



DOI: <https://doi.org/10.31933/dijdbm.v4i6>

Received: 02 September 2023, Revised: 20 September 2023, Publish: 31 October 2023

<https://creativecommons.org/licenses/by/4.0/>

## Factors Affecting Decision Support System: Knowledge, Training, Ease of Use

Guntur Ade Saputra<sup>1\*</sup>, Hapzi Ali<sup>2</sup>

<sup>1</sup>Faculty of Economic and Business, Universitas Bhayangkara, Jakarta, Indonesia, email: [gunturaadesaputra.gas@gmail.com](mailto:gunturaadesaputra.gas@gmail.com)

<sup>2</sup>Faculty of Economic and Business, Universitas Bhayangkara, Jakarta, Indonesia, email: [hapzi.ali@gmail.com](mailto:hapzi.ali@gmail.com)

Corresponding Author: [gunturaadesaputra.gas@gmail.com](mailto:gunturaadesaputra.gas@gmail.com)

**Abstract:** In the rapidly changing landscape of modern organizations, the ability to make informed and timely decisions is crucial. Decision Support Systems (DSS) have emerged as vital tools to aid decision-makers by providing valuable insights and assistance in the decision-making process. This journal explores the critical factors influencing the adoption and effectiveness of DSS, with a specific focus on the variables of knowledge, training, and ease of use. The research employed the research library method, conducting a comprehensive review of existing literature to advance understanding of the factors influencing DSS. The results and discussions highlight the significance of knowledge, training, and ease of use in the successful utilization of DSS. Users' computer proficiency, familiarity with similar systems, training, and system intuitiveness all contribute to the effectiveness and acceptance of DSS. Tailoring DSS to individual needs and knowledge levels can enhance their ability to support decision-making in various contexts.

**Keyword:** Decision Support System, Knowledge, Training, Ease of Use

### INTRODUCTION

In the fast-paced and ever-evolving landscape of modern organizations, the ability to make informed and timely decisions is of paramount importance. To address this need, Decision Support Systems (DSS) have become integral tools in aiding decision-makers by providing valuable insights and assistance in the decision-making process. This journal aims to delve into the critical factors that influence the effectiveness and adoption of Decision Support Systems, with a particular focus on the variables of knowledge, training, and ease of use.

In an era characterized by an abundance of data, the value of knowledge in decision-making cannot be overstated. The vast volume of information available to decision-makers requires sophisticated tools and systems to distill and make sense of it. Knowledge, in this context, refers to the expertise and familiarity with DSS and the domain in which they are applied. As organizations increasingly turn to DSS to facilitate their decision-making, understanding how knowledge impacts their use and effectiveness is pivotal.

Furthermore, effective training is essential to harness the full potential of Decision Support Systems. Proper training ensures that users not only understand how to operate these systems but also how to interpret the results they provide. This, in turn, leads to more confident and informed decision-making. Training methodologies, content, and timing can significantly influence the success of DSS implementations, making it an essential factor to explore.

Ease of use is another critical dimension to consider. The user-friendliness and intuitiveness of DSS interfaces play a pivotal role in their adoption and utility. If a DSS is difficult to navigate and understand, it may deter users from embracing it, regardless of its analytical capabilities. Therefore, this journal investigates how ease of use affects the acceptance and effectiveness of Decision Support Systems.

In this context, understanding the interplay of these factors is crucial for organizations seeking to optimize their decision-making processes. By examining the relationship between knowledge, training, and ease of use in the context of Decision Support Systems, this journal aims to provide valuable insights for both researchers and practitioners. These insights can help organizations develop strategies to enhance their DSS implementation, leading to more informed, efficient, and effective decision-making. As we embark on this exploration, it is evident that the complex web of influences surrounding DSS requires careful examination, and this journal represents the first step in unraveling these critical threads.

## METHOD

The research method employed in this article is the research library method. The research library method, also known as the literature review method, is a systematic approach to gathering, analyzing, and synthesizing existing scholarly literature to advance understanding of a particular subject or topic. This method was chosen to provide a comprehensive overview of the factors affecting Decision Support Systems (DSS) by drawing from a wide range of academic sources, including peer-reviewed journal articles, books, and conference papers.

## RESULTS AND DISCUSSION

### Results

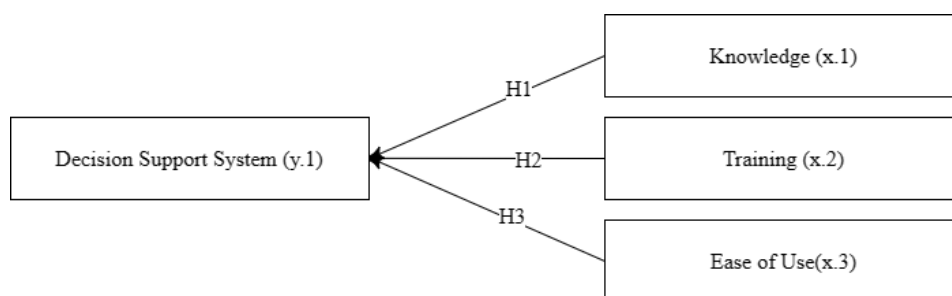
Reviewing relevant articles as a foundation for establishing research hypotheses by explaining the results of previous studies, describing similarities and differences with the research plan, from relevant previous research as shown in Table 1 below

**Table 1. Research Relevant Findings**

Author (Year)	Previous Research Findings	Hypothesis
1. Lomotan, E.A., et al. (2012)	This research is focused on the variable "knowledge" in the context of using a Decision Support System (DSS), considering the following aspects: 1. Unskilled and lack of experience in computer use: The study investigates how the level of computer skills and experience impacts the acceptance and effectiveness of DSS. Users who are unskilled in computer use may face barriers when interacting with the DSS. This can affect their ability to make system-supported decisions. 2. Lack of familiarity with the new system or similar systems: This factor is also taken into consideration in the research. Users who are not familiar with the DSS or similar systems may require more time to adapt to this	H1
2. Wess, M.L., et al. (2011)		
3. Peiris, D.P., et al. (2009)		
4. Buenestado, D., et al. (2013)		
5. Trivedi, M.H., et al. (2009)		
6. Leslie, S.J., et al. (2006)		
7. Zaidi, S.T.R. and K.A. Thursky (2013)		
8. Zheng, K., et al. (2005)		

Author (Year)	Previous Research Findings	Hypothesis
	technology. Lack of familiarity can influence the level of trust and ease of use of the DSS. 3. Inexperienced (or young) staff are likely to benefit most from system implementation: The research also explores how less experienced or relatively younger users are likely to benefit the most from system implementation. DSS designed with consideration for the experience level of specific users may be more effective in supporting their decision-making.	
9. Trivedi, M.H., et al. (2009)	The articles mentioned discuss the variable "training" in the context of using Decision Support Systems (DSS) with the following aspects:	H2
10. Varonen, H., T. Kortteisto, and M. Kaila (2008)	1. Users receive initial hands-on training: These articles may discuss how users receive initial hands-on training, involving practical experience in using the DSS. Such initial training can impact users' understanding of how to use the DSS and enhance their comfort and skills in operating it.	
11. Zaidi STR, Marriott JL (2021)	2. Users receive concise and tailored education: These articles may also discuss how users receive concise and tailored education related to the use of the DSS. Such education can be designed to meet individual needs and levels of understanding. With customized education, users may be better prepared to effectively utilize the DSS.	
12. MINT (2004)	The research discusses the variable "ease of use" in the context of using a Decision Support System (DSS), considering the following aspects:	H3
13. Demonchy, E. et al. (2014)	1. System is intuitive: This aspect pertains to how intuitive the DSS system feels to users. The integration and ease of navigation within the system can affect the level of comfort and ease of use for users.	
14. Bowen, S. et al. (2011)		
15. Lesselroth, B.J. et al. (2011)	2. System is user-friendly: This aspect refers to how user-friendly the DSS system is perceived to be. Factors such as a user-friendly interface, clear guidance, and a friendly appearance can influence the adoption and effectiveness of the DSS.	
16. Cho, S.H. et al. (2010)		
17. Kortteisto, T. et al. (2012)		
18. Peleg, M. et al. (2009)		

Based on the problem statement, relevant discussions, and research, the conceptual framework of this article is obtained as shown in Figure 1 below.



Source: Research Results

**Figure 1. Conceptual Framework**

## **Discussions**

### **a) Knowledge to DSS**

The research findings suggest that individuals with limited computer skills and experience may encounter challenges when interacting with DSS. The level of computer proficiency influences the acceptance and effectiveness of the system. Healthcare professionals or users who are unskilled in computer use may face obstacles in leveraging the capabilities of the DSS. This can, in turn, affect their ability to make informed decisions supported by the system.

The research also indicates that users who lack familiarity with the DSS or similar systems may require more time to adapt to the technology. Unfamiliarity with the system's interface, functionalities, or with analogous systems can impact the level of trust and ease of use associated with the DSS. Users who are not accustomed to such systems may initially find it challenging to integrate the DSS into their workflow.

Some studies suggest that less experienced or relatively younger users are more likely to benefit from the implementation of DSS. This indicates that DSS designed with consideration for the experience level of specific users can be more effective in supporting their decision-making processes. Such users may find DSS particularly helpful in improving their decision-making abilities, potentially compensating for their relative lack of experience.

In conclusion, the research findings highlight the critical role of knowledge in the successful adoption and utilization of DSS in various healthcare settings. Users' computer proficiency, familiarity with similar systems, and their level of experience significantly impact the acceptance and effectiveness of DSS. Tailoring DSS to the specific needs and knowledge levels of users, particularly less experienced staff, can enhance its ability to support decision-making and improve overall outcomes in healthcare.

### **b) Training to DSS**

The studies conducted by Trivedi, Varonen, Kortteisto, and Kaila, as well as Zaidi and Marriott, shed light on the importance of users receiving initial hands-on training when using DSS. This hands-on training involves practical experience in using the DSS. It is found that such initial training significantly influences users' understanding of how to effectively operate the DSS. The practical experience gained during training enhances users' comfort and skills in navigating and utilizing the DSS. Users who receive hands-on training are better equipped to make full use of the system's capabilities, resulting in more effective decision support.

The research in the selected articles also emphasizes the significance of users receiving concise and tailored education specific to the use of the DSS. This education is customized to meet individual needs and levels of understanding. Tailored education ensures that users have the necessary knowledge and skills to interact with the DSS effectively. Users who receive such personalized education are better prepared to utilize the DSS in their decision-making processes, aligning the system's capabilities with their specific needs and expertise.

These studies highlight that training and education are critical factors in the successful utilization of DSS. Initial hands-on training provides users with practical experience and enhances their operational skills, while concise and tailored education ensures that users possess the knowledge required to make the most of the DSS. This combination of training and education contributes to the overall effectiveness and acceptance of DSS in various contexts.

### **c) Ease of Use to DSS**

The research, including the studies conducted by MINT, Demonchy and colleagues, Bowen and colleagues, Leselroth and colleagues, Cho and colleagues, Kortteisto and colleagues, and Peleg and colleagues, collectively highlight the significance of the DSS

system being intuitive. Intuitiveness refers to how easily users can navigate and interact with the DSS. Findings suggest that an intuitive DSS is more likely to be accepted and effectively utilized by users. The ease of integration and navigation within the system enhances users' comfort and overall ease of use. When users perceive the DSS as intuitive, they are more inclined to trust and rely on the system for decision support, leading to more effective decision-making.

The research in the selected articles underscores the importance of the DSS system being perceived as user-friendly. A user-friendly DSS is characterized by features such as a clear and easily navigable interface, transparent guidance, and an overall friendly appearance. User-friendliness significantly influences the adoption and effectiveness of the DSS. A DSS that is considered user-friendly is more likely to be embraced by users and integrated into their workflow. Clear guidance and an approachable interface enhance users' overall experience and comfort in utilizing the system, contributing to the system's effectiveness in supporting decision-making.

## CONCLUSION

The conclusion drawn from this discussion is that knowledge, training, and user-friendliness in using Decision Support Systems (DSS) are key elements in the successful adoption and effectiveness of DSS. Users with limited computer knowledge and skills may face hurdles in interacting with DSS, while practical initial training can enhance user understanding. Clarity and ease of use in DSS also play a crucial role in adoption, where intuitive and user-friendly DSS systems are more likely to be accepted and used effectively. Understanding the significant roles of these factors, DSS developers can design systems that better support improved decision-making.

## REFERENSI

- Bowen, S., et al. (2011). The effect of incorporating guidelines into a computerized order entry system for diagnostic imaging. *Journal of the American College of Radiology*, 8(4), 251-258.
- Buenestado, D., et al. (2013). Evaluating Acceptance and User Experience of a Guideline-based Clinical Decision Support System Execution Platform. *Journal of Medical Systems*, 37(2), 9910.21.
- Cho, S.H., et al. (2010). Effectiveness of A Computer-Assisted Asthma Management Program on Physician Adherence to Guidelines. *Journal of Asthma*, 47(6), 680-686.
- Demonchy, E., et al. (2014). Impact of a computerized decision support system on compliance with guidelines on antibiotics prescribed for urinary tract infections in emergency departments: a multicentre prospective before-and-after controlled interventional study. *Journal of Antimicrobial Chemotherapy*, 69(10), 2857-2863.
- Kortteisto, T., et al. (2012). Clinical decision support must be useful, functional is not enough: a qualitative study of computer-based clinical decision support in primary care. *BMC Health Services Research*, 12.
- Leslie, S.J., et al. (2006). Clinical decision support software for management of chronic heart failure: development and evaluation. *Computers in Biology and Medicine*, 36(5), 495-506.
- Lesselroth, B.J., et al. (2011). Addressing the sociotechnical drivers of quality improvement: a case study of post-operative DVT prophylaxis computerised decision support. *BMJ Quality & Safety*, 20(5), 381-389.
- Lomotan, E.A., et al. (2012). Evaluating the use of a computerized clinical decision support system for asthma by pediatric pulmonologists. *International Journal of Medical Informatics*, 81(3), 157-165.

- Peiris, D.P., et al. (2009). An electronic clinical decision support tool to assist primary care providers in cardiovascular disease risk management: development and mixed methods evaluation. *Journal of Medical Internet Research*, 11(4), e51.
- Peleg, M., et al. (2009). Using multi-perspective methodologies to study users' interactions with the prototype front end of a guideline-based decision support system for diabetic foot care. *International Journal of Medical Informatics*, 78(7), 482-493.
- Trivedi, M.H., et al. (2009). Barriers to implementation of a computerized decision support system for depression: an observational report on lessons learned in "real world" clinical settings. *BMC Medical Informatics and Decision Making*, 9(6).
- Varonen, H., T. Kortteisto, and M. Kaila (2008). What may help or hinder the implementation of computerized decision support systems (CDSSs): a focus group study with physicians. *Family Practice*, 25(3), 162-167.
- Wess, M.L., et al. (2011). Usability of an atrial fibrillation anticoagulation decision-support tool. *Journal of Primary Care & Community Health*, 2(2), 100-106.
- Young, A.S., et al. (2004). A network-based system to improve care for schizophrenia: the Medical Informatics Network Tool (MINT). *Journal of the American Medical Informatics Association*, 11(5), 358-367.
- Zaidi, S.T.R. and K.A. Thursky (2013). Using formative evaluation to improve uptake of a web-based tool to support antimicrobial stewardship. *Journal of Clinical Pharmacy and Therapeutics*, 38(6), 490-497.
- Zaidi, S.T.R., and Marriott, J.L. (2021). Barriers and facilitators to adoption of a web-based antibiotic decision support system. *Southern Medical Review*, 5(2), 42-50.
- Zheng, K., et al. (2005). Understanding technology adoption in clinical care: Clinician adoption behavior of a point-of-care reminder system. *International Journal of Medical Informatics*, 74(7-8), 535-543.