A Systematic Literature Review: Critical Success Factor of Collaboration Working Tools

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Abstract

This research discusses the collaboration tool system that can be used for work from home activities. The form of this collaboration tool can be in the form of software or applications. This study aims to collect and analyze data about collaboration tools, as well as find out the usefulness of collaboration tools. This research is using the Systematic Literature Review method because this method is very useful for explaining the topic in detail. This collaboration tool is also flexible because it can be used effectively and efficiently anywhere. Therefore, this research was applied to find out the answers to the effect of the collaboration tools. Based on the analysis that has been done, the result is that this collaboration tool can support work from home activities. This research is also conducted to help workers and individuals to determine suitable collaboration tools to assist them in their task or organization.
*Keywords— **Collaborative Working Tool, Work From Home, Systematic Literature Review.***

1 Introduction

Nowadays many people needed a tool that can help them to communicate easily without needed to meet each other. Because of this phenomenon, research on these collaboration tools was made to help solve this problem. This research will explain about critical success factor for a collaborative working

tool so with this research people can know what is the suitable tools that can help them communicate easily. Communication can be said to be effective when the message recipients can understand the information provided (Takari., 2019). Collaboration tools are very effective when used by workers. This is because there are many workers in a company that find it difficult to interact with other workers directly, as a result, there are many misunderstandings. By using collaboration tools, workers can get to know each other, both from the same division and from different divisions (Fearn, N., McCaskill, S., & Turner, B., 2020).

Based on the facts that have been presented, this research is important so that it can help provide information and knowledge to companies about the effectiveness of using collaboration tools. This research is also intended to provide understanding to companies, both to those who have implemented collaboration tools, and those who have not implemented collaboration tools, to be able to determine the appropriate collaboration tools for the company. Companies that use collaboration tools are proven to improve the productivity of workers in work without having to meet or be in the same place. This research is also expected to support innovation and creativity from developers to develop more effective collaboration tools by knowing the disadvantages and advantages of collaboration tools that exist today (Fearn, N., McCaskill, S., & Turner, B., 2020).

Based on the background that has been written, the formulation of the problem is: Determining the advantages and disadvantages of collaboration devices, identifying the usefulness of collaboration devices, and the deciding factor of the success of collaboration devices. Research from this paper aims to analyze the advantages and disadvantages of collaboration tools that can help companies determine the collaboration tools that suit the company's needs, collect, and analyze data on collaboration devices, find out the usefulness of collaboration devices, and analyze the determining factors of collaboration device success by collecting data from the performance of workers to decide whether it is more effective using these collaboration tools. It is hoped that research using the literature system method can be useful over a long period, due to the many benefits. Some examples are:

o   Improve insight and also understanding of factors related to collaboration tools and also know critical success factors.

o   Provide knowledge or data to developers to develop better collaboration tools for the future.

o   This research is expected to help the industry in determining and selecting what collaboration devices are suitable and appropriate for the needs of the company.

2   Methodology

This study uses the SLR approach proposed by McCombes, S. (2019). This approach is divided into several parts, namely: defining research questions that explain the introduction of determining research sources, completing the search process using keywords, extracting data, and analyzing findings to answer research questions.

2.1   Search Process

This method will explain in detail how the collection of data through references from journals, books, and websites will be used as a sample for the discussion in chapter 4. While keywords are used to find a paper that is related to the research topic. The use of these keywords can be activated by adding boolean operators such as: AND, OR, NOT. Every source mentioned above has its keywords. The keywords used are as follows:

•   ((('critical' OR 'success' OR 'factor')) AND (('collaborative' AND 'working' AND 'tool')

- (('critical' OR 'success' OR 'factor') OR 'csf') AND (('collaborative' AND 'tool')

- (('critical' OR 'success' OR 'factor') OR 'csf') AND (('collaboration' AND 'tool')

- (('critical' OR 'success' OR 'factor')) AND (('collaboration' AND 'working' AND 'tool')

Hence, finding the relevant paper requires keywords such as: 'critical success factor', 'CSF', 'collaborative working tool', 'collaborative tool', 'collaboration tool, 'collaboration working tool'. The use of the keywords written above has helped with the search for relevant papers. The use of sources such as IEEE, Springer Link, Wiley Online Library, Science Direct, Emerald Insight, and Taylor & Francis Online is because these sources have a large database that contains data from various countries enabling us to obtain data from credible experts that have done their research on it.

2.2 Inclusion and exclusion criteria

In this research, there are inclusion and exclusion criteria that function as a benchmark so that the data or sample that have been collected do not deviate from the intended result of this research. The inclusion and exclusion criteria in this research are as follows:
• The data will explain the factors of the success of the collaboration software. The data being used were chosen based on factors that support the success of collaboration tools and explain in detail the factors that contribute to success.
• Data being used are from 2010-2019. Data are taken from 2010-2019 because in that timeframe between 2010 to 2019 many people have done reviews related to this topic resulting in more accurate data.
• Data being used is only related to collaboration software because, with data that is only strictly related to collaboration software, we can quickly get the appropriate result based on the topic being discussed.

2.3 Extraction

The extraction table will contain data related to communication, the internet, critical success factor, collaboration, information and communication technology, collaboration software, and systematic literature review of those data is going to be used as a sample for the discussion. The Data was obtained from online libraries or official websites such as IEEE, Wiley Online Library, Science Direct, Emerald Insight, Springer Link, and Taylor & Francis Online. Moreover, those data are from the timeframe 2010-2019 so the data that was collected is more accurate because more experts have done reviews regarding the topic of discussion.

3   Results & Discussion

This section will explain the result and discussions from a survey regarding the critical success factor for collaborative working tools
3.1 Demographics and Trend Characteristics
This section will explain the result of a survey regarding the critical success factor for collaborative working tools. This can be seen and also described in the form of a table containing publication sources, author mapping based on scientific articles, mapping of institutions based on scientific articles, mapping of author academic background, publication trends, author's background, university affiliation by country, categories of research objects, and size.

3.2 Mapping result based on literature studies.

This section will describe and map all the points that affect collaborative tools. This can be described using tables, pie charts, and triangle diagrams. The resulting data can be seen from a table that contains the numbers from the paper and their effects on people, process, and technology. Also, the level of influence can be seen from the pie chart that has been mapped based on the points in the journal or paper. Other influences can also be seen from the triangle diagram which has been drawn and adjusted according to its effects on people, process, and technology.

Below is a list of CSFs and its explanation:

• Project Management

Planning, organizing, leading, and controlling company resources to achieve predetermined short-term goals (Kerzner, H.R., 2013) Project Management is needed in collaboration tools to control company resources efficiently.

• System Integration

System integration refers to the integration of components, elements or subsystems, or human interactions to realize a planned system (Walden, D.D; Roedler, G.J; Forsberg, K.J; Hamelin, R.D; Shortell, T.M., 2015). The integration system is intended to combine various subsystems into a single system that can be related to one another so that it can be used in collaboration tools in which there are various kinds of systems that are combined into one unit.

• Communication

Communication refers to actions, by one or more people, that send and receive messages that are distorted by interference (noise), occur in a certain context, have a certain effect, and there is an opportunity for feedback (Devito, Joseph A., 2011). In the collaboration tool, there is communication between systems or humans so that the collaboration tool can run.

• Networking System

Networking system is a method of exchanging information or ideas between people with the same profession or special interest, usually in an informal social environment. Networks are used by professionals to expand their circle of acquaintances, to find out about job opportunities in their field, and to increase their awareness of news and trends in their field or the larger world (Kagan, Julia, 2020)

• Education Activities

Learning activities can be included by providing knowledge or information that exists over a long period and can make performance activities effective. Learning activities that are selected by the user in the learning process can provide facilities for the user towards achieving certain predetermined learning goals (Sumarno, A., 2011)

• Management Systems

A framework of processes and procedures used to ensure whether a company or organization can meet standards and carry out its duties to achieve organizational goals. This makes the management system responsible for managing several clients who work together to carry out a certain function, in this case controlling customer activity, management sessions, and workspaces (Rubin, C. B., 2019)

• Institution and Service Quality

Service quality will greatly affect customer satisfaction. Service quality in e-learning is defined as the overall support provided by the e-learning system to users who use the system. Based on several definitions of service quality expressed by some of these experts, it can be concluded that service quality is the extent to which the level of service provided can meet the customer needs ranging from ordering, processing to providing service results through communication to accelerate cooperation with consumers (Harrin, E., 2016)

• Technology Selection

Technology selection is needed to find out what technology is suitable for use in collaboration tools so that the collaboration tools used can run well (Rocha, A., 2020)

• System Acceptance and Usage

Acceptance and use of the system by users are necessary to ensure the system is operated properly. System acceptance will occur if the user is convinced of the performance and reliability of the system, which has gone through a process that is by the testing phase (Gahlawat, N., 2017)
• User Training
Complete training must be delivered to all parties, including programs, Mechanisms, and materials. Use of training (instructions) is delivered completely and thoroughly to all system users. Training is carried out to make it easier to solve problems and also as an operational team development (Garcia, W.L., 2012)
• Monitoring and Measurement of Performance
The process by which the organization monitors important aspects such as programs, systems, and processes for its maintenance. Data is collected to reflect how the process works, and that information is used to drive organizational decisions over time. This is necessary so that the company can integrate the system properly (Madjoski, Dejan., 2011)
• Top Management commitment, support, and involvement
Defined as the person or group of people who direct and control the organization at the highest level. Top management involvement and support greatly affect performance in the organization so that it can improve the quality of relationships in an organization that uses it (Nektarios, T, 2014).
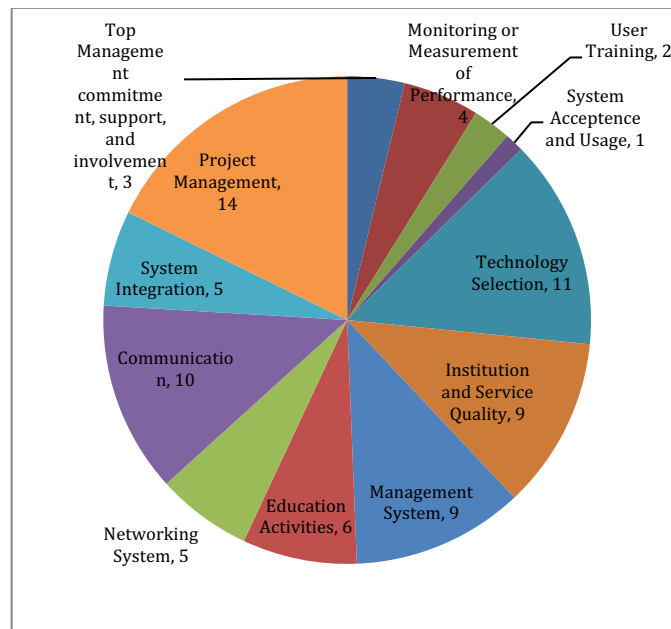

Figure 1. Collaboration tools based on literacy frequency analysis.

12 points are starting from project management with the value of 14, system integration with the value of 5, communication with the value of 10, networking system with the value of 5, education activities with the value of 6, system management with a value of 9, institution and service quality with the value of 9, technology selection with the value of 11, system acceptance and usage with the value of 1, user training with the value of 2, monitoring or measurement of performance with the value of 4, top management, commitment, support and involvement with the value of.
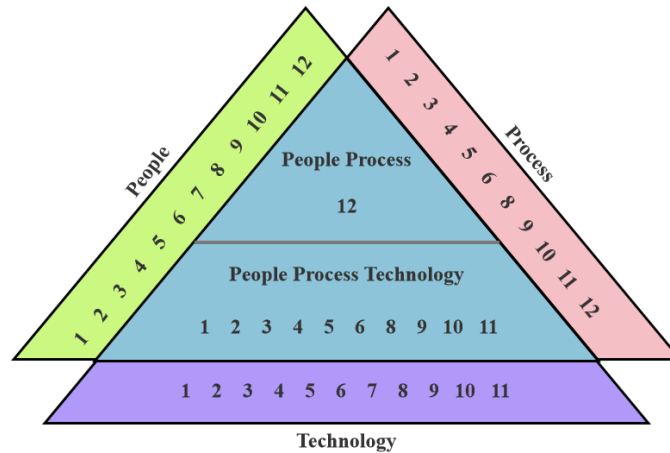
Figure 2 Mapping Based on the Approach to People, Process and Technology

The diagram above explains the effect of collaboration tools on people, processes, and technology that exists in journals and is mapped as follows. Points that affect people are numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. Points that affect the process are numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. Points that affect technology are numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. Whereas points that affect people and processes are number 12, and points that affect people, process, and technology number 1, 2, 3, 4, 5, 6, 8, 9, 10, 11.

Based on the research above, 12 factors determine the success of a collaboration tool, which are as follows: *project management* with 14 journals, *technology selection* with 11 journals, *communication* with 10 journals, *management system* with 9 journals, *institution and service quality* with 9 journals, *education activities* with 6 journals, *system integration* with 5 journals, *networking system* with 5 journals, *monitoring or measurement of performance* with 4 journals, *top management commitment, support, and involvement* with 3 journals, *user training* with 2 journals, dan *system acceptance and usage* with 1 journal.

This result is obtained by correlating with one another like project management. Project management is the factor that decides the success of a collaboration tool. With project management, we can determine the effectiveness of a collaboration tool. Through project management that becomes the deciding factor for the success of a collaboration tool, we can find out if a collaboration tool can help accomplish tasks in an organization or for an individual (Moen, Anne, Morch, Anders, Paavola, Sami., 2012). Supporting factors, like project management, can help determine the deciding factor for a successful collaboration tool. This can be seen based on the diagram above, where it shows the effect on people, process, and technology with the number of journals for people amounts to 12, process amounts to 11 and technology amounts to 11. Journal that affects people, process, amounts to 1, Journal that affects people, process, dan technology amounts to 10.

4 Conclusion

The use of collaboration tools today is needed by every person or organization in carrying out their duties. Collaboration tools are not only often used by office workers, but individuals who run businesses also cannot escape the use of collaboration tools (Reed., 2017). This study describes the success factors of collaboration tools that are being used to do and complete work from home. From the research results, there are several critical success factors in collaboration tools, namely, project

management, integration, and communication systems. Project management contains materials that plan, organize, lead, and control company resources to achieve certain goals. In this case, it is to know the success of the collaboration tool. This can be seen from users who provide ratings and comments on the collaboration tools they use. Another thing that refers to the success of collaboration tools is the integration system which contains systems that refer to the integration of components, elements, subsystems, or human interaction to create a system that has been planned so that the intended use of collaboration tools can be maximally achieved (Sachowski., 2018). Another thing that also influences the success factors of collaboration tools is communication. The communication factor has a lot to do with collaboration tools. The existence of communication factor as a determinant of success can recognize the main goal in using collaboration tools, namely communication that can be done smoothly without having to meet face to face or be in the same place. Important features such as chat, picture sending, document sending, and voice/video calls are important factors in using collaboration tools (Skulimowski, A. M., Sheng, Z., Kallel, S. K., Cerin, C., & Hsu, C. H., 2017). The existence of critical success factors in collaboration tools makes collaboration tools more effective and efficient and helps many organizations and individuals to achieve their desired goals (Asmani., 2011).

This research is expected to provide knowledge for readers and can also be a reference for further research. Future research can be made more complete and wider. Through this research (Rouse, 2019), researchers hope to help increase readers' knowledge about the success factors of Collaboration Tools and increase the effectiveness of using these tools within an organization and for individuals (Lai, H. d., 2012). This research means to help people in organizations or individuals to make it easier to choose what collaborative working tools are suitable for them.

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References

Takari. (2019). Memahami Ilmu Komunikasi. Sumatera Utara: Research Gate.

Fearn, N., McCaskill, S., & Turner, B. (2020). Best online collaboration software of 2020. Paid and free tools for work-sharing and communication.

McCombes, S. (2019). How to write a literature review. South Africa: UCT Libraries.

Kerzner, H.R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling.

Walden, D.D; Roedler, G.J; Forsberg, K.J; Hamelin, R.D; Shortell, T.M. (2015). Systems engineering handbook: A guide for system life cycle processes and activities. Hoboken: International Council on Systems Engineering (INCOSE).

Devito, Joseph A. (2011). Communication Between Humans. Italy: Karisma Publishing Group.E.Thomas, Charles. (2010). Process, Technology, Equipment, and Systems. Canada: Delmar Cengage Learning.

Kagan, Julia. (2020). Networking.USA: Investopedia.

Sumarno, A. (2011). Utilization of ICT in the process of designing and implementing learning models. Malaysia: Research Gate.

Rubin, C. B. (2019). Emergency Management. The American Experience. USA: Routledge.

Harrin, E. (2016). Collaboration Tools for Project Managers: How to Choose, Get Started, and Collaborate with Technology. Surrey: Project Management Institute.

Rocha, A. (2020). Advances in Intelligent Systems and Computing. Colombia: Springer.

Gahlawat, N. (2017). The System Acceptance and Usage in Organizations. India: International Library of Research Inc.

Garcia, W.L. (2012). User training, Strategies, and Guidelines. Brazil: IEEE.

Madjoski, Dejan. (2011). The Right way of Monitor & Measure Performance Target. North Macedonia: Pivara Skopje.

Nektarios, T. (2014). Top management commitment and involvement and their link to key account management effectiveness. UK: Emerald Group Publishing Limited.

Moen, Anne, Morch, Anders, Paavola, Sami. (2012). Collaborative Knowledge Creation. Noss, Richard, London Knowledge Lab, IOE, UK.

Reed. (2017). What are Computer Networks and The Internet? New York: Britannica Educational Publishing.

Sachowski. (2018). Digital Forensics and Investigations People, Process, and Technologies to Defend the Enterprise. Boca Raton: Taylor and Francis Group.

Skulimowski, A. M., Sheng, Z., Kallel, S. K., Cerin, C., & Hsu, C. H. (2017). internet of Vechicle. Paris: Springer Nature Switzerland AG.

Asmani. (2011). Tips for Using Information and Communication Technology in Education. Malaysia: DIVA Press.

Rouse. (2019). Team Collaboration Tools. USA: https://searchunifiedcommunications.techtarget.com/definition/team-collaboration-tools.

Lai, H. d. (2012). Critical Success Factor Implementation. Semarang: Elsevier.