

Integrated GRC Strategies in Dynamic Business Environments

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ABSTRACT: -This paper describes the development and importance of integrated Governance, Risk management, and Compliance (GRC) based on theory, concept strengthening, and its relationship with many elements that inevitably change dynamically but still have to achieve organizational goals. This study provides a comprehensive analysis and bibliometrics, and also a literature review related to the concept of the importance of an integrated GRC, using the keywords governance, risk management, and compliance from articles published during 2006-2022, consisting of 20 journal publishers and 44 peer-reviewed journals, and a review of integrated GRC implementation in five companies. The findings indicated that GRC activities are important and support achieving organizational goals through appropriate strategies and performance management. One of these is related to the management control of 40 integrated GRC linkages and the effectiveness of integrated GRC implementation in five companies in Indonesia. This paper only reviews some data on the implementation of integrated GRC in organizations in a country to open up opportunities for empirical research in applying integrated GRC implementation in various types of organizations in various countries and globally. Regarding the author's knowledge, this is the first time anyone has explained the integrated GRC from a theoretical point of view in its implementation and its relationship to many factors, as seen from research based on a longitudinal literature review of 17 years—moreover, the implementation of integrated GRC in companies.

KEYWORDS - *Business environment, GRC implementation, Improving performance, Integrated GRC, Management control*

I. INTRODUCTION

Everything has its time. Now is the time for integrated governance, risk management, and compliance (GRC) to be implemented in the organization. Changes in organizational behaviour due to environmental changes create the need to implement integrated GRC. Integrated GRC is a dynamic concept in every organization, according to the development of an uncertain business environment that the organization should carry out. However, there has been a lot of research and discussion on GRC separately or in silos because the three elements already have organizational activities. At present and in the future, it must be integrated manner.

Implementing an integrated GRC indeed produces many benefits in all business areas. That is due to the resolution of several problems caused by the three elements of the GRC that move partially. Such as overlapping functions, high operational costs, redundancy of the same task carried out by two or three functions (duplication of activity), suboptimal collaboration (break silos), lack of competitiveness or ability to withstand change and uncertainty, limited data access to achieve better information quality, and inefficiency in gathering information quickly [1]–[3].

This article describes the milestones of the integrated GRC and the original theory that strengthened the integrated GRC concept. In addition to the original theory strengthening the integrated GRC concept, this article also equipped with a systematic literature review of 185 published articles with a specific publication name, namely journals, identified as many as 45 articles related to the integrated GRC from 2006 to 2022, from Web of Science, Scopus, and Google Scholar databases. Before the conclusion, the following section describes the importance of implementing GRC integration, seeing the many related elements, particularly risk and control management, as the critical link between GRC and performance management as a future integrated GRC target. However, apart from that, this article describes the implementation of integrated GRC through several examples of state-owned companies in Indonesia.

II. LITERATURE REVIEW

The combination of the three acronyms, governance, risk management, and compliance, provides many advantages due to the shift from traditional (partial) GRC to integrated GRC. Such leads to increased synergies, quality, information availability, reduced redundancy, reduced compliance costs, and generating maximum value for management by providing holistic oversight with increased guarantees for GRC activities. Which ultimately creates accountability and transparency in effective reporting and monitoring [4].

The integrated GRC concept is a unification of three disciplines:

- Governance ensures that the organization focuses on the fundamental issues and who should be responsible for achieving the actions and results.
- Risk management guarantees that there are procedures to identify, analyze, evaluate, improve, communicate, and monitor risks that may affect the realization of the organization's business objectives.
- Compliance ensures that laws, regulations, mandates, and internal and external policies are complied with at a level consistent with company morality and risk tolerance.

2.1 Integrated GRC milestone

Undeniable that organizations often do various ways to achieve organizational goals optimally. Think about ensuring this by creating a new system or strategy [5] through an innovative approach. One is using existing systems and encouraging organizations to develop professional and responsible organizational management practices through implementing better governance, risk management, and compliance.

GRC was integrated and developed in 2003 through publication by the Open Compliance and Ethics Group (OCEG) in 2007, where achieving principled performance requires an integrated set of capabilities that enable organizations to achieve goals reliably, cope with uncertainty, and act with integrity. Therefore, GRC does not only include three acronyms but is also related to many functions, be it IT, internal audit, legal, human resources, finance, Etc. [1]. The development of the framework concept of the integrated GRC has changed to become more complex and valid starting from the OCEG framework [6], then followed by the concept model of [7], GRC software frameworks reviewed by Racz *et al.* (2011), until with the framework by [9] and [10].

In 2004, PricewaterhouseCoopers (PwC) stated the importance of GRC in achieving organizational goals, increasing shareholder value, and improving performance [11]. Continuing to discuss the GRC, especially its relation to information systems, through the publication of [12]; GRC related to portfolio project management through the publication of [13]; GRC related to auditing published by [14], and GRC related anti-corruption through the publication of [15]. Therefore, this integrated GRC activity is familiar and is still developing today, as it is related to one field and many subject areas within the organization.

2.2 The original theory underpinning integrated GRC

The development of integrated GRC is a theory based on a paradigm of thought that supports its success as a new strategy for overcoming internal organizational problems, especially facing business uncertainty. This condition follows the elaboration of management theory and contingency theory. Management theory explains creating an efficient and effective system to achieve organizational goals. In contrast, contingency theory describes the business environment, strategy, and control as three essential contingency elements whose alignment can create an increased performance [16].

More profoundly, management theory describes a set of ideas that provide a general rule on how to manage an organization or business process, such as a supervisor who designs and implements a strategy by motivating all employees to give their best ability to support the achievement of organization goals [17]. Integrated GRC, in this case, is expected to increase the activities of planning, organizing, directing, and controlling human resources and other resources to achieve organizational goals effectively and efficiently. In addition, integrated GRC is a strategy that responds to contingency factors, namely the organization, which is strongly influenced by the business environment and the control system. Contingency theory focuses on the correlation between organizational strategy, organizational environment, and control systems that must be aligned because specific strategies may not be suitable for certain levels of control [18]. The business environment varies depending on risks and level of competitiveness, so a different strategy is needed, such as an integrated GRC.

III. METHODOLOGY

Due to the development of integrated GRC implementation, which is increasingly benefiting the organization and getting more and more attention, this paper presents a literature review of the many research papers with research stages, as shown in (Fig. 1). Each stage will be explained in the next section when the analysis and findings are discussed.



Fig. 1: Research steps

IV. DISCUSSION OF ANALYSIS AND FINDINGS

Based on the form database Web of Science, Scopus, and Google Scholar, we found 185 articles with a specific publication name: journal, and keywords: governance, risk management, and compliance, from 2006 – to 2022. Then, after going through the integrated GRC linkage screening text with the elements, I finally found 45 published articles from 20 publishers and 44 peer-reviewed journals. Table 1 shows that in the 17 years of article publication, only in 2008 were there no published articles; this illustrates that integrated GRC attracts researchers to find linkages with other elements in the organization.

Table 1: Year of publication

<i>Year</i>	<i>n = 45</i>	<i>Year</i>	<i>n = 45</i>	<i>Year</i>	<i>n = 45</i>
2006	1	2013	5	2018	3
2007	1	2014	3	2019	3
2009	1	2015	2	2020	3
2010	3	2016	4	2021	3
2011	3	2017	2	2022	3
2012	5				

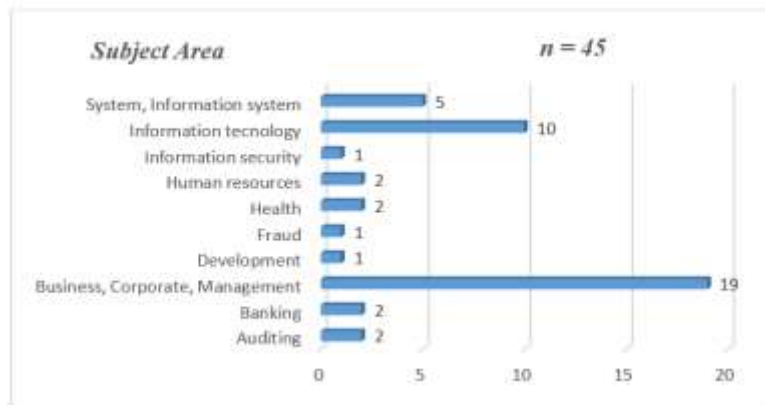


Fig. 2: Subject category

Next, based on the 45 articles found in (Fig.2), 10 subject areas explain that integrated GRC is related to factors, functions, or elements within the organization, where it can describe that the areas talk the most about that is business, corporate, management, followed by the area of information technology and systems/information systems. All prove that integrated GRC applications are increasingly widespread, especially in the digital era, which is used now in many companies, even in health. Finally, Table 2 shows 45 articles with 20 publishers, where researchgate.net, emerald, and papers.ssrn.com publish the most. In addition, Table 3 also shows 44 peer-reviewed journals; this shows that research on integrated GRC is evenly distributed in almost all published journals, amounting to 98%.

Table 2: Journal’s Publisher

<i>LR</i>	<i>Publisher</i>	<i>n = 45</i>	<i>LR</i>	<i>Publisher</i>	<i>n = 45</i>
1	Researchgate.net	7	11	Aisel.aisnet.org	1
2	Emerald	5	12	Apfjournal.or.id	1
3	Papers.ssrn.com	5	13	Cisse.info	1
4	Journals.co.za	4	14	Dl.acm.org	1
5	Elsevier	3	15	Fletraining.com	1
6	Springer	3	16	Igi-global.com	1
7	Citeseer	2	17	Inderscienceonline.com	1
8	Clutejournals.com	2	18	Publications.waset.org	1
9	Meridian.allenpress.com	2	19	Ssmartlib.umri.ac.id	1
10	Scielo.org.za	2	20	Taylor & francis	1

Table 3: Peer-review journals

1	Asia pasific fraud journal	1	23	Journal of Business Ethics	1
2	Business Continuity Journal	1	24	Journal of Cleaner Production	1
3	Economics, Finance and Business Management	1	25	Journal of Contemporary Management	1
4	Engineering Science and Technology, an International Journal	1	26	Journal of Data and Information Quality	1
5	Innovation: The European Journal of Social Science Research	1	27	Journal of Enterprise Information Management	1
6	International Journal of Advanced Computer Science and Applications	1	28	Journal of Financial Crime	1
7	International Journal of Computer and Information Engineering	1	29	Journal of Hospital Administration	1
8	International Journal of Computer Applications	1	30	Journal of Information Ethics	1
9	International Journal of Computers & Technology	1	31	Journal of Information Systems	1
10	International Journal of Creative Research Thoughts	1	32	Journal of Investment Compliance	1
11	International Journal of Disclosure and Governance	1	33	Journal of Management Accounting Research	1
12	International Journal of Engineering and Technology	1	34	Journal of Network and Computer Applications	1
13	International Journal of Fuzzy Systems	1	35	Journal of Service Science	1
14	International Journal of IT/Business Alignment and Governance	1	36	Journal of The Colloquium for Information Systems Security Education	1
15	International Journal of Research in Social Sciences	1	37	Journal of the Midwest Association for Information Systems	1
16	International Journal of Science and Engineering Investigations	1	38	Managerial Auditing Journal	1
17	International Journal of Security and Its Applications	1	39	Oriental journal of computer science and technology	1
18	International Journal of Sustainable Development	1	40	Records Management Journal	1
19	International Journal of Transitions and Innovation Systems	1	41	South Africa Journal of Human Resource Management	1
20	International Journal of Trend in Scientific Research and Development	1	42	South African Journal of Economic and Management Sciences	2
21	IOSR Journal of Economics and Finance	1	43	Southern African Journal of Accountability and Auditing Research	1
22	Journal for New Generation Sciences	1	44	The Journal of Applied Business Research	1

4.1 Importance of integrated GRC

4.1.1 Integrated GRC implementation linkage

Organizations want the success of integrated GRC, in addition to meeting business goals, improving leadership and organizational culture, increasing stakeholder trust, preparing and protecting the organization, preventing, detecting, reducing problems, motivating and inspiring desired behaviour, increasing responsiveness and efficiency, and optimizing economic value, and social. Given the importance of implementing integrated GRC in organizations, 40 elements of integrated GRC linkage are listed in Table 4.

That illustrates organizations' many advantages or opportunities to improve quality management and performance [19]–[21], identity and portfolio management [22], [23]. For example, in addition to creating business value [24], maximizing shareholder value [25], performing management control [26]; access control governance, and information governance [27], [28]; and also organization's ethics [29]; increasing the role of internal audit [30], [31], and implementing continuous auditing [32], [33], and minimizing fraud, anti-corruption, cybercrimes [15], [34]–[36].

Besides that as for enterprise information security management [37]–[45], which aims to automate threat levels and control changes in real-time to make essential information [46]–[48], infrastructure more resilient and able to withstand cybercrimes. That will undoubtedly positively affect reducing business risk [49]–[51], which will impacting business sustainability [52]. That is inseparable from the culture of business integrity and accountability [53], principled performance [1], achieving through three lines of defence [54], management of electronic data assets [55], developing maturity model [56], IT planning process [57] and identity principles [58]. Besides that, personal factors are also determined, such as artificial intelligence [59] and human resources function [60]–[63].

Table 4: Integrated GRC linkage

<i>LR</i>	<i>Integrated GRC linkage</i>	<i>Author</i>	<i>LR</i>	<i>Integrated GRC linkage</i>	<i>Author</i>
1	Culture of business integrity & accountability	Arjoon (2006)	21	Relevant information	Bachlechner et al. (2014)
2	Principled performance	Mitchell (2007)	22	Human resources function	Debeer & Dutoit (2015)
3	Business value creator	Jokonya & Lubbe (2009)	23	Internal audit	Chikwiri & Rosa (2015)
4	Continuous auditing	Kuhn & Sutton (2010); Kanellou & Spathis (2011)	24	Artificial intelligence	Mohammed (2016)
5	Identity Principles	Katzan (2010)	25	Enterprise security planning	Singh et al. (2016)
6	IT planning process	Marcos et al. (2010)	26	Improve performance & reduce the cost	Ebenezer et al. (2016)
7	Improved performance	Meyer et al. (2011)	27	Quality management	Haar et al. (2016)
8	Off-Shoring	Kahai et al. (2011)	28	Cybersecurity	Atoum & Otoom (2017); Kabanda (2020); Whitman & Chaput (2020)
9	Achieve objective & Maximize Shareholder Value	Manab et al. (2012)	29	Access control governance	Indu et al., 2018
10	Identity Management	Snehi et al. (2012)	30	Information technology risk	Schutte & Marx (2018)
11	Management control	Schermann et al. (2012)	31	Portfolio Management	Alqubaisi (2018)
12	Organization's ethics	Ponelis & Britz (2012)	32	Data and Information Quality	Sillaber et al. (2019)
13	Three lines of defense	Lyons (2012)	33	Environmental sustainability and business sustainability	Doyle et al. (2019)
14	Cloud Security	Zatakiya & Tank (2013); Semsar et al. (2017); Nedyalkov (2022)	34	Synchronize information	Karthikeyan et al. (2019)
15	Cybercrimes mitigation	Clark & Harrell (2013)	35	Non-compliance risk gap analysis	Meharanjunisa (2020)
16	Information governance	Hagmann (2013)	36	Information security	Xie et al. (2021)
17	Reduce risks impact	Pramod et al. (2013)	37	Management of electronic data assets	Acuna et al. (2021)
18	Security assurance	Charlesworth & Pearson (2013)	38	Minimize Fraud pentagon	Hermawan & Novita (2021)
19	Developing maturity model	Batenburg, et al. (2014)	39	Anti-Corruption	Siahaan et al. (2022)
20	Human resources governance	Grobler et al. (2014)	40	Healthcare services	Alharbi et al. (2022)

4.1.2 Integrated GRC for management control

One of the critical aspects of implementing the integrated GRC of the 40 linkages obtained in Table 4 is the achievement of management control activities. Given the importance of management control, it should be designed and structured in the gradual development and evolution of management control [64]. Management control is part of the control that should be implemented and executed appropriately to achieve organizational values by utilizing resources effectively and efficiently and optimizing business attributes, including compliance, risk, and performance—realizing all that requires assurance that controls were designed appropriately and implemented and that compliance is consistently applied. Compliance can be a risk or control function that minimizes the risk or reduces violations. The governance is obliged to monitor and ensure to obtain assurance.

The successful implementation of integrated GRC can improve management control. As for management control, management steps are taken to achieve the initially planned goals and ensure all elements/functions within the organization perform their functions consistent with organizational policies. Therefore, there is an excellent need for compliance with policies, where policies articulate the culture and accountability at the GRC level, consequently impacting the organization [7]. In addition to exploitative purposes, the GRC Information System helps assess the effectiveness and efficiency of management control [26]. The four elements of management control are organizational structure and strategy, corporate culture, management information systems, and core control package [65]. Integrating GRC with a high maturity level accommodates the organizational structure and strategy that is part of governance; furthermore, compliance ensures that the behaviour of all employees is in line with the corporate culture and can mitigate risks to information system management. Those are three factors reflected in the integrated GRC that led to the success of the core control package. Therefore, the better the integrated GRC implementation, the better the control management.

4.1.3 Integrated GRC implementation in Indonesian state-own companies

Indonesia is one of the countries in the world that implements an integrated GRC and even makes it part of the regulation to support organizations in adapting to new habits due to the current uncertainty. That is also inseparable from the role of performance management in dealing with organizational changes [66]. The following is the integrated GRC in five state-owned companies in Indonesia: V, W, X, Y, and Z [67].

Company V is a state-owned holding company that consists of six groups. The organs that manage GRC in V are spread over six groups at the holding level. The Board of Directors establishes the GRC Committee (on an ad hoc basis) with the objectives of:

- Improving aspects of good corporate governance, risk management, and compliance in the decision-making process of the Board of Directors related to investment management, strategic company operational policies, and controlling strategic business activities of group companies;
- Provide confidence that investment, strategic, operational policies of the company, and control of strategic business activities of the company group to provide added value for the company, under company needs, in line with the company's long-term plan and comply with applicable laws and regulations.
- Assist the board of directors in implementing duties and managing the company carefully, using the board of directors' authority.

The design of the GRC implementation in V starts from the alignment of policies (corporate, business, and functional) by the GRC committee, which in achieving performance is principled through the application of the three-line model and using the corporate strategy triangle (competitive advantage, coherence, and control). The maturity of the GRC is measured by aspects such as management commitment, performance, acceptance of risk, expectations and measurement, stakeholder involvement, budget, and resources. Furthermore, company W is a state-owned enterprise engaged in social insurance. The integrated GRC implementation model starts with a work plan (company budget) that strengthens internal control and risk mitigation as a work program budgeted and carried out by the risk-taking unit. Where the recording of daily transactions, both financial and non-financial, through the implementation of four critical points, namely performance management, assurance process (by the internal control unit), proactive compliance (by the legal and compliance bureau), and risk management (by the risk management division and corporate transformation). The resulting output is a dashboard for improving excellent performance, gaps in assessment and audit results, the effectiveness of control and integration, opportunities for improvement, and recommendations for action plans.

Company X is a state-owned enterprise in the form of limited liability companies engaged in banking financial services. The implementation of the integrated GRC refers to the applicable regulations regarding the implementation of governance, risk management, and the implementation of the compliance function of commercial banks. The transformation of GRC practices in business processes, support, and operations through a three-line model supported by the existence of information technology infrastructure such as:

- Governance: compliance regulatory monitoring system, legal application system, audit command language, whistleblowing system
 - Risk: loss event database, risk control self-assessment, internal credit rating, credit scoring model
 - Compliance: compliance monitoring application, compliance control application
- Factors supporting the effectiveness of integrated GRC implementation:
- There is a governance and risk culture entrenched firmly at all levels of the Bank, which is in day-to-day operations.
 - The absence of silos and effective communication at all levels of the Bank, including between the Board of Directors and the Board of Commissioners
 - Establishment of sufficient GRC supporting organs (committees, three-line model work units, and availability of adequate risk infrastructure
 - The active role of the Board of Commissioners in carrying out its supervisory function on implementing risk management and compliance with the Bank

The fourth company, Y, is an insurance company for workers. The implementation of integrated GRC using the GRCC concept: Governance, Risk, Compliance, and Control. The objectives of strengthening and sustainable GRCC integration include three things:

- Awareness: efforts to build understanding and awareness of individuals, work units, and institutions related to GRCC
- Improvement: efforts to increase understanding of the importance of GRCC for organizational sustainability
- Maintenance: efforts to maintain the implementation and integration of GRCC on an ongoing basis.

The last one is company Z, a fast freight transportation company. The implementation of integrated GRC through the application of the Three lines model is supported by the GRC system and infrastructure. The company's organizational structure and unit positions related to GRC have a risk officer in each work unit as risk management and an SMAP (anti-bribery management system) in their work units. The GRC oversight through the management dashboard includes financial reports and monitoring activities, human capital, performance, ridership, KPI (key performance index), customer complaints, and additional modules (SMAP). The achievement of this integrated GRC implementation in Table 5, where Z gets a maturity level score of 3.58 out of a total of 5.00, which is the *Defined* level to *Managed* level (score 4), and the future orientation and direction of the integrated GRC practice in Z is *Optimized* (score 5). The assessment had four components: *learn, align, perform* and *review*.

Table 5: Integrated GRC maturity level

Component	Learn	Align	Perform	Review
Maturity Level	3,21	3,47	3,67	4,00
Overall Maturity Level	3,58 Defined			

4.2 Integrated GRC in the future

Risk is the crucial link between performance management and GRC [8]. The risk of non-compliance results in a violation. Therefore, sustainable compliance is considered a primary business goal, and leaders must find new unprecedented methods to reduce costs, improve business performance, and strengthen decision-making processes [13].

The risk of data breaches in 2020 is the highest due to the COVID-19 pandemic [68]. Adjusting the integrated GRC is a solution for organizations to bounce back from adversity due to the COVID-19 pandemic, turning potential problems into advantages by reducing risk. Gaurav Kapoor explains in his writings that five trends are forming the GRC in the future, namely increasing risk management velocity, increasing peripheral risk, using front liners to identify and report risks, agility in risk management, and risk quantification, namely changing qualitative risk analysis to quantitative [69]. These five risk-related trends will shape GRC in the digital era, so organizations must transform and upgrade their governance, risk management, and compliance practices digitally. That is also appropriate and can improve higher education through digital and organizational performance [70], [71].

V. CONCLUSION

5.1 Conclusion

This paper emphasizes the importance of implementing this integrated GRC throughout the organization. Integrated GRC is an organizational strategy to manage three crucial functions: governance, risk management, and compliance, which helps achieve organizational goals by paying attention to guarantees and performance management. In daily practice, integrated GRC is used in governance, risk management, and compliance. It extends its scope to quality management, information security management, ethics and values management, continuous auditing, and business sustainability. In addition to showing the many kinds of research related to integrated GRC in various journals, this paper also describes the implementation of integrated GRC in several companies in Indonesia. In other words, like it or not, now or in the future, an integrated GRC must be carried out by the organization.

This paper describes theoretically and conceptually integrated GRC and company data related to their integrated GRC implementation. Therefore, it can open up opportunities for empirical research in integrated GRC implementation applications in various organizations and several countries. Expected organizations to require themselves to implement integrated GRC from now on appropriately and correctly, considering the importance of integrated GRC in many business subject areas.

5.2 Future research opportunity

In the digital era, the role of integrated GRC is to increase competitiveness and survive against the onslaught of technology highly expected. That is inseparable from the importance of strengthening risk management (management control), which must include digital risk in mitigating cyber risk. Furthermore, operational risks often occur, such as cyber-attacks on IT systems and infrastructure, web and company applications, and the Internet of Things (IoT). Therefore, further research is expected to review the successful implementation of integrated GRC in risk-related organizations, especially cyber risks in today's digital era.

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