, as follows:

Table 1. Characteristics of DHE Implementation at SMP Negeri 2 Arjasari

Aspect	Research Findings
Attendance system	Shifted from manual recording to a digital application
Verification	Uses location/geofencing, facial photo, time, and GPS
Recording	Data stored digitally and in real time
Supervision	Warning and account-locking features available
Recapitulation	Data integrated with the Sasicap application
Main function	Monitoring attendance, discipline, and personnel administration

2. User Perceptions of the Usefulness of DHE

The interview results indicate that DHE is perceived to provide benefits, particularly in terms of efficiency, transparency, and the accuracy of attendance recording. Teachers considered that using the application simplified the attendance process, as it could be carried out through personal devices without the need for manual recording.

Junior teachers tended to adapt more quickly to the digital attendance mechanism. Senior teachers, meanwhile, experienced several obstacles in the early stages of use, particularly related to facial scanning, device storage capacity, and network instability. These obstacles were felt most strongly during the first one to two months of implementation.

Despite these differences in adaptive capacity, all teacher informants expressed a positive perception of the benefits of DHE. The system was considered to produce a more objective attendance record and to reduce opportunities for manipulation. The school operator also experienced benefits, as the attendance-recapitulation process became simpler. Attendance log data available at the school indicate a decline in teacher tardiness following the implementation of the system.

Table 2. User Perceptions of the Usefulness of DHE

Aspect of Usefulness	Findings
Efficiency	Reduces manual recapitulation work
Accuracy	Attendance recorded based on time, identity, and location
Transparency	Attendance records are easier to verify
Supervision	The principal can monitor attendance more objectively
Accountability	Employees have a documented attendance record
Integration	Attendance data connected to the personnel system

3. User Adaptation to the Digital System

Adaptation to DHE did not occur uniformly. Junior teachers found it relatively easier to use the application, as they were already accustomed to using digital devices. Senior teachers, by contrast, needed time to adjust to an attendance process that required the use of mobile devices, facial scanning, and location activation. This indicates that the implementation of technology within a school organization is related not only to system availability, but also to user readiness.

To address these differences in ability, the principal established a Digital Literacy Task Force involving the school operator and younger teachers. This team provided direct mentoring to senior

teachers who experienced difficulties. This approach helped reduce technical obstacles while also encouraging a process of mutual learning among members of the organization.

Adaptation to DHE thus took place through a combination of technology use and social support within the work environment. This process indicates that the implementation of a digital system requires a mentoring mechanism so that the technology can be accepted by all members of the organization.

4. Changes in Discipline and Work Habits

The research findings indicate a change in work habits following the implementation of DHE. Before the digital system was implemented, manual recording left room for tardiness, proxy attendance, and discrepancies between recorded attendance and employees' actual presence. After DHE was adopted, the attendance process had to be carried out through a mechanism of location and identity verification, so that opportunities for manipulation became more limited. This change is reflected in teachers' increased attention to punctuality. Research observations indicate a shift from a work habit that was previously relatively tolerant of a few minutes' tardiness toward a habit more strongly oriented toward punctuality. Attendance log data likewise show a decline in teacher tardiness following the implementation of DHE.

Table 3. Changes in Attendance Behavior

Condition Before DHE	Condition After DHE
Attendance recorded manually	Attendance recorded through the application
Opportunities for proxy attendance existed	Identity and location verification narrows opportunities for manipulation
Recapitulation done manually	Data recapitulated digitally
Tardiness was relatively easier to tolerate	Punctuality receives stronger attention
Supervision required manual checking	Supervision supported by real-time data

5. Changes in Organizational Accountability and Transparency

DHE also brought about changes in the accountability mechanism for attendance. Attendance data are stored digitally, allowing them to be used as a record of employees' attendance history. This makes individual responsibility for attendance clearer, as every attendance activity is recorded in the system.

From an organizational standpoint, the principal obtains more objective information for monitoring purposes. The supervisory process no longer depends entirely on manual records or individual reports. Digital data serve as a basis that can be used for verification whenever attendance issues arise.

Transparency is also one of the benefits most widely felt by teachers. Attendance records based on time, identity, and location reduce subjectivity in recording. DHE therefore not only changes administrative procedures, but also strengthens openness in the management of employee attendance.

Table 4. Changes in Accountability and Transparency

Dimension	Change Identified
Individual responsibility	Attendance becomes each user's own responsibility
Record trail	Data stored digitally
Supervision	Easier to conduct based on data
Transparency	Attendance can be verified more objectively
Administration	Recapitulation becomes simpler

6. Supporting and Inhibiting Factors in DHE Implementation

The implementation of DHE is supported by several factors. First, support from the principal through mentoring for users. Second, the presence of operators and young teachers who assist senior teachers in the adaptation process. Third, the system's integration with the personnel application, which facilitates data management. Fourth, the location and identity verification system, which strengthens the accuracy of attendance recording.

On the other hand, several obstacles remain. Senior teachers face barriers such as facial-scanning failures, limited device memory, and network disruptions. In addition, the system also faces the possibility of GPS interference, changes to the attendance-location radius, *fake GPS*, and situations in which employees are physically present but their main orientation is merely to fulfil the attendance obligation.

Table 5. Supporting and Inhibiting Factors

Supporting Factors	Inhibiting Factors
Principal support	Network disruptions
Mentoring by the Digital Literacy Task Force	GPS constraints
Support from operators and young teachers	Facial-scanning failures
Integration with the personnel system	Device limitations
Location and identity verification	Possible use of <i>fake GPS</i>
Real-time attendance data	Risk of attendance being merely administrative

Discussion

1. DHE as an Instrument of School Administrative Transformation

The research findings show that the implementation of DHE is part of a broader change in school administrative governance, from a manual to a digital system. This change relates not only to the replacement of the recording medium, but also to changes in how attendance information is collected, verified, stored, and used by school leadership. Before DHE, the attendance and recapitulation process had a number of weaknesses because it still relied on manual recording. After digitalization, attendance information became available more quickly and in documented form.

In an organizational context, this kind of digitalization has implications for work patterns, as technology introduces new procedures into organizational routines. Grover et al. (2022) explain that digitalization relates not only to the use of technological devices, but also to changes in values, practices, and patterns of interaction within an organization. The findings at SMP Negeri 2 Arjasari illustrate this condition, as the use of DHE gradually changed attendance habits and the way the school conducts attendance supervision.

DHE can therefore be viewed as an instrument of administrative transformation that simultaneously contributes to changes in organizational behavior. This change is most evident in the aspects of punctuality, attendance documentation, and accountability mechanisms.

2. The Usefulness and Ease of Use of DHE from a TAM Perspective

The findings regarding differences in the experiences of junior and senior teachers can be explained through the *Technology Acceptance Model* (TAM). In this study, the two most relevant aspects are *perceived ease of use* and *perceived usefulness*. Teachers who found the application easy to use tended to adapt more quickly, whereas teachers who experienced device and network problems required additional support.

The condition of senior teachers shows that perceived ease of use is an important factor in the early stage of technology acceptance. Technical difficulties can cause discomfort and potentially hinder system acceptance if not accompanied by mentoring. Conversely, once users understood how the application worked and experienced its benefits, their acceptance of the system became more positive.

In the case of SMP Negeri 2 Arjasari, the benefits of DHE were experienced in the form of more efficient recapitulation, clearer attendance records, transparency, and easier monitoring. These findings indicate that technology acceptance is not formed solely by a mandatory obligation to use the system, but also because users find practical benefits from the system in their daily work.

3. DHE and the Formation of a Discipline Culture

One of the clearest changes identified in this study is the increased attention to punctuality. Before DHE, the manual mechanism still allowed for proxy attendance and records that did not fully

reflect employees' actual presence. DHE narrows these opportunities through the verification of location, identity, and time.

This change can be understood as a process of norm formation through routine. When employees are required to record their attendance using the same mechanism every day, punctuality becomes part of their work habit. Over time, habits that are performed repeatedly can develop into behavioral expectations within the organization.

Observations at the school show that work habits that were previously relatively tolerant of tardiness have shifted toward an orientation focused on punctuality. DHE's contribution to a discipline culture thus stems not solely from the technology's control function, but also from a process of behavioral habituation that occurs repeatedly.

4. DHE and the Strengthening of an Accountability Culture

Accountability in this study is reflected in the increased clarity of individual responsibility for attendance. The digital system produces a more structured record, so that each employee bears responsibility for their own attendance activity. This data also provides a more objective basis for school leadership to conduct monitoring.

From an organizational perspective, this mechanism strengthens the relationship between individual actions and administrative accountability. When attendance is documented digitally, the process of clarifying absences or tardiness becomes more data-driven. This differs from the manual system, which is more prone to recording errors and manipulation.

DHE thus contributes to the strengthening of an accountability culture through three main mechanisms: documentation, traceability, and ease of verification.

5. DHE and the Strengthening of Organizational Transparency

Transparency is another aspect strengthened through the implementation of DHE. Attendance information is no longer confined to manual administrative documents, but is stored in a digital system that records time, identity, and location. This mechanism reduces the room for subjectivity in attendance recording.

For teachers, transparency is important because attendance records can serve as a more objective basis in administrative processes. For school leadership, this data provides information that can be used to conduct more consistent monitoring. Attendance digitalization thus contributes to the formation of organizational procedures that are more open and data-driven.

These findings show that technology performs not only an administrative function, but can also bring certain values into organizational practice. In the context of this study, the most evident values are openness, objectivity, and administrative traceability.

6. Principal Leadership as a Reinforcing Factor

The implementation of DHE shows that the success of digitalization is determined not only by the quality of the application. The principal plays an important role in helping members of the organization adapt to change. The establishment of the Digital Literacy Task Force and *one-on-one* mentoring for senior teachers reflect a leadership intervention aimed at narrowing the technological-competence gap among employees.

This approach is important because technological change can generate resistance if users feel unable to keep up with the new system. In the case of SMP Negeri 2 Arjasari, cross-generational mentoring enabled teachers who were more familiar with technology to assist those who needed support. The adaptation process therefore did not occur individually, but became a collective process within the organization.

These findings show that principal leadership functions as a reinforcing factor in the implementation of DHE. Technology provides the mechanism for attendance recording and supervision, while leadership ensures that this mechanism is accepted and carried out by school members.

7. DHE's Contribution to Changes in School Organizational Culture

Based on the overall findings, the contribution of DHE to school organizational culture is evident through changes in several key dimensions, namely discipline, accountability, transparency, and adaptation to digitalization. DHE narrows opportunities for attendance manipulation, increases attention to punctuality, provides a more objective administrative record, and facilitates the supervisory process.

Nevertheless, this change does not occur automatically simply because the technology has been implemented. Constraints related to networks, devices, GPS, and differences in user ability show that technology still has its limitations. Furthermore, physical presence cannot be used as the sole measure of the quality of teachers' professional performance. The finding that employees may be present merely to fulfil the attendance obligation also highlights the importance of distinguishing between administrative compliance and the quality of task performance.

DHE is therefore more appropriately understood as an instrument for strengthening attendance discipline and accountability, rather than as the sole instrument for measuring teacher performance. Organizational culture continues to require leadership, communication, exemplary conduct, mentoring, and ongoing supervision.

Overall, the process of change identified in this study can be understood as a relationship among technology, people, and organizational habits. DHE provides the digital mechanism; users undergo a process of acceptance and adaptation; repeated use forms habits; while school leadership reinforces this process through mentoring and supervision. This pattern indicates that administrative digitalization can become one trigger of organizational-culture change when supported by human readiness and adaptive leadership.

Overall, the research findings indicate that the implementation of DHE at SMP Negeri 2 Arjasari contributes to strengthening a culture of discipline, accountability, transparency, and digital adaptation within the school organization. This contribution takes place through changes in work routines and supervisory mechanisms, and is reinforced by the principal's mentoring and collaboration among organizational members. These findings are consistent with the view that organizational digitalization is a process that changes not only technology, but also practices, work patterns, and organizational culture (Grover et al., 2022; Haffar et al., 2023).

CONCLUSION

Based on the research findings, it can be concluded that the implementation of Electronic Attendance (DHE) at SMP Negeri 2 Arjasari contributes to strengthening school organizational culture, particularly in the aspects of discipline, accountability, transparency, and adaptation to digitalization. The implementation of DHE changed the attendance mechanism from manual recording to a digital system that utilizes location, identity, and time verification along with real-time recording, thereby narrowing opportunities for attendance manipulation, improving data traceability, facilitating supervision, and reducing the administrative burden of recapitulation. The use of DHE has also driven changes in work habits through increased attention to punctuality and the formation of a more structured attendance routine. However, this contribution does not occur automatically, as it continues to be influenced by user readiness, and by constraints related to devices, networks, GPS, and the capacity to adapt to technology. Schools are therefore advised to conduct periodic system evaluations, strengthen mentoring and digital literacy, sustain collaboration among teachers, operators, and school leadership, and ensure that DHE is used as a supporting instrument rather than the sole basis for assessing teachers' professional performance. The implications of this study indicate that attendance digitalization needs to be positioned as part of a broader transformation of school governance that integrates technology, human resources, leadership, supervision, and organizational culture. In this context, principal leadership holds a strategic position in ensuring that the

implementation of technology does not stop at mere administrative compliance, but develops into a work habit that sustains discipline, accountability, transparency, and digital adaptation on an ongoing basis.

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