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The Role of Ict in The Speed And Accuracy of Decisions In The Digital Business Environment

Alrobby Nurilham[1*], Muhammad Irwan Padli Nasution[2]
[12] Universitas Islam Negeri Sumatera Utara
Email: alrobbynurilham12@gmail.com

Abstract

In today's rapidly evolving digital landscape, Information and Communication Technology (ICT) plays a fundamental role in shaping how individuals and organizations operate. The integration of advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and blockchain has transformed traditional business processes into dynamic, data driven systems capable of responding quickly to market changes. As digitalization becomes embedded in nearly every aspect of modern life, businesses increasingly rely on ICT to streamline operations, improve efficiency, and strengthen their competitive position. This study aims to explore the concept of ICT and examine how its implementation influences the speed and accuracy of strategic decision making in the digital business environment. A qualitative descriptive method was employed to gain in depth insights into these phenomena. Data were collected from various credible sources, including academic books, journals, and relevant online publications, allowing for comprehensive analysis. The findings highlight that ICT not only accelerates decision making but also enhances decision quality through real time data availability, automated processing, and improved communication flow within organizations.
Keywords: *ICT, Digital Business, Decision Making, Technology Integration*

Abstract: Di era digital yang berkembang pesat, Teknologi Informasi dan Komunikasi (TIK) menjadi elemen penting dalam membentuk cara individu dan organisasi menjalankan aktivitasnya. Integrasi teknologi seperti artificial intelligence (AI), Internet of Things (IoT), dan blockchain telah mengubah proses bisnis tradisional menjadi sistem yang dinamis dan berbasis data. Seiring meningkatnya digitalisasi di berbagai aspek kehidupan, perusahaan semakin bergantung pada TIK untuk menyederhanakan operasi, meningkatkan efisiensi, dan memperkuat daya saing. Penelitian ini bertujuan memahami konsep TIK serta menganalisis bagaimana penerapannya memengaruhi kecepatan dan ketepatan pengambilan keputusan strategis dalam lingkungan bisnis digital. Metode penelitian yang digunakan adalah kualitatif deskriptif untuk memperoleh pemahaman mendalam terhadap fenomena tersebut. Data dikumpulkan dari berbagai sumber seperti buku, jurnal, dan publikasi daring yang relevan sehingga analisis dapat dilakukan

secara komprehensif. Temuan menunjukkan bahwa TIK tidak hanya mempercepat proses pengambilan keputusan, tetapi juga meningkatkan kualitas keputusan melalui ketersediaan data real time, pemrosesan otomatis, dan aliran komunikasi yang lebih efektif.
Kata kunci: *TIK, Bisnis Digital, Pengambilan Keputusan, Integrasi Teknologi*

INTRODUCTION

Advances in Information and Communication Technology (ICT) in the digital era have fundamentally reshaped the way people interact, work, and make decisions. ICT has become deeply integrated into nearly all dimensions of modern life, influencing sectors such as business, education, government, and social affairs. Its rapid development provides individuals and organizations with unprecedented access to information, seamless communication, and the ability to process large amounts of data in real time. These capabilities have allowed ICT to become a driving force behind innovations that continuously improve productivity and efficiency across industries. However, the speed of technological advancement also brings significant challenges, particularly in terms of digital infrastructure readiness, regulatory adaptation, cybersecurity concerns, and human resource competency. As societies transition into a fully digital ecosystem, understanding both the opportunities and obstacles of ICT becomes essential for sustainable development.(Samuel Augustine Umezurike et al., 2025)

In today's digital landscape, ICT has shifted from being merely a tool of convenience to becoming a foundational element that supports strategic functioning in various fields. Technologies such as artificial intelligence (AI), the Internet of Things (IoT), cloud computing, and blockchain have revolutionized traditional processes by enabling automation, enhanced data accuracy, and rapid information flow. These innovations do not only change how data is managed but also influence how decisions are formulated by providing more reliable, real time insights. This transformation has significantly shaped a culture in which speed, adaptability, and data driven thinking are essential. Businesses, governments, and communities must therefore adapt to remain relevant in a world where digital interconnectivity forms the backbone of daily activities.(Li & Zhang, 2025)

The presence of ICT in the business environment is especially impactful because modern organizations operate in a highly competitive and rapidly evolving market. Information has become a strategic asset, and the ability to utilize it efficiently often determines whether a business thrives or falls behind. The digital business environment requires decisions to be made quickly, accurately, and based on constantly shifting data patterns. Market demands change rapidly, consumer behavior evolves unpredictably, and global digital integration means that an event occurring in one part of the world can influence business strategies elsewhere almost instantly. In such a

dynamic setting, ICT provides organizations with the tools to collect, analyze, and interpret large volumes of information at a pace that would have been impossible in traditional systems.(Kahveci, 2025)

Digitalization brings about a new paradigm in decision making. Decisions are no longer based solely on intuition or conventional reports; instead, they rely heavily on the data processing capabilities offered by modern ICT. For instance, AI driven analytics allow companies to predict market trends, identify risks, automate routine tasks, and deliver strategic insights faster than human analysts. The Internet of Things facilitates continuous data collection from devices and operations, providing real time monitoring that enhances accuracy in identifying problems and opportunities. Similarly, blockchain ensures data integrity and transparency, thus strengthening trust in digital transactions and information flows. When integrated within business processes, these technologies collectively accelerate the decision making cycle while increasing accuracy and reliability.(Fu & Duan, 2025)

The rapid expansion of digital technology has also shaped a global digital culture where communication is nearly instantaneous, geographical boundaries are minimized, and collaboration across long distances has become seamless. This interconnectedness creates vast opportunities for businesses to innovate, expand their market reach, and improve operational efficiency. However, it also demands that organizations enhance their digital competency to navigate challenges such as data overload, technological disruptions, and the need for continuous skill development. Without mastering ICT, businesses risk losing competitiveness in a digital economy where speed and precision determine survival.(Huang, 2025)

In the context of decision making, ICT serves not only as an enabler of speed but also as a determinant of decision quality. Speed alone is insufficient if decisions are based on inaccurate or incomplete information. Accurate decision making depends on the ability to filter relevant data, analyze patterns, and generate valid conclusions. ICT systems such as Management Information Systems (MIS), Decision Support Systems (DSS), and integrated enterprise platforms facilitate this by ensuring data availability, reliability, and contextual alignment. When decision makers receive timely and accurate information, they are better equipped to allocate resources efficiently, anticipate risks, and formulate strategies that align with organizational goals.(Umezurike et al., 2025)

Given the importance of ICT in shaping effective decision making processes, this study seeks to examine the role of ICT in enhancing both the speed and accuracy of decisions in the digital business environment. It aims to analyze how digital tools and systems influence decision making cycles and to what extent they contribute to improving overall decision quality. Through a qualitative descriptive approach, this study explores real world applications, challenges, and the transformative impact of ICT on modern business

strategies. Understanding this relationship is crucial, as organizations must continuously strengthen their digital capabilities to remain competitive in an era where technological competence defines long term success. Based on the background described above, this study seeks to address two main research questions, namely: what is meant by Information and Communication Technology (ICT), and how the implementation of ICT within a digital business environment influences the speed of strategic decision making.(D. Zhang et al., 2025)

METHOD

According to Rahardjo, a research method serves as a systematic way to obtain and examine tentative truths rather than absolute conclusions. Scientific truth, as he argues, is always open to further evaluation, critique, and revision, allowing knowledge to develop continuously. For this reason, there is no single "best" research method; instead, the most appropriate method is one that aligns with the specific goals and characteristics of the phenomenon under investigation. Budiharto also emphasizes that the selection of a research method must correspond to the nature of the study to achieve optimal and meaningful results. In accordance with this perspective, the present research employs a qualitative method with a descriptive approach. This method is considered suitable because the study aims to explore and describe in depth the role of Information and Communication Technology (ICT) in enhancing the speed and accuracy of decision making within the digital business environment. Qualitative descriptive research allows the researcher to interpret phenomena holistically, capturing not only factual information but also the context, patterns, and implications surrounding ICT utilization.(A. Zhang et al., 2025)

Data for this study were gathered from various credible sources, including academic books, scientific journals, and reputable online publications relevant to ICT, digital business systems, and decision making processes. Collecting data from diverse materials helps provide a richer and more comprehensive understanding of the topic. This approach strengthens the validity of the analysis and supports the formulation of objective conclusions. Through qualitative interpretation, this study offers in depth insight into how ICT contributes to decision making speed and accuracy in contemporary digital business ecosystems.

RESULTS AND DISCUSSION

Definition of Information and Communication Technologies (ICT)

The findings of this study indicate that Information and Communication Technology (ICT) plays a central role in shaping organizational performance, especially in environments where competition and decision making must occur rapidly. In the modern era, information has become one of the most

valuable organizational resources, functioning not only as a medium of communication but also as a strategic asset that influences decision making, planning, and innovation. Information today is no longer merely supportive but has become a critical component in determining organizational sustainability. The speed at which information is received, processed, and distributed significantly affects how businesses respond to challenges and opportunities in the digital era.(Guo et al., 2023)

The rapid advancement of ICT has transformed how individuals and organizations interact. Technology such as computers, mobile systems, cloud services, and digital networks accelerate the flow of information, enabling more complex tasks to be carried out in shorter periods. However, one of the crucial findings of the study is the imbalance between technological growth and human resource readiness.(Shukla, 2024) Although technology has progressed rapidly, many individuals and organizations are still lagging in digital literacy and adaptation, making the effective utilization of ICT uneven across sectors. This gap highlights the importance of synergy between technological tools and human competency.(Rasekh & Bavil, 2024)

From an organizational perspective, information functions as the bloodstream that supports the overall system. Raw data must be processed into structured information that can guide managerial actions. ICT provides the tools for this transformation. Turban explains that ICT consists of all integrated resources hardware, software, data, users, and managerial systems that support data processing, storage, transmission, and presentation. These elements collectively help organizations produce high quality information that becomes the basis of decision making. Another important definition comes from McLeod, who views ICT as a tool used by managers to respond to changes. This aligns with the study's findings: ICT does not merely automate tasks but actively shapes how decisions are made by providing access to processed information that reflects real time conditions. Meanwhile, Aksoy and Denardis emphasize the technical dimension of ICT, defining it as a system of hardware and software that captures, stores, processes, and transmits data using electrical and electromagnetic energy. This definition reinforces the idea that ICT is foundational in enabling modern information flows.

Furthermore, the findings highlight several dimensions of ICT, as stated by Nurul, including hardware, software, databases, wired and wireless networks, and human users. These components must work together to support the efficiency of organizational processes. Technology by itself is incomplete without capable users, and vice versa. This confirms that ICT is a socio technical system in which human and technological components mutually reinforce one another.(Burns et al., 2023)

Several key functions of ICT were also found to be relevant to modern organizational practices. First, ICT replaces certain human roles in data management, transforming inputs into outputs more quickly and accurately.

Second, ICT supports information availability, ensuring that decision makers receive timely and relevant data. Third, ICT restructures human roles by enabling more analytical and strategic tasks, reducing the burden of repetitive or administrative work.(Ebrahimian et al., 2023)

These findings collectively confirm that ICT is not simply a tool but a transformative force that defines organizational workflows. It shapes how information is created, shared, interpreted, and ultimately used to support decision making. In the digital era, ICT has become indispensable in ensuring speed, accuracy, and reliability across all processes.

Implementation of ICT in the Digital Business Environment

The second major finding of this study highlights the significant and direct impact of ICT on strategic decision-making processes within digital business environments. Traditionally, strategic decisions relied heavily on intuition, personal experience, and manual data interpretation. However, the rapid development of digital technologies has transformed this approach into one that is faster, more structured, and data-driven. The integration of ICT enables organizations to access real-time information, monitor ongoing operations, and analyze complex data sets with greater precision. As a result, decisions can be made more quickly and supported by accurate, evidence-based insights rather than assumptions. This shift enhances the overall quality and reliability of decisions, reducing strategic risks while allowing leaders to respond more effectively to market dynamics. Ultimately, ICT not only accelerates the decision-making process but also strengthens organizational adaptability and competitiveness in an increasingly digital and highly competitive business landscape. (Sele & Chugunova, 2024)

1. Transformation of Decision Making Through Data Driven Approaches
   The study shows that one of the primary impacts of ICT is the rise of data driven decision making. Big data analytics, artificial intelligence (AI), and machine learning allow managers to analyze patterns, predict trends, and evaluate risks with greater precision. Instead of depending solely on subjective judgment, decision makers now rely on objective, quantifiable data. For instance, companies using predictive analytics can forecast consumer demand, optimize inventory, and adjust marketing strategies more effectively. This technological capability leads to decisions that are faster, more informed, and more aligned with dynamic market conditions. ICT thus bridges the gap between data availability and strategic action, ensuring that information is utilized optimally.(Kanvaria & Yadav, 2024)
2. Enhancement of Decision Speed and Accuracy
   The study also finds that ICT significantly speeds up the decision making cycle. Traditional processes, which required manual data collection and reporting, have been replaced by automated systems such as Management Information Systems (MIS), Executive Information Systems (EIS), and AI powered dashboards. These systems provide instant updates on organizational performance, enabling managers to quickly detect

problems, explore solutions, and implement corrective measures. Accuracy also improves. Automated systems minimize human error, reduce data inconsistencies, and ensure that information is presented in a structured and analytical format. This reliability is crucial, especially when organizations must respond to emerging threats or opportunities within minutes or hours.

3. Strengthening Collaboration and Distributed Decision Making
   The study reveals that ICT not only accelerates individual decision making but also enhances collective decision making. Digital communication tools such as Slack, Microsoft Teams, Zoom, and Google Workspace facilitate instant collaboration across departments and geographical boundaries. This capability is particularly important for large organizations with distributed teams. Collaboration platforms allow decision makers to share documents, analyze data together, and communicate in real time. This reduces delays caused by miscommunication and allows decisions to be made more quickly and collaboratively. ICT therefore fosters an organizational culture where decisions are informed by diverse input and are implemented more efficiently.(Zein et al., 2025)
4. Automation and Process Efficiency
   Another key finding is the role of ICT in automating routine tasks. Automation reduces the time required to gather and process information, allowing managers to focus more on strategic analysis rather than administrative activities. Process automation also enhances efficiency, reduces processing time, and eliminates the possibility of human oversight.
5. Improved Information Accessibility
   ICT ensures that relevant information is easily and centrally accessible. Advanced databases, cloud storage, and document management systems allow employees to retrieve data quickly. This eliminates delays caused by information silos and ensures that decisions are based on the latest and most accurate data available.(Aslam et al., 2024)
6. Strengthening Organizational Competitiveness
   According to Basry & Sari, ICT strengthens competitiveness by improving communication with both suppliers and consumers. The study confirms this finding: ICT shortens response time to customer needs, enhances supply chain efficiency, and improves overall business agility. Faster and more accurate decision making contributes to stronger market positioning and higher organizational resilience.(Wang et al., 2025)

Overall Findings and Interpretation

The results of this study clearly demonstrate that Information and Communication Technology (ICT) plays a crucial and transformative role in shaping the speed, accuracy, and overall quality of decision making within digital business environments. Organizations that actively adopt and integrate ICT into their operational systems are proven to be more responsive to rapid market shifts, enabling them to anticipate customer needs, adapt business

strategies, and maintain competitiveness in a constantly evolving landscape. ICT allows companies to optimize their use of resources whether human, financial, or technological through systems that support precise monitoring, efficient workflow management, and data-driven planning.

Furthermore, the integration of advanced technologies such as artificial intelligence, big data analytics, cloud computing, and modern digital communication platforms elevates the decision-making process into one that is far more dynamic, real time, and collaborative. Artificial intelligence enhances analytical capabilities by identifying patterns and providing predictive insights that humans may overlook. Big data enables businesses to process massive volumes of information quickly, turning raw data into meaningful knowledge. Cloud computing ensures accessibility, flexibility, and scalability, allowing decision makers to obtain critical information anytime and anywhere without being limited by physical infrastructure. Digital communication tools, meanwhile, facilitate smoother coordination across teams, departments, and even global offices, ensuring that decisions are made based on shared information and unified perspectives.

Importantly, the study also underscores that ICT does not merely speed up decision making it improves its accuracy and reduces the likelihood of errors by minimizing reliance on manual processes. Decisions supported by real-time data, automated systems, and predictive models tend to be more reliable and strategic. Overall, ICT serves as a foundational pillar that enables organizations to operate with greater confidence, efficiency, and agility. In an era defined by rapid digital transformation, the ability to leverage ICT effectively becomes not just an advantage but a necessity for sustainable organizational growth. (Ghaemi Asl et al., 2024)

In conclusion, Information and Communication Technology (ICT) is not merely a supportive tool but a strategic driver that fundamentally reshapes organizational thinking, working patterns, and operational models. The findings of this study emphasize that organizations capable of integrating ICT effectively are better prepared to navigate the challenges of a rapidly changing digital environment. ICT enables faster decision cycles by providing real-time access to relevant information, reducing delays, and minimizing dependence on manual processes. As a result, decision makers can act more confidently and responsively when addressing emerging opportunities or risks.

Moreover, ICT contributes significantly to the accuracy and reliability of decisions. Through the use of analytical technologies such as big data, artificial intelligence, and cloud-based systems, organizations gain deeper insights that help them predict trends, evaluate performance, and design strategies with greater precision. These technological advancements also enhance internal collaboration, allowing teams to share information seamlessly and coordinate decisions across multiple departments or business units. Overall, ICT strengthens organizational competitiveness by enabling continuous

innovation, operational efficiency, and adaptability. In the digital era, the ability to leverage ICT effectively is no longer optional it has become an essential prerequisite for organizations seeking long-term sustainability and success. (Nisa Aldira Lubis et al., 2024)

CONCLUSION

This study highlights that the implementation of a mobile based management information system plays a significant role in improving employee productivity and supporting organizational effectiveness. The findings show that digital transformation is no longer merely an option but a necessity for companies that wish to remain competitive in a rapidly evolving business environment. Through the integration of mobile technology, employees can access information more quickly, carry out tasks more efficiently, and communicate more seamlessly across departments. These improvements not only enhance individual performance but also contribute to better coordination and decision making at the organizational level. Additionally, the study emphasizes that the success of mobile based systems relies on users' adaptability, organizational readiness, and continuous evaluation of the system's effectiveness. Therefore, companies must ensure proper training, user support, and regular updates to maximize the benefits of technological implementation. Overall, mobile based management information systems provide a practical and transformative pathway for organizations to achieve higher productivity, better accuracy, and improved operational performance in the digital era.

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