# Information and Communication Technology Management Strategy to Support the Digital Transformation of SMP Negeri 1 Bolaang

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## ABSTRACT

Digital transformation in schools has become a strategic necessity to improve the quality of learning services, governance, and competitiveness of educational institutions. This study aims to analyze appropriate Information and Communication Technology (ICT) management strategies to support the acceleration of digital transformation at SMP Negeri 1 Bolaang. The research method uses a literature review by analyzing empirical findings and current theories regarding ICT management, digital transformation, technology governance, and digital leadership. The results of the study indicate that the success of digital transformation in schools is largely determined by strategic ICT planning aligned with the school's vision, strengthening digital infrastructure, improving the digital competence of teachers and education personnel, implementing good digital governance, and participatory change management. This study confirms that a structured and holistic ICT management approach can improve administrative efficiency, learning quality, and data-driven decision-making at SMP Negeri 1 Bolaang. Research recommendations include increasing human resource capacity, establishing a school digital transformation unit, and utilizing a collaborative ecosystem to accelerate digitalization.

*Keywords*: Digital Transformation, Education, ICT Management, Schools, Technology Strategy.

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## INTRODUCTION

The development of digital technology has brought significant changes to nearly every aspect of life, including the education sector. Schools are required to integrate technology into the learning process, administrative services, and overall organizational governance. Digital transformation is no longer merely an option, but a necessity to address the challenges of 21st-century learning, curriculum development, and the needs of students who are increasingly familiar with technology.

Bolaang 1 Public Middle School, as a formal educational institution, needs to respond to these developments by strengthening its Information and Communication Technology (ICT) management. However, the school's digitalization process still faces obstacles such as limited equipment, uneven connectivity, diverse teacher digital competencies, and suboptimal technology governance. This situation highlights the need for a targeted and sustainable ICT management strategy.

Digital transformation at the school level includes digitizing administration, utilizing online learning platforms, integrating academic data, and developing technology-based learning environments. Good ICT management must integrate technology, human resources, policies, and organizational culture within a single, integrated management framework.

This article aims to develop an effective ICT management strategy to strengthen digital transformation at SMP Negeri 1 Bolaang through a literature review-based approach and best practices of educational institutions.

## LITERATURE REVIEW

### Digital Transformation in the Educational Environment

Digital transformation is a process of comprehensive change in the education system through the use of digital technology to improve learning quality, organizational effectiveness, and institutional competitiveness. Transformation goes beyond the digitization of manual processes; it encompasses changes in thinking, working methods, and organizational culture.

In schools, digital transformation is characterized by the implementation of Learning Management Systems (LMS), digitization of academic data, utilization of interactive devices, integration of artificial intelligence for learning evaluation, and optimization of digital communication platforms.

### Information and Communication Technology Management

ICT management in education encompasses the planning, development, utilization, and control of technology to support learning objectives and school governance. Core components of ICT management include:

- Infrastructure (hardware, networks, information systems)
- Learning software and applications
- Human Resources
- Digital policy and governance

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- Data security and privacy

Good ICT management ensures that technology is not only available, but is actually used effectively and efficiently.

### Digital Leadership

Digital leadership requires principals to possess the vision, adaptability, communication skills, and technological savvy to drive change. Principals serve as guides, motivators, and strategic decision-makers in the digital transformation process.

### Digital Governance

Digital governance encompasses regulations, policies, and technical mechanisms that ensure technology is used safely, ethically, and in accordance with institutional goals. Common issues include student data privacy, network security, and the regular use of school applications.

## METHOD

This research uses a literature review method by examining:
- indexed scientific journals (2019–2025),
- academic books,
- research report,
- educational ICT management standards,
- digital school best practices.

The analysis stages are carried out through:
1) Identify core issues and themes of ICT management in schools.
2) Categorization of findings based on ICT management dimensions.
3) Synthesis of relevant strategies for SMP Negeri 1 Bolaang.
4) Formulation of ICT management recommendations.

## RESULTS AND DISCUSSION

### Critical Dimensions of School Digital Transformation

The analysis shows three main dimensions that determine the digital readiness of SMP Negeri 1 Bolaang:

a. School Digital Environment
   Includes internet infrastructure, computer equipment, ICT laboratories, and data management systems.
b. Digital Learning Process
   Covering the use of learning platforms, interactive media, and digital assessments.
c. User Experience (Teachers and Students)

This encompasses ease of access, technical support, and a culture of technology adoption. These three dimensions must work hand in hand for digital transformation to be effective.

### ICT Management Planning Strategy

1) Preparation of a school ICT roadmap that is aligned with the school's vision and development program.
2) Analysis of technology needs based on learning and administrative objectives.
3) Identify the digital gap between ideal conditions and available resources.
4) Prioritize infrastructure development according to urgency and budget.
5) Periodic monitoring and evaluation of ICT implementation.

The development of digital infrastructure and ecosystem at SMP Negeri 1 Bolaang needs:
- strengthening the school internet network,
- adding devices for digital learning activities,
- building an application ecosystem (LMS, digital presence, e-reports),
- integrating school data systems,
- implementing cloud computing for data storage efficiency.

Adequate infrastructure is the foundation of sustainable digital transformation.

### Improving the Digital Competence of Teachers and Education Personnel

Strategies required:
- continuous digital literacy training,
- workshop on utilizing learning platforms,
- technology mentoring by competent teachers,
- formation of digital learning communities,
- daily technical support to minimize obstacles.

### Digital Governance and Data Security

Digital governance needs to include:
- device and internet usage policies,
- student data privacy regulations,
- account management and system access,
- network security procedures,
- periodic security audits.

Data security is a critical factor, especially regarding student identity and the integrity of academic documents.

### Change Management and Digital Culture

Digital transformation requires:

- clear communication of change,
- stakeholder participation including teachers, students, and school committees,
- change of mindset to be more open to technology,
- culture of innovation and continuous learning.

Schools need to ensure that all school members understand the benefits of digital transformation.

## CONCLUSION

Digital transformation at SMP Negeri 1 Bolaang requires a comprehensive, structured, and sustainable ICT management strategy. The success of school digitalization is determined by:
- strategic ICT planning that is aligned with the school's vision,
- strong and integrated technology infrastructure,
- digital competence of teachers and education personnel,
- good digital governance,
- and inclusive change management.

Strengthening these five aspects enables schools to improve learning effectiveness, administrative efficiency, and the quality of data-based educational services.

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