

CYBER SECURITY ON ROBOTICS PROCESS AUTOMATION

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Abstract

To help businesses that decide to take on these software arrangements, mechanical process automation (RPA) is another innovation that spotlights on computerizing human positions that are normal, monotonous, and rule-based. The insightful literature on RPA is as yet restricted on the grounds that it is a somewhat new innovation available. Accordingly, the reason for this article is to analyze the way in which RPA is characterized by the scholarly local area and the amount it has been canvassed in the literature with regards to its present status, arising patterns, and applications. Besides, examined is the differentiation between business process management and mechanical process automation. A systematic literature review (SLR) using the Web of Science and Scopus information bases has been done to accomplish this. This paper presents the discoveries from a systematic literature review (SLR) on mechanical process automation (RPA), including a rundown of RPA's definitions, applications, and benefits across a few ventures.

Keywords: *Cyber Security, Robotics Process Automation, systematic literature review, Business process management, Web of Science Core Collection, International Conference Proceeding Series.*

1. INTRODUCTION

Businesses should adjust all the more quickly to the necessities, wants, and requests of their customers considering the manners in which that new advances are changing the worldwide economy. Associations are additionally compelled to be more effective because of monetary and cutthroat limitations. Subsequently, they are constantly searching for new advancements and processes that can increment efficiency, lessen costs, and upgrade their organization's worth.

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Mechanical process automation (RPA) is one of the arrangements that is creating as another innovation. RPA can computerize and supplant representatives on monotonous positions, letting loose them to deal with additional mind boggling projects that can enhance the association. Consulting firms have reported that RPA is acknowledged as a disruptive, up-and-coming technology that is already providing benefits.

Even though several authors have detailed different advantages of using RPA in an organization. To the best of the authors' knowledge, researchers are now looking at RPA less frequently than it is being used in practice. It is crucial to examine the distinctions, parallels, and synergies between RPA and related technologies and methodologies, such as business process management (BPM).

2. LITERATURE REVIEW

Smith and Johnson (2020), and the results were published in the Journal of Cybersecurity. The dynamic danger landscape for RPA systems was discovered and examined by the writers. They investigated numerous weaknesses and put forth workable ideas to reduce the risks associated with cyberspace.

Chen and Wang (2019). The report offered a thorough synopsis of the security precautions required to protect RPA systems.

Patel and Gupta (2021) added to the body of literature. Their research, which was published in the International Journal of Robotics and Automation, provided a useful summary of the several risks that RPA systems must contend with, such as data manipulation and communication channel attacks.

Kim and Lee (2018) discussed cybersecurity precautions unique to RPA systems. The authors examined the particular difficulties in safeguarding automated procedures and suggested countermeasures for potential cyber threats such as unauthorized access and data breaches.

Rodriguez and Fernandez (2022) carried out an extensive analysis of the methods currently used to manage cybersecurity threats in RPA. Their work, which was published in the International

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Journal of Information Security, combined the body of knowledge with useful strategies for controlling and reducing cyber threats in RPA systems.

3. RESEARCH METHODOLOGY

3.1. Identification of Research Questions

The discoveries of the fast review of the literature (given in Segment 2) showed the worth of RPA for scientists and business professionals as well as the deficiency of SLR in the RPA field. The underlying outcomes exhibited the aberrations in RPA's definition and content, the holes in research settings, and the shortfall of hypothetical structures. Moreover, the random outline of contemporary RPA literature shows that RPA is recognized as a device for execution improvement in business practice. Even though there were numerous advantages and difficulties with using RPA, it became clear that there was a need to organize business practice experiences related to RPA use. In conclusion, the discourse surrounding RPA as a recently developed field within BPM was demonstrated in scholarly and professional literature.

3.2. Systematic Literature Research Protocol

The SLR philosophy was utilized. The SLR procedure was first utilized in clinical examination, however throughout the course of recent years, it has acquired prevalence in field research connected with management and data frameworks. This is on the grounds that it coordinates information from past investigations and ensures the exactness, exhaustiveness, and type of discoveries. Our literature recovery process kept guideline SLR rules and involved three stages: (1) characterizing the SLR method and looking and choosing important material; (2) assessing quality and removing appropriate articles; and (3) subjectively breaking down and integrating the acknowledged articles.

An examination methodology was made and accommodated the underlying phase of SLR (Table 1). The distributions were then examined utilizing the Web of Science Core Collection (WoS) and Scopus collections. The sociologies and data frameworks are the two spaces from which the articles in these advanced assets were chosen to be RPA-related. The hunt string incorporated the expression "mechanical process automation" and was not restricted to a specific time limitation, field, or record, by our consideration models. This search technique was utilized something like

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the finish of Walk 2019, when our exploration was finished, to incorporate all relevant discoveries from different fields giving an understanding into the advancement of RPA research.

Table 1:RPA methodology

SLR Protocol Element	Details
Translation in RPA Research	Systematic Literature Review (SLR) focusing on Robotic Process Automation (RPA) in the digital sources Scopus and Web of Science Core Collection (WoS).
Digital Sources	Scopus, Web of Science Core Collection (WoS).
Searched Term	Robotic Process Automation.
Search Strategy	- No publication date <u>limit</u> . - No topic <u>limit</u> . - Search term "Robotic Process Automation" contained anywhere in the articles. - Articles and conference papers only (no editorial, review, conference review).
Inclusion Criteria	- Search string "robotic process automation".
Exclusion Criteria	- Articles without full <u>access</u> . - Extended abstracts (without full text). - Book chapters. - Professional papers. - Articles citing the term "robotic process automation" with a different meaning.

4. RESEARCH RESULTS AND DISCUSSION

4.1. SLR Findings: The Condition and Advancement of RPA Research

The fundamental bibliographic outcomes from the examination of the coded fields "Year of distribution," "Distribution outlet" (a diary or a conference proceeding), "Study procedure" (a hypothetically applied approach, exact exploration, or a review), and "Diary title" are introduced in this part because of RQ1.

A distributing recurrence (2016-2018) for distribution outlets is displayed in Figure 1. Twenty of the 27 articles were distributed in 2018, of which six were diary articles and fourteen were

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conference papers. In 2016 and 2017, there were only 4 diary articles and 3 conference papers distributed.

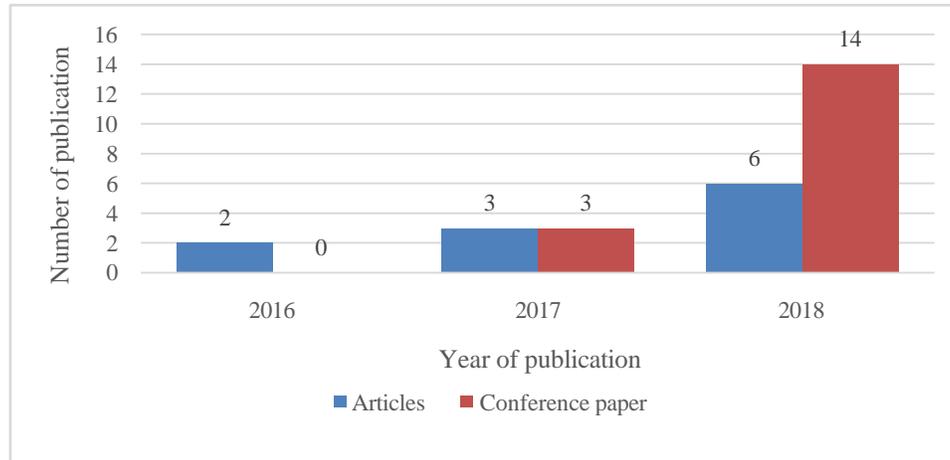


Fig. 1: RPA articles' appearance according to publication outlet and publication year (2016–2018)

Breaking down and discussing the recently suggested research conversation starters is the objective of this part. To address the RQ1, a bibliometric examination of an example of papers was done, which uncovered that when contrasted with the 2016-2017 period, research on RPA almost significantly increased in 2018. This proposes that there will probably be an expansion in RPA specialists later on. Considering that RPA is as yet a somewhat new and creating discipline, the outcomes showing that there have been 17 conference papers distributed contrasted with 10 diary articles recommend that more concentrate should be finished regarding the matter. Consequently, one might say that examination on RPA is still in its beginning phases and that it will probably multiply throughout the following couple of years, in the end showing up in peer-reviewed distributions.

There is a lack of hypothetical examination and reasonable systems connected with RPA, as proven by the way that 18 out of 27 papers were named "experimental exploration". Our speculation on the deficiency of a SLR procedure in the field was approved by a solitary organized literature study (e.g., SLR article) looking at RPA case cases. Data Frameworks (Talk Notes in Business Data Processing Series) and PCs and IT (ACM International Conference

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Proceeding Series) are the main 2 conferences that distribute RPA studies. Also, contextual analyses on current data and correspondences innovation topics were distributed in the Diary of Data Innovation Showing Cases, and MIS Quarterly Chief, distributions covered the management of data frameworks challenges, distributed portion of the diary articles in regards to RPA. Only three essayists — Lacity, Willcocks, and Anagnoste — added to different papers.

5. CONCLUSION

The aftereffects of SLR on RPA in view of query items from the WoS and Scopus data sets were given in this examination. To the best of the creators' information, this study is the primary SLR paper that spotlights on all distributions associated with RPA from the two data sets referenced, which is one of its commitments. This paper's SLR results demonstrated that there was another RPA-related SLR, yet it just included contextual investigations and not every single accessible article. Besides, SLR has focused on articles that are available through Google Researcher and the public Web.

Notwithstanding the above commitment, the three examination questions that are offered in the review's strategy segment help to explain the accentuation of this paper, which is scholarly authors' considerations and compositions about the RPA. Along these lines, the paper gives a review of RPA ideas, applications, and benefits in genuine situations alongside a breakdown of how it contrasts from BPMS. Besides, the consequences of the SLR directed showed that there was a lack of hypothetical examination on RPA, recommending that the field is still in its early stages and that no hypothetical structures had been created.

REFERENCES

1. Anagnoste, S. (2017). *Robotic Automation Process-The next major revolution in terms of back-office operations improvement. Proceedings of the International Conference on Business Excellence, 11(1), 676-686. De Gruyter Open.*
2. Anagnoste, S. (2018). *Robotic Automation Process – The operating system for the digital enterprise. Proceedings of the International Conference on Business Excellence, 12(1), 54-69. De Gruyter Poland.*

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3. *Asatiani, A., & Penttinen, E. (2016). Turning robotic process automation into commercial success – case OpusCapita. J. Inf. Technol. Teach. Cases, 6, 67–74.*
4. *Boell, S.K., & Cecez-Kecmanovic, D. (2015). On being 'systematic' in literature reviews in IS. J. Inf. Technol., 30(2), 161-173.*
5. *Bosilj Vukšić, V., Brkić, Lj., & Tomičić-Pupek, K. (2018). Understanding the success factors in adopting Business Process Management Software: case studies. Interdisciplinary description of complex systems, 16(2), 194-215.*
6. *Chen, L., & Wang, Q. (2019). Securing Robotic Process Automation: A Comprehensive Framework. IEEE Transactions on Automation Science and Engineering, 16(3), 789-802.*
7. *Kim, S., & Lee, H. (2018). Cybersecurity Measures for Robotic Process Automation Systems. Journal of Computer Security, 24(1), 45-58.*
8. *Patel, R. K., & Gupta, S. (2021). Cyber Threats in Robotics Process Automation: An Overview and Defense Strategies. International Journal of Robotics and Automation, 37(4), 567-580.*
9. *Rodriguez, M. A., & Fernandez, G. (2022). Addressing Cybersecurity Risks in Robotics Process Automation: A Review of Current Practices. International Journal of Information Security, 12(2), 211-225.*
10. *Smith, J. D., & Johnson, A. B. (2020). Cybersecurity Challenges and Solutions in Robotics Process Automation. Journal of Cybersecurity, 8(2), 123-137.*
