

Post-COVID-19 Software Development Life Cycle Method Analysis: A Literature Review

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Abstract - The evolution of Software Development Life Cycle (SDLC) methods post-COVID-19 has been critical in navigating the changing landscape of software development practices. This study conducted a comprehensive literature review to explain the adaptation and innovation of SDLC methods after the pandemic. It explores the importance of SDLC in information systems development and its role in promoting transparency, quality, and risk management. Leveraging a systematic literature review methodology, this study analyzes a series of studies published from 2021 to 2024, with a focus on SDLC models common applications post-COVID-19, the literature thoroughly explores various fields where SDLC methods are applied, including business sectors such as product sales and warehousing, educational settings for systems like academic administration and online exams, and government sectors for financial systems and data collection. Despite potential bias in the selection of literature and limitations in time coverage, this study provides valuable insights into the most widely used uses of agile and scrum methodologies in various sectors, including business, education, government, finance, health, employment, and the food industry. Based on the research findings, it's clear that agile and scrum methodologies have proven effective in diverse applications, from business to education and government. However, for future research, it would be valuable to explore the long-term impacts of these methodologies on project success rates and team productivity. Additionally, investigating the challenges and adaptations required when implementing these methodologies in different organizational cultures could provide valuable insights. Further studies could also focus on emerging SDLC trends and how they might complement or challenge the current dominance of agile and scrum methodologies in the evolving technological landscape. This study underscores the importance of understanding the post-pandemic SDLC method landscape and its implications for software development practices. These findings are important for practitioners and researchers looking to navigate the dynamic environment of software development following the COVID-19 pandemic.

Keywords - Information Systems Development, System Literature Review (SLR), Software Development Life Cycle (SDLC), Agile, Scrum.

I. INTRODUCTION

Information systems are crucial for the growth of companies and organizations, becoming more significant with rapid technological and procedural advancements. The development of these systems, known as information system development, addresses organizational challenges and seizes opportunities through computer-based solutions. Initially, systems development lacked a structured approach, leading to project failures and unmet user needs. The Software Development Life Cycle (SDLC) emerged to provide a structured framework, guiding the development process from requirements analysis to maintenance.

SDLC emphasized iterations and user involvement, promoting effective, efficient, and transparent system development while enhancing quality and risk management. It consists of phases like planning, analysis, design, implementation, and maintenance, drawing on various software development models, including Waterfall, Agile, and Spiral. This structured approach ensures that outdated systems are either reconfigured or replaced to meet emerging needs and opportunities.

While the introduction briefly mentions the impact of COVID-19 on software development practices, it could benefit from a deeper exploration of how exactly the pandemic has changed these practices. The COVID-19 pandemic has accelerated digital transformation across industries, necessitating rapid adaptation in software development methodologies. For instance, the shift to remote work has heightened the importance of collaboration tools and agile practices, which allow for greater flexibility and responsiveness. Additionally, the increased reliance on digital platforms has underscored the need for robust and scalable information systems. Specific examples, such as the surge in telehealth services requiring efficient patient data management systems, can illustrate the pandemic's profound influence on development practices, reinforcing the need for this research.

The evolution of information systems is pivotal for organizational functions in a rapidly changing technological landscape, enhancing productivity, data integration, and advanced analytics. For example, in healthcare, SDLC improves patient data management and interdepartmental collaboration. A literature review on SDLC methods is essential to understand their impact on information system outcomes, particularly post-COVID-19, where software development practices have significantly transformed.

This research, titled "Post-COVID-19 Software Development Life Cycle Method Analysis: A Literature Review", aims to analyze how SDLC methods have adapted post-pandemic. By conducting a systematic literature review, this study will provide insights into contemporary information system development methodologies from 2021 to 2024, offering a modern perspective compared to previous research. The review will focus on a range of sources, including academic journals, industry reports, and case studies, covering various sectors such as healthcare, finance, government, business and education, and considering global perspectives. This methodological overview sets clear expectations for the scope and depth the review, ensuring a comprehensive analysis of post-pandemic SDLC adaptations.

II. LITERATURE STUDIES

A. *Systematic Literature Reviews (SLR)*

A Systematic Review is a research method used to systematically collect and evaluate relevant studies on a particular topic. Various researchers have defined Systematic Literature Reviews (SLR) as follows :[1]

- a) Identifying relevant research: SLRs follow a strict process to find all the studies related to a particular question or area of interest.
- b) Evaluating and summarizing findings: Once studies are identified, researchers carefully analyze them to understand what they found and how reliable the result are.
- c) Bringing it all together: the final step is to summarize all the information from the studies and answer the original research question.

B. *Inquiry Focus*

The specific topic selected for investigation guides the development of research questions. In this particular study, the following inquiries were formulated to address the chosen subject matter:

RQ1: Between 2021 and 2024, which methodologies for developing website-based information systems have been most commonly employed?

RQ2: How successful has the application of the SDLC model proven to be during this timeframe?

RQ3: What areas or industries have utilized the SDLC model for the creation of information systems?

C. Investigation Methodology

Research journals were searched using Google Scholar, concentrating on articles published between 2021 and 2024. The objective was to identify relevant sources to address the Research Question.

D. Selection and Elimination Standards

To determine which data would be appropriate for this study, specific question standards were implemented. These standards consisted of criteria for both including and excluding information, ensuring that only relevant and suitable data were incorporated into the research.

E. Quality Assessment

To ensure a comprehensive evaluation of all identified issues, the Quality Assessment (QA) is designed around particular problem statements. For this research, the following criteria will be used to assess the quality of the gathered data:

QA1: Does the literature from 2021 to 2024 cover the use of the SDLC method in system development?

QA2: Is the research platform clearly identified in the literature?

QA3: Does the literature explore the various fields where the SDLC method is applied?

Each piece of literature will be rated against these questions using a simple scoring system :

Y (Yes): Indicates the literature satisfies the quality criterion.

N (No): Indicates the literature does not satisfy the quality criterion.

III. RESULT AND ANALYSIS

Journals are categorized based on their types to simplify the viewing of journals acquired during the search process. This categorization follows the format outlined in Table 1:

TABEL I

CATEGORIZING PUBLICATIONS ACCORDING TO THEIR CLASSIFICATION AS JOURNALS

No.	Publisher of Journals	Amount
1.	Digital Transformation Technology (Digitech)	1
2.	Edusaintek: Jurnal Pendidikan, Sains dan Teknologi	1
3.	e-Proceeding of Engineering	1
4.	Jurnal Gerbang STMIK Bani Saleh	1
5.	INTEGER: Journal of Information Technology	1
6.	JDMIS: Journal of Data Mining and Information Systems	1
7.	JIKA (Jurnal Informatika) Universitas Muhammadiyah Tangerang	2
8.	JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)	1
9.	Journal of Artificial Intelligence and Technology Information (JAITI)	1
10.	Journal of Information System Research (JOSH)	1
11.	JTSI	1
12.	Jurikom (Jurnal Riset Komputer)	1
13.	Jurnal Accounting Information System (AIMS)	2
14.	Jurnal Elektronika dan Komputer	1
15.	Jurnal IKRAITH-INFORMATIKA	2
16.	Jurnal Ilmiah ILKOMINFO – Jurnal Ilmu Komputer dan Informatika	1
17.	Jurnal Ilmiah Sains dan Teknologi	1
18.	Jurnal Ilmiah Sistem Informasi Akuntansi (JIMASIA)	2
19.	Jurnal Informasi Interaktif	1
20.	Jurnal Informatika dan Rekayasa Perangkat Lunak (JATIKA)	1
21.	Jurnal INTECH	1
22.	Jurnal Mahasiswa Aplikasi Teknologi Komputer dan Informasi	1
23.	Jurnal Media Informatika (JUMIN)	1
24.	Jurnal Media Informatika Budidarma	2
25.	Journal of Data Science and Information System (DIMIS)	1
26.	Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer	1
27.	Jurnal PROSISKO	1

No.	Publisher of Journals	Amount
28.	Jurnal Sains Komputer dan Informatika (J-SAKTI)	1
29.	Jurnal Teknik Informatika dan Sistem Informasi	2
30.	Jurnal Teknologi dan Informasi (JATI)	1
31.	Jurnal Teknologi dan Sistem Informasi	1
32.	Jurnal Teknologi dan Sistem Informasi Bisnis	1
33.	Jurnal Testing dan Implementasi Sistem Informasi	6
34.	Jutisi: Jurnal Ilmiah Teknik Informatika dan Sistem Informasi	1
35.	Kumpulan Artikel Mahasiswa Pendidikan Teknik Informatika (KARMAPATI)	1
36.	SainsTech Innovation Journal	1
37.	SEIKO: Journal of Management & Business	1
38.	Seminar Nasional Teknologi Informasi dan Komunikasi STI&K (SeNTIK)	1
39.	Syntax Literate: Jurnal Ilmiah Indonesia	1
40.	JOISIE JournalOf Information System and Informatics Engineering	1
41.	Telematika: Jurnal Informatika dan Teknologi Informasi	1
Total		52

A. Application of Screening Criteria Outcomes

The implementation of the predetermined inclusion and exclusion standards resulted in the identification of 52 relevant journals from the initial search process. The subsequent stage of the research involves a thorough examination of this curated dataset.

B. Evaluation of Data Quality Outcomes

The results of the quality assessment will be displayed in Table 2, which follows. This table will illustrate how well the collected data meets the established quality criteria, thereby confirming its suitability for incorporation into this research project.

TABEL II
EVALUATION OF QUALITY ASSESSMENT

No.	Contributors	Publication Name	Year	Q1	Q2	Q3	Output
1.	[2]	Sistem Informasi Arsip Surat Dengan Metode Rapid Application Development (RAD)	2021	Y	Y	Y	✓
2.	[3]	Sistem Informasi UMKM Bengkel Berbasis Web Menggunakan Metode SCUM	2021	Y	Y	Y	✓
3.	[4]	Sistem Monitoring Kegiatan Kemahasiswaan Menggunakan Metode Agile Development	2022	Y	Y	Y	✓
4.	[5]	Implementasi Metode Agile Untuk Perancangan Sistem Informasi Administrasi Akademik	2022	Y	Y	Y	✓
5.	[6]	Implementasi Metode Agile Scrum Pada Sistem Informasi Akuntansi CV. Tritama Inti Persada	2022	Y	Y	Y	✓
6.	[7]	Sistem Informasi Kepegawaian Menggunakan Metode Agile Development di CV. Angkasa Raya	2022	Y	Y	Y	✓
7.	[8]	Analisis dan Perancangan Sistem Informasi Penjualan dengan Metode FAST pada CV Ide Karya Semesta	2022	Y	Y	Y	✓

No.	Contributors	Publication Name	Year	Q1	Q2	Q3	Output
8.	[9]	Perancangan Sistem Gudang Material dengan Metode FAST pada PT. Samcon	2022	Y	Y	Y	✓
9.	[10]	Pengembangan Prototipe Perancangan Aplikasi Sistem Informasi Analisis Kelayakan Kredit Berbasis Web Pada KSPPS Karya Usaha Mandiri Menggunakan Metode Iterative Incremental	2022	Y	Y	Y	✓
10.	[11]	Analisis dan Pengujian Sistem Informasi Penjualan Produk UMKM Menggunakan Metode Scrum	2022	Y	Y	Y	✓
11.	[12]	Analisis Penerapan Metode Scrum Pada Pengembangan Sistem Informasi Akuntansi Koperasi	2022	Y	Y	Y	✓
12.	[13]	Implementasi Metode Scrum Pada Pembangunan Sistem Informasi Monitoring Progress Proyek Berbasis Web (Studi Kasus: PT. Quatra Engineering Mandiri)	2022	Y	Y	Y	✓
13.	[14]	Penggunaan Metode Scrum Dalam Membentuk Sistem Informasi Penyimpanan Gudang Berbasis Web	2022	Y	Y	Y	✓
14.	[15]	Sistem Informasi Persalinan Dengan Metode Scrum	2022	Y	Y	Y	✓
15.	[16]	Perancangan dan Implementasi Sistem Informasi Absensi Berbasis Web Menggunakan Metode Agile Software Development	2023	Y	Y	Y	✓
16.	[17]	Perancangan Sistem Informasi Catatan Dan Pengawasan Hewan Ternak Menggunakan QR Code Berbasis Web Dengan Metode Agile	2023	Y	Y	Y	✓
17.	[18]	Perancangan Sistem Informasi Inventory Barang Berbasis Web Menggunakan Metode Agile Software Development	2023	Y	Y	Y	✓
18.	[19]	Rancang Bangun Sistem Informasi Inventory Menggunakan Metode Agile Software Development (Studi Kasus Toko Nada)	2023	Y	Y	Y	✓
19.	[20]	Rancang Bangun Sistem Informasi Pengumuman Kelulusan Siswa Berbasis Web Menggunakan Metode Agile	2023	Y	Y	Y	✓
20.	[21]	Sistem Informasi Aplikasi Pemesanan Makanan Restoran Berbasis Web Menggunakan Metode Agile Development	2023	Y	Y	Y	✓
21.	[22]	Sistem Informasi Tagihan Hippan Desa Leran Berbasis	2023	Y	Y	Y	✓

No.	Contributors	Publication Name	Year	Q1	Q2	Q3	Output
22.	[23]	Website dengan Metode Agile Software Development Analysis of Factors Affecting Intention to Use and User Satisfaction of Paylater Using Delone & McLean Adoption Model	2023	Y	Y	Y	✓
23.	[24]	Analisis Kepuasan Pengguna E-Rapor Menggunakan Metode End-User Computing Satisfaction (EUCS) di SMP Negeri 1 Sukasada	2023	Y	Y	Y	✓
24.	[25]	Rancang Bangun Sistem Informasi Kepegawaian Berbasis Website Dengan Menggunakan Metode Extreme Programming Pada Kantor Kelurahan Komerung Agung Kecamatan Gunung Sugih	2023	Y	Y	Y	✓
25.	[26]	Rancang Bangun Sistem Informasi Nilai Akhir Siswa Berbasis Web Menggunakan Extreme Programming	2023	Y	Y	Y	✓
26.	[27]	Informasi Manajemen Apotek Menggunakan Metode Extreme Programming	2023	Y	Y	Y	✓
27.	[28]	Penerapan Metode Zachman Framework Terhadap Sistem Informasi Sumber Daya Manusia Kesehatan Di Dinas Kesehatan Kota Cirebon	2023	Y	Y	Y	✓
28.	[29]	Pengembangan Aplikasi Umpan Balik Mahasiswa Berbasis Website Modul Keluhan Pada Studi Kasus Program Studi S1 Sistem Informasi Telkom University Dengan Metode Iterative Incremental	2023	Y	Y	Y	✓
29.	[30]	Perancangan Website Pada Aplikasi Start-Up Rental Kendaraan Egarage.id Dengan Menggunakan Metode Iterative Incremental	2023	Y	Y	Y	✓
30.	[31]	Penggunaan Metode Prototype Pada Pengembangan Sistem Informasi Imunisasi Posyandu	2023	Y	Y	Y	✓
31.	[32]	Perancangan Sistem Informasi Pendaftaran Online Pasien Rawat Jalan Pada Puskesmas Menggunakan Metode Prototype	2023	Y	Y	Y	✓
32.	[33]	Penerapan Metode Rapid Application Development Pada Sistem Informasi Monitoring Pelanggaran Siswa	2023	Y	Y	Y	✓
33.	[34]	Pengembangan Sistem Informasi Order Jasa Desain Grafis Menggunakan Metode	2023	Y	Y	Y	✓

No.	Contributors	Publication Name	Year	Q1	Q2	Q3	Output
34.	[35]	Rapid Application Development Perancangan Sistem Informasi Penggajian Berbasis Web Dengan Metode Rapid Application Development	2023	Y	Y	Y	✓
35.	[36]	Rancang Bangun Sistem Informasi Keuangan Pada Kantor Lurah Kotabaru Dengan Metode Rapid Application Development (RAD)	2023	Y	Y	Y	✓
36.	[37]	Rancang Bangun Sistem Pendataan Jual Beli Tanah Menggunakan Metode Rapid Application Development	2023	Y	Y	Y	✓
37.	[38]	Rancang Bangun Sistem Penggajian Karyawan Menggunakan Metode Rapid Application Development (RAD)	2023	Y	Y	Y	✓
38.	[39]	Penerapan Metode Scrum Pada Perancangan Sistem Informasi Manajemen Arsip Surat Berbasis Web	2023	Y	Y	Y	✓
39.	[40]	Penerapan Metode Scrum Pada Rancang Bangun Sistem Informasi Penjualan Toko Sepatu Rabbani Shoes	2023	Y	Y	Y	✓
40.	[41]	Rancang Bangun Sistem Informasi Desa Berbasis Website Menggunakan Metode Scrum (Studi Kasus : Desa Penusupan, Kabupaten Tegal)	2023	Y	Y	Y	✓
41.	[42]	Rancang Bangun Website Desa Kalongan Tengah Kabupaten Kepulauan Talaud Menggunakan Metode Scrum	2023	Y	Y	Y	✓
42.	[43]	Rancang Bangun Sistem Aplikasi Ujian Online Menggunakan Metode Spiral Berbasis Web	2023	Y	Y	Y	✓
43.	[44]	Rancang Bangun Sistem Informasi Perpustakaan pada Universitas Prabumulih	2023	Y	Y	Y	✓
44.	[45]	Permodelan Sistem Informasi Penjualan Barang Berbasis Website Menggunakan Metode Agile	2024	Y	Y	Y	✓
45.	[46]	Perencanaan Arsitektur Enterprise pada Layanan Telekomunikasi Digital Telkomsel By.U menggunakan Zachman Framework	2024	Y	Y	Y	✓
46.	[47]	Perancangan Sistem Informasi Kedai Kopi Menggunakan Metode Rapid Application Development (RAD)	2024	Y	Y	Y	✓

No.	Contributors	Publication Name	Year	Q1	Q2	Q3	Output
47.	[48]	Sistem Pendukung Keputusan Menentukan Prioritas Pasien Binaan Yayasan GKI Menggunakan Metode SAW	2024	Y	Y	Y	✓
48.	[49]	Permodelan Sistem Informasi Penjualan Barang Menggunakan Metode Scrum	2024	Y	Y	Y	✓
49.	[50]	Pengembangan Aplikasi Classroom Berbasis Mobile Menggunakan Model V	2024	Y	Y	Y	✓
50.	[51]	Perancangan Model Waterfall Pada Sistem Informasi Penjualan Baju Pada Brand Hasnaa Busan	2024	Y	Y	Y	✓
51.	[52]	Rancang Bangun Sistem Informasi Tugas Akhir Menggunakan Metode Waterfall Di Fakultas Teknik Universitas Islam Nusantara	2024	Y	Y	Y	✓
52.	[53]	Sistem Informasi Desa Berbasis Web Dengan Menggunakan Metode Waterfall	2024	Y	Y	Y	✓

Note:

✓ : Journals were chosen based on their relevance to the criteria and information pertaining to data selection.

✗ : Journals were excluded due to insufficient information supporting their relevance to data selection.

C. *RQ1: Between 2021 and 2024, which methodologies for developing website-based information systems have been most commonly employed?*

The results presented in Table 3 illustrate the grouping of the SDLC method employed in information system development, specifically focusing on Agile:

TABEL III
SDLC METHOD MODEL GROUPING

No.	Approaches to Creating Information Systems	The Number of Journals	Amount
1.	Waterfall	[51], [52], [53]	3
2.	Iteration (Iterative)	[29],[10], [30]	3
3.	Rapid Application Development (RAD)	[33], [34], [47], [35], [36], [37], [38], [2]	8
4.	Extreme Programming	[25], [26], [27]	3
5.	FAST	[8], [9]	2
7.	Prototype	[31], [32]	2
8.	Spiral	[43], [44]	2
9.	Framework Zachman	[28], [46]	2
10.	End User Computing Satisfaction	[24]	1
11.	Simple Additive Weighting (SAW)	[48]	1
12.	The Delone and Mclean methods	[23]	1
13.	Scrum	[11], [12], [13], [39], [40], [14], [49], [41], [42], [15], [3]	11
14.	Agile	[4], [5], [6], [16], [17], [18], [45], [19], [20], [21], [7], [22]	12
15.	V-Model	[50]	1
Total		-	52

The Systems Development Life Cycle (SDLC) is a widely adopted approach for creating information systems, with multiple variations available.

- a. Waterfall: A sequential software development approach involving phases like requirement analysis, coding, design, testing, maintenance, and support, executed in a linear sequence from start to finish. It emphasized thorough planning, detailed documentation, and systematic project implementation to minimize errors.
- b. Iteration (Iterative): Combines elements of the waterfall model with iterative processes seen in prototype models. It accelerates early-stages development, achieves results incrementally, allows for flexible scope adjustments, and addresses risk progressively through iterative cycles. [54]
- c. Rapid Application Development (RAD): Focuses on incremental progress within tight timelines by creating prototypes swiftly. It enhances productivity, facilitates collaboration among stakeholders, and ensures early issue identification and resolution.[55]
- d. Extreme Programming (XP): Derived from agile principles, XP emphasizes teamwork, simplicity in coding, continuous improvement through feedback, rigorous testing, and delivering value-driven results efficiently.[56]
- e. FAST: An adaptable system development approach capable of delivering high-quality systems quickly, often integrated with other methodologies.[57]
- f. Prototype: Supports development by demonstrating functionality early, gathering user feedback promptly, and facilitating efficient system development and implementation.[58]
- g. Spiral: Integrates iterative prototyping with structured development phases to swiftly generate software versions incrementally.[59]
- h. Zachman Framework: An architectural framework aiding enterprise data architects in system comprehension and utilization.[60]
- i. End User Computing Satisfaction (EUCS): Measures user satisfaction directly through system usage.[61]
- j. Simple Additive Weighting (SAW): A technique for computing aggregate scores by applying weighted values to performance evaluations across multiple criteria.[62]
- k. Delone and Mclean Methods: Contribute to understanding information system success phases and their interrelationships.[63]
- l. Scrum: A flexible software development method allowing iterative changes, suited for larger projects.[58]
- m. Agile: A collaborative and adaptable, requiring close user interaction, suitable for dynamic project environments.[58]
- n. V-Model: An extension of the waterfall model, emphasizing the relationship between quality assurance actions and software development phases.[64]

Within studies focusing on the Software Development Life Cycle (SDLC), the Agile methodology emerges as the primary topic of interest. It garners more attention and undergoes more extensive examination than alternative software development approaches. The Agile approach stands out for its high level, allowing development teams to respond to changing customer needs quickly and efficiently. With regular, iterative development cycles, Agile enables developers to produce software that is more relevant and valuable to end users. Additionally, this methodology encourages close collaboration between development teams and stakeholders, ensuring that the resulting product meets user needs and expectations. Another advantage of the Agile approach is its ability to reduce project risk and increase customer satisfaction by delivering sustainable, quality results at regular intervals throughout the development cycle. Therefore, it is not surprising that Agile is the main focus in much research on SDLC.

Agile is a strikingly unique approach to software development by emphasizing collaboration, adapting to change, and providing continuous value to customers. This methodology is widely used in a variety of industries, from information technology to

manufacturing, due to its ability to address complex and diverse challenges in a dynamic project environment. Another unique feature lies in the iterative and incremental development cycle, where products are developed in short iterations with a focus on customer needs and feedback. The stability of Agile lies in its ability to adapt to changing needs and rapidly changing market conditions, while the clarity of its concept lies in basic principles that are simple and easy to understand by the entire project team. Thus, Agile has become a popular and effective choice to face the challenges of software development in the fast-changing modern era.

While Agile methods are prevalent in SDLC literature, it is crucial to recognize the potential mismatch between these methods and specific software development contexts. Therefore, future research in the SDLC field should focus on investigating alternative models and carefully considering contextual factors to determine situations where methods other than Agile may be more suitable or advantageous.

D. RQ2: How successful has the application of the SDLC model proven to be during this timeframe?

Based on the results of the 52 journals that have been researched, it appears that the application of the Agile and Scrum models is very effective in developing information systems. This methodology offers an adaptive and collaborative approach, allowing development teams to flexibly adapt to changing project needs and priorities. With an iterative and incremental approach, Agile and Scrum models enable developers to regularly deliver added value to stakeholders, accelerate time to market, and reduce project risk. Additionally, the active involvement of stakeholders in each stage of development, such as Sprint Planning, Daily Standup, and Sprint Review, ensures transparency and continuous involvement in the development process. Thus, the Agile and Scrum models not only increase the speed and quality of information systems development, but also increase stakeholder satisfaction and the organization's ability to compete in a dynamic market.

E. RQ3: What areas or industries have utilized the SDLC model for the creation of information systems?

The results addressing Research Question 3 reveal a classification of industries that employ the SDLC methodology for creating information systems. These categories are as follows:

TABEL IV
CATEGORIZING APPLICATIONS OF SDLC METHODOLOGIES

No.	Domain/Field	The Number of Journals	Amount
1.	Government	[22], [25], [28], [36], [37], [2], [39], [41], [42], [53]	10
2.	Health	[27], [28], [31], [32], [48], [15]	6
3.	Education	[5], [20], [4], [24], [26], [29], [33], [43], [44], [50], [52]	11
4.	Finance	[6], [23], [10], [35], [36], [38], [12]	7
5.	Religious	-	-
6.	Business	[18], [45], [19], [17], [8], [9], [46], [30], [34], [47], [11], [13], [40], [14], [49], [3], [51]	17
7.	Employment	[16], [7], [25], [35], [38]	5
8.	Foods	[21]	1

Based on the data presented in Table 4 above, the primary research areas that receive significant attention are business areas such as product sales, service orders, warehousing, vehicle rental, telecommunications providers, and monitoring the progress of company projects. Then in the field of education such as academic administration, web-based attendance announcements for student graduation, monitoring student activities, E-reports, information on

student final grades, student feedback applications, monitoring student violations, online exam applications, library information systems, classroom applications, and systems. final assignment information as well as the Government sector, namely, financial information systems at the village head's office, data collection on land sales and purchases, letter archives, Finance, Health, Employees, and Food also use the SDLC method in developing information systems.

IV. CONCLUSION

This research provides a comprehensive analysis of Software Development Life Cycle (SDLC) methodologies in the post-COVID-19 era through an extensive literature review. The study acknowledges potential biases in literature selection, particularly in its emphasis on SDLC methods. Subjective decisions in the selection process, including prioritizing credible sources and defining keywords and inclusion/exclusion criteria, may influence the representation of SDLC methods. The use of the Systematic Literature Review (SLR) methodology imposes certain limitations, especially regarding temporal coverage, which is crucial in this research context. The deliberate restriction of the timeframe may significantly impact the comprehensive understanding of how specific topics have evolved. The study recognizes these limitations resulting from the intentional decision to confine the analysis to a defined period.

These findings directly relate to the research objectives by demonstrating how post-pandemic adaptations of SDLC methodologies address the specific need and challenges within various sectors. The prevalence of agile and scrum methods highlights their effectiveness in enhancing flexibility, collaborations, and responsiveness, confirming the proposed hypotheses that these methodologies have become critical in navigating the post-COVID-19 landscape. By analyzing contemporary SDLC practices, the study provides a detailed understanding of how these methodologies contribute to achieving organizational goals in a rapidly evolving technological environment. Based on a Systematic Literature Review (SLR) of various studies published between 2021 and 2024, the research identifies that the agile and scrum methodologies are the most frequently and widely used Software Development Life Cycle (SDLC) models. These methods are particularly prevalent in business sectors such as product sales, service orders, warehousing, vehicle rental, telecommunications, and project progress monitoring. In the education sector, these SDLC models are applied to systems including academic administration, web-based attendance announcements for student graduation, monitoring student activities, e-reports, student grade information, feedback applications, violation monitoring, online exams, library information, classroom applications, and final assignment information systems. The government sector also implements SDLC methods for developing information systems, including financial systems for village head office, land sales and purchase data collection, letter archives, and systems in the Finance, Health Employee, and Food Sectors.

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