Vol.5, Iss.1
ISSN: 2663-0478 (P)
ISSN: 2707-6083 (O)

ORGANIZATION LEADERSHIP & DEVELOPMENT QUARTERLY

Centre for Organization Leadership & Development

2023

- **Engaged Scholarship**
- **Managing during Crises**
- **The Core Data Governance Framework**

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Our mission is to share and ignite insightful conversations that enhance knowledge, skills, and application; and strengthen synergies among OD professionals and organizations.

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ORGANIZATION LEADERSHIP AND DEVELOPMENT QUARTERLY

Leadership and Organization Development Resource

VOL.5 NO.1 Q1/2023

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Published Quarterly

Centre for Organization Leadership and Development (COLD), ISSN (P): 2663-0478, ISSN (O): 2707-6083

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EDITOR'S NOTE

With mission excitement we bring you Volume 5, Issue 1 of the Organization Leadership and Development Quarterly (OLDQ). OLDQ is the premier Organization Development & Change (OD&C) journal from Africa, particularly Zimbabwe. As a peer-reviewed scholar-practitioner publication, OLDQ focuses on novel and relatable insights targeted at advancing the science, theory, practice, and values of OD&C. Published by an OD-inspired institution, The Centre for Organization Leadership and Development (COLD), the editorial purpose of OLDQ is premised on the fundamental values, premises, and pillars of Organization Development.

In May 2022, the OLDQ published the '2022 Humanizing The Workplace Report' following the **'Reframing Corporate Perspectives Series'** that was facilitated in collaboration with Unicaf University in Zambia and Transform Your Performance (USA). Given its humanistic focus, the Report has received global recognition. In 2023, OLDQ will be supporting COLD's inquiry on the 'Change & Transformation Quotient' titled *'Embedding an OD & Change Leadership Approach for CEOs and Directors in Africa'*.

In this Issue, we share insights from Zimbabwe, Malawi, and Nigeria. The insights are focused on engaged scholarship, management during crises times, and data governance. The articles reinforce the significance of Appreciative Inquiry, Action Research, and strategic change in driving the desired dual outcomes of OD: organization effectiveness and workplace health.

We endeavor to build a strong and transformative international scholar-practitioner publication from Africa. We therefore invite your OD and OD-related contributions for our upcoming Issues. Please note that most of the OLDQ articles and findings will be discussed on the **OLDN Conversations and Publications Club**. Thank you so much for taking time to read this *Issue*. The world is no better place without engaging into insightful and transformation-focused conversations. Hence, we welcome your feedback and OD & Leadership success stories.

Managing Editor

Dr. Justine Chinoperekweyi

Volume 5; Issue 1

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Published by: *Centre for Organization Leadership & Development (COLD)*
(ISSN (P): 2663-0478; (O): 2707-6083)

Design & Artwork:
COLD
Email: info@centreold.com

Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
Volume.5, Issue.1; 2023
Centre for Organization Leadership and Development (COLD), Zimbabwe

Engaged Scholarship: Maximizing Student Learning through Action Research and Appreciative Inquiry

Dr. Justine Chinoperekweyi
Centre for Organization Leadership and Development (COLD), Harare, Zimbabwe
Email: justine@centreold.com

Abstract

The adoption of participatory approaches as a form of engaged scholarship facilitates interdisciplinary research, close partnership between practitioners and scholars thereby linking theory to practice. This paper builds on the increasing call for Action Research in scholarship. Using a case study approach, this contribution reviews the philosophical orientation of scholarly articles presented at a teaching and learning conference conducted by one public university in the Governorate of Oman. Common themes covered in the reviewed abstracts include problem-based learning, active learning, evidence-based interventions, case studies, technology-enhanced learning, and outcome-based learning. Findings indicate that these themes are essential in facilitating engaged scholarship. In view of the literature gap covering the extent to which participatory approaches enhance scholarship, the review of literature indicates that there are numerous university-based action research programs that enhance scholarship. The implications of this analysis are that HEIs need to adopt participatory approaches to scholarship of teaching and learning through problem-based approaches, active learning, evidence into practice, and dynamic collective learning. Engaged scholarship require the adoption of participatory approaches embedded in the concept of development. Engaged scholarship should be a priority in HEIs in order to maximize student learning through the enhancement of scholars' pedagogical content knowledge.

Keywords: Scholarship, SoTL, Action Research, Appreciative Inquiry

Introduction

The learning landscape is continually evolving as a result of numerous macro-environmental influences (Barnett, 2014; Richlin, 2010). The concept of a VUCA operating environment applies to educational institutions in equally the same way as it applies to other business sectors (Taatila, 2017). In view of the significance of engaged scholarship in all spheres of modern society, there is increasing and urgent need for educational institutions to rethink, reboot, re-imagine, and re-examine teaching and learning approaches in order to maximize student learning (Bolman and Deal, 2015; Chinoperekweyi, 2019). The main concerns that educators and scholars are battling with include finding approaches to help learners to learn deeply and help more students to succeed. The adoption of participatory approaches as a form of engaged scholarship facilitates interdisciplinary research, close partnership between practitioners and scholars thereby effectively linking theory to practice. As a result of the need to integrate knowledge into larger understanding, educational institutions are compelled to rethink the teaching conceptions and adopt holistic learning

approaches. As complex adaptive systems (Bolman and Deal, 2015), HEIs need to reshape, respond-to and adapt-to the VUCA environment (Woodard, Shepherd, Crain-Dorough, and Richardson, 2011). As a sign of appreciating the epochal change era in the learning landscape, there has been an increase in the number of teaching and learning conferences being hosted by Higher Education Institutions (HEIs) with a focus on enhancing the quality of research, teaching, assessment and learning. In view of the changes prevalent in the learning environment, the need for shared inquiry into research, teaching and learning cannot be overemphasized. The 21st century learning environment demands that learners develop certain skills and be flexible to enhance the skills in line with the evolving environment. On the other hand, educators in HEIs need to adopt research, teaching and assessment approaches embedded in the concept of development (Wilkins and Juusola, 2018).

A cursory perusal of teaching and learning literature shows that there is an increase in literature focusing on Scholarship of Teaching and Learning (SoTL) (Boyer, 1990; Rice, 1992, Kreber and Cranton, 2000). The extant literature describing scholarship of teaching and learning can be traced back to the concept of pedagogical content knowledge by Shulman (1987). In recognition of the demands of the 21st Century, this article advocates for the inclusion of scholarship of practice in order to develop learners who are prepared for the shifting industry demands. In line with the Aristotelian praxis, this argument is corroborated by various scholars who advocate for scholarship that is evidence-based (Rousseau & McCarthy, 2007), and scholarship that is directly related to practice (Lorsch, 2009). Effective scholarship demands shared inquiry into research and learning; hence the view of scholarship as a process of continuous exploration, exploitation, and growth. In order for educational institutions to treat teaching as inquiry, the adoption of development focused interventions that embrace the inevitable change is a strategic imperative in HEIs (Richmond, 2015). There are six criteria of SoTL that should be embraced in HIEs. The six criteria are clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique (Glassick, Huber and Maeroff, 1997). Given the six criteria of scholarship of teaching and learning, this paper argues that Action Research and Appreciative Inquiry have the transformative power of enhancing scholarship.

Review of empirical literature indicate that participatory approaches such as Action Research and Appreciative Inquiry are embedded in the dual identity of the growing multidisciplinary organization development field, that is, the science of change and practice of changing; hence the present paper submits that these two approaches foster engaged scholarship in complex adaptive systems such as HEIs. Participatory approaches offer a grand opportunity to address challenges in contemporary scholarship in a novel and constructive way. Action Research and Appreciative Inquiry interventions recognize that research and teaching are serious intellectual work requiring continuous inquiry and action mentality. This paper positions Action Research and Appreciative Inquiry as fundamental interventions that educators need to integrate in curriculum redesign, development of course titles,

learning outcomes, assessment methods, and classroom delivery techniques. The quality dimensions of Action Research necessitated its consideration as a core principle in fostering scholarship. The Action research dimensions include systematic, verifiable (Zuber-Skerritt, 1992); rigorous, reflective, and relevant (Coghlan, 2017). This is correlated to the views of Tushman, O'Reilly, Fenollosa, Kleinbaum, & McGrath (2007), who stated that scholarship should be characterized by rigor and relevance achieved through active engagement with executive education. The Appreciative Inquiry dimension is corroborated by the views of Van de Ven (2007) who advocated for the co-creation of knowledge through engagement of scholarship between academics and practitioners. Schon (1995) pointed out the need for action research in order to give rise to new knowledge. Action Research and Appreciative Inquiry supports the distinctive elements of scholarship of teaching and learning as proposed by Rice (1991). These distinctive elements of scholarship are "content knowledge" or "synoptic capacity", "pedagogical knowledge", and "pedagogic content knowledge" (p.125).

This paper reviews the philosophical orientation of scholarly articles presented at a teaching and learning conference conducted by one public university in the Governorate of Oman. Without merely adopting or coping with nascent management fads (Birnbaum, 2000), the critical review of the abstracts of the presented papers seeks to determine the extent to which 21st century scholars' work favors Action Research and Appreciative Inquiry methodologies as essential concepts in enhancing scholarship. The main research question of this paper is *"To what extent does current scholarly work advocate for Action Research and Appreciative Inquiry methodologies in teaching and learning?"* The current review is therefore premised on scholarship of teaching and learning (Boyer, 1990), three types of teaching knowledge - matter knowledge, pedagogical knowledge, and curricular knowledge (Shulman, 1986), distinctive elements of SoTL (Rice, 1991), Action Research, and Appreciative Inquiry (Cooperrider, Whitney, and Stavros, 2008) in the context of educational institutions as complex adaptive systems (Bolman and Deal, 2015; Johansen and Euchner, 2013).

Aims of the Paper

The main aim of this paper is to explore the extent to which 21st century scholarly work explicitly or implicitly advocates for participatory development focused interventions that enhance scholarship in educational institutions. In reviewing the philosophical orientation of presented conference papers, the study seeks to address the following specific objectives:

- To explore the meaning of engaged scholarship that teachers and faculty members can use to ensure teaching and learning becomes effective instrument of help.
- To reflect on Action Research and Appreciative Inquiry models on enhancing real scholarship.
- To review the significance of Action Research and Appreciative Inquiry in rethinking and rebooting Scholarship of Teaching and Learning (SoTL).

Understanding Scholarship

To understand the roots and meaning of scholarship, this article reviews the work of Ernest Boyer (the Boyer Criteria). The significance of Action Research and Appreciative Inquiry is then critically reviewed with the objective of maximizing student learning. The Boyer Criteria has been adopted due to its usefulness in assessing 21st century scholarship. According to Boyer (1990), there are four kinds of scholarship: discovery, integration, application, and teaching. Scholarship of discovery focuses on original research and is assessed through high-impact publications, researcher's h-index, and successful grant applications. The scholarship of integration is about synthesis or making connections across disciplines and placing specialties in the larger context. It involves "interdisciplinary, interpretive [or] integrative" work. The student body and faculty members need to be technologically savvy and interact in new ways with content and with colleagues (Atbach and Reisberg, 2018). Examples of scholarship of integration include: designing an interdisciplinary course, writing a review article, developing a basic/clinical science integration seminar, or submitting a grant proposal for a multidisciplinary project. Writing an editorial for an electronic journal, for instance, would often be considered to be scholarship of integration. HEIs need to rethink and restructure perspectives of scholarship (Wilkins and Juusola, 2018).

The third category is the scholarship of application. This encompasses active engagement in scholarly activities and examples include: developing a quality improvement project, writing a grant to teach a specific subject, or presenting a seminar to conform to current concepts. The final category is the scholarship of teaching, that is; imparting knowledge. According to Boyer (1990), "teaching must be carefully planned, continuously examined, and relate directly to the subject taught." The Scholarship of Teaching comes into play when a teacher does research into effective teaching methods, when a faculty member develops an innovative curriculum, or when an educator alters his or her syllabus according to student feedback. It also includes the use of new techniques to improve students' communication skills. The other category that is equally important is the scholarship of practice. This focuses on the application of theory into practice. This category focuses on blending education with practice, through the application of theoretical concepts to actual practice.

The key concern of contemporary scholarship is how to generate knowledge that is valid and vital to the well-beings of individuals, organizations, and communities. Action Research challenges the claims of a positivistic view of knowledge which holds that in order to be credible, research must remain objective and value-free. Instead, we embrace the notion of knowledge as socially constructed and, recognizing that all research is embedded within a system of values and promotes some model of human interaction, we commit ourselves to a form of research which challenges unjust and undemocratic economic, social and political systems and practices.

As depicted in Figure 1, Kreber and Cranton (2000) developed a model characterizing nine elements of the scholarship of teaching and learning. Each component has various indicators based

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Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
Volume.5, Issue.1; 2023
Centre for Organization Leadership and Development (COLD), Zimbabwe

on content reflection, process reflection, and premise reflection. The indicators under each component can be enhanced through Action Research and Appreciative Inquiry. Educators who engage Action Research and Appreciative Inquiry enhance each indicator and demonstrate evidences of the SoTL (Kreber and Cranton, 2000).

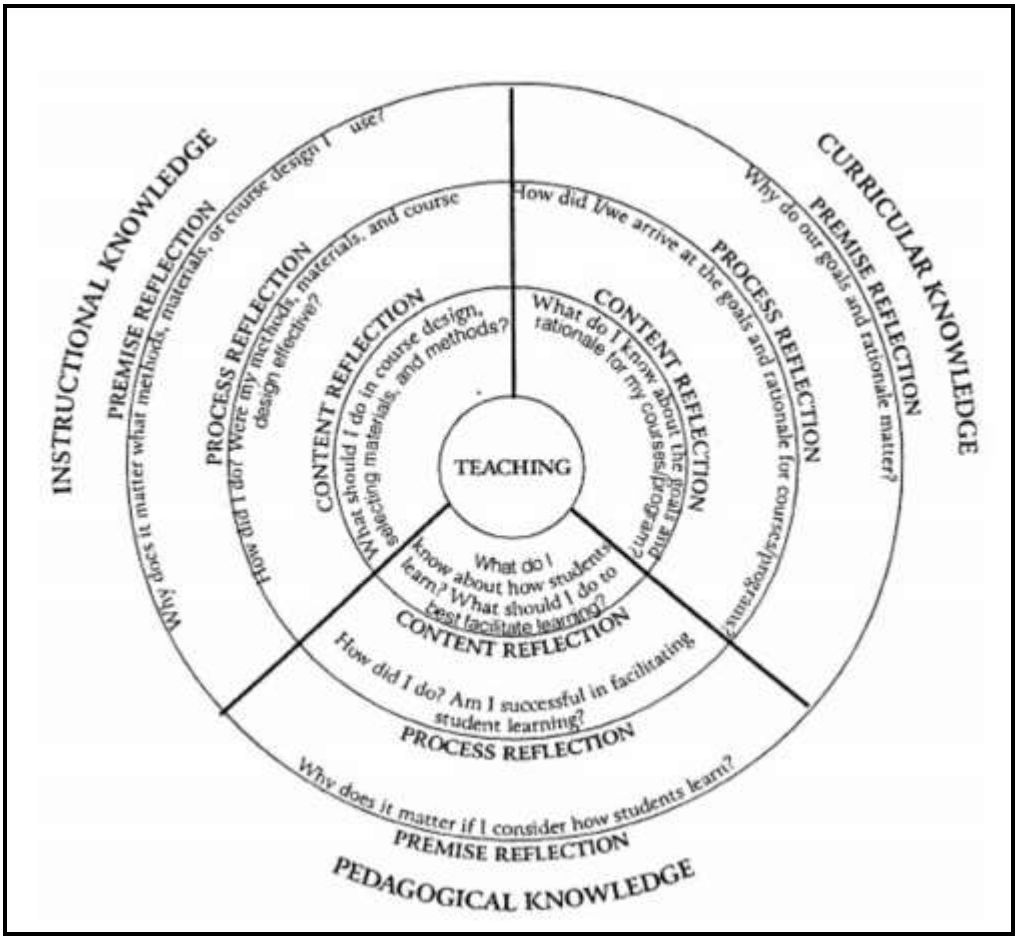

Figure 1: Components of SoTL

Source: (Kreber and Cranton, 2000, p. 485)

In line with this paper's submission that participatory organization development approaches enhance scholarship, Trigwell and Shale (2004) model views scholarship as activity. This practice-based model views learning as research and as a partnership between teacher and the students, with much focus on the development of learners. At the centre of the model is pedagogical resonance, "the bridge that links teacher knowledge with teacher action" or "the bridge between teacher knowledge and student learning" (Trigwell and Shale, 2004, p.529).

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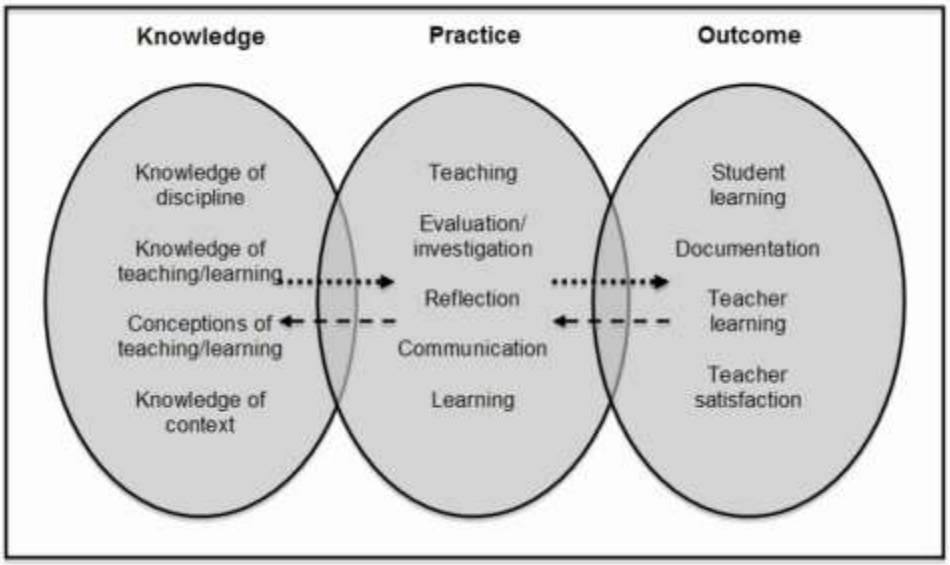

Figure 2: SoTL Components

Source: Adapted from Trigwell and Shale, 2004, p.530.

As depicted in Figure 2, engaged scholarship includes interrelationship between knowledge, practice, and outcome. These components demand reliance on participatory approaches such as Action Research and Appreciative Inquiry.

Action Research

Action Learning offers the pragmatic conceptual and theoretical foundation for enhancing scholarship. Action Research is fundamental to Action Learning as a participatory approach. Action Research encompasses close cooperation between practitioners and researchers to co-create knowledge and ensure pedagogical resonance. This concept is fundamental to building HEIs as effective learning organizations (Zuber-Skerritt, 1992; Marquardt, 2000; Senge, 2006). Action learning is a form of constructivist learning and exploration of events with the consistent attention towards continuous improvement (Coghlan, 2013; Marquardt, 2000; Revans, 1998). Action learning is essential to 21st century scholarship because of its focus on reflexive and reflective practice (Cunliffe & Easterby-Smith, 2004; Rigg, & Trehan, 2004). Reason and Bradbury (2001, p.1) defined Action Research as:

> *"a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities."*

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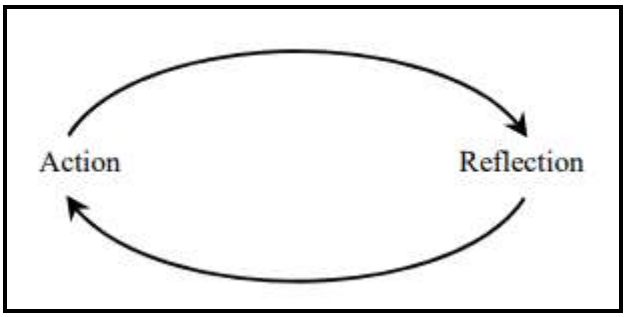

Figure 3: Action Learning Cycle

Source: Almeida (2010)

Learning is life-long and ongoing in cycles of action and reflection, in response to fresh questions that are new and unknown to us and that we seek to resolve.

Scholarship can be viewed from a range of philosophical viewpoints such as Aristotelian praxis *(theoria (thinking), poiesis (making), praxis (doing)*, hermeneutics *(interpretation)*, existentialism *(existence of a person as a free and responsible agent)*, pragmatism *(evaluation in terms of practical application)*, process philosophies, and phenomenology *(the structure and experience of consciousness)*. In light of the different conditions from which people try to learn, Susman and Evered (1978) pointed out that action research provides a corrective to the deficiencies of positivist science by being future-oriented, collaborative, agnostic, and situational implying system development and so generating theory grounded in action. The broader perspective of engaged scholarship involves a participative approach for obtaining different perspectives of key stakeholders in studying complex problems (Van de Ven, 2007).

Action Research is based on two assumptions which can be the cornerstones of 21st century scholarship. One is that involving the clients or learners in their own learning not only produce better learning, but also vital and valid data. The other is that one only understands a system when one tries to change it, as changing human systems often involves variables which cannot be controlled by traditional research methods. Action Research methods are far more scientific in the sense of generating knowledge that is tested in action and in mobilizing relevant knowledge from people in a position to know their conditions better than conventional research. Susman and Evered (1978) argued that action research "constitutes a kind of science with a different epistemology that produces a different kind of knowledge, a knowledge that is contingent on the particular situation and which develops the capacity of members of organizations to solve their own problems" (p. 601).

According to Coghlan (2017), there are three (3) critical themes of Action Research that are essential in developing 21st century scholarship. First, Action Research is an emergent inquiry process where data shift as a consequence of intervention and where it is not possible to predict or to control what takes place. Second, Action Research focuses on real issues, rather than issues created particularly for the purposes of research. Third, it operates in the people in-systems domain and

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applied behavioral science knowledge is both engaged in and drawn upon. Action research's distinctive characteristic is that it addresses the twin tasks of bringing about change and in generating robust, actionable knowledge, in an evolving process that is undertaken in a spirit of collaboration and co-inquiry, whereby the research is constructed with people, rather than on or for them. Engagement in the cycles of action and reflection perform both a practical and philosophical function in its attentiveness and reflexivity as to what is going on at any given moment and how that attentiveness yields purposeful action and actionable theory. These views are in line with Gustavsen (2005) perspective that action research promotes innovation through collaborative inquiry and action.

Types of Action Research

There are three types of Action Research: technical, practical, and critical or emancipatory. Emancipatory Action Research is collaborative, critical, and self-critical inquiry by practitioners (e.g. faculty members) into a major problem or issue of mutual concern. They 'own the problem' and feel responsible and accountable for solving it through teamwork and a cyclical process of (1) strategic planning, (2) implementing the plan (action), (3) observation, evaluation and self-evaluation, (4) critical and self-critical reflection on the results, and making decisions for the next cycle of action research – that is, a revised plan, followed by action, observation and reflection. Action Research is emancipatory when it aims not only at technical and practical improvement, the participants' transformed consciousness, and change within their organization's existing boundaries and conditions. It is also emancipatory when it aims to change the system itself or those conditions which impede desired improvement in a system.

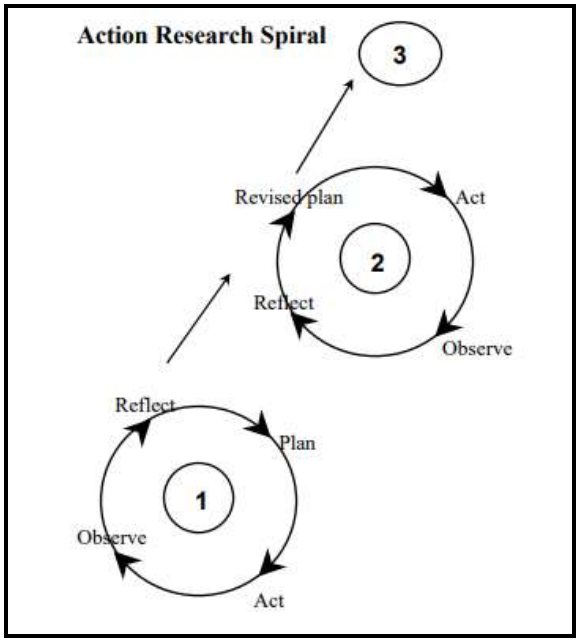

Figure 4: Action Research Spiral

Source: Almeida (2010)

Technical Action Research focuses on effectiveness and efficiency of practice - professional development. The facilitator is an outside 'expert'. Practical Action Research aims at practitioner's understanding and professional development. The facilitator undertakes the Socratic role, encouraging participation and self-reflection. This involves questioning another to elicit clear expression of truth.

Many scholars concur to the essential role of action research in rebooting teaching orientation, rethinking and restructuring scholarship (Osland, Li, and Mendenhall, 2017; Wilkins and Juusola, 2018). Stringer (cited in Brydon-Miller *et al.,* 2003) pointed out to the need to engage in thoughtful practices involving changes in relationship, positioning, authority, and knowledge production practices. Action research bridges the gap between research and practice (Somekh, 1995), through upholding pedagogical resonance.

One of the weaknesses of action research is its localism and the difficulty we find in intervening in large-scale social change efforts. The bulk of action research takes place on a case-by-case basis, often doing great good in a local situation but then failing to extend beyond that local context.

Appreciative Inquiry (AI)

Appreciative Inquiry is a process that can be used by researchers and faculty members, candidates and practicing teachers alike in order to improve their effectiveness in the classroom. The backbone of the AI process is the use of the 4-D Cycle, so named for its four phases: Discovery, Dream, Design, and Destiny. The 4-D Cycle encourages participants to discover and develop their positive core strengths. According to Cooperrider, Whitney, and Stavros (2008), in the Discovery phase, individuals reflect on the "best of what is." In the Dream phase, they imagine "what might be." In the Design phase, they define "what should be," and in the final Destiny phase, they outline "what will be." Elements of the Cycle can be used to guide pre-service teachers toward examining the factors that contribute to their effectiveness in the classroom, rather than solely focusing their thoughts on what went wrong. As such, they are able to consciously construct their future teaching practice based on their positive core strengths and past successes.

The 4-D Cycle could also be used to help groups of teachers improve their strategies for standards-based instruction. They could focus the Cycle on one of the five standards at a time in order to discover effective methods they already use related to that standard, dream what the ideal classroom reflecting that standard would look like, design how that ideal can be achieved, (e.g., by combining the previously "discovered" effective methods), and once the ideal has been achieved - return to engage in the destiny phase, to discuss how their standards-based classrooms can be maintained and further enhanced.

The cycle of scholarly teaching and the scholarship of teaching (Richlin, 2001) corroborates the need for Appreciative Inquiry in contemporary scholarship. According to Richlin (2001), the scholarly process involves recognition of the problem, study what others have done or already know, analyze

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the state of the art of the field, design and implement classroom intervention, conduct systematic observation and ensure proper documentation, analyze the findings and make available to peers in order to obtain feedback and critiques. This view is supported by Paulsen (2001) who stated that "Observing students in the act of learning, reflecting, and discussing observations and data with teaching colleagues, and reading the literature on what is already known about learning is one-way teachers can implement the scholarship of teaching" (p.2). Appreciative Inquiry is also supported by the concept of 'Questioning Insight' (Revans, 1998). Questioning insight develops from asking ourselves fresh and deep-seated questions, including questions of epistemology (e.g. how do we come to know?), education (e.g. what/how did I learn?), ontology (e.g. who am I? and who would I like to be?) and ethics (e.g. what is right, fair, sustainable?).

Methodology

A case study approach was adopted using abstracts of the international conference papers presented at the "Reimage Teaching to Maximize Student Learning" conference held by the Centre for Excellence in Teaching and Learning (CELT) at Sultan Qaboos University in the Governorate of Oman. In reviewing the abstracts, the researcher conducted a critical thematic analysis of: 1) the conference themes, 2) workshop themes, and 3) presented paper titles. The focus of the researcher was to determine common themes associated with the dimensions of Action Research and Appreciative Inquiry. The review of abstracts focused on identifying themes that exemplify and advocate the adoption of participatory approaches in HEIs. There were 77 papers presented at the CELT Sultan Qaboos University conference. Nine keynote presenters were part of the conference. A sample frame of 85 (papers presented and keynote presentations) was used after removing 1 paper which the researcher had organization development interest in. A sample of 36% was deemed appropriate; hence the selection of 9 keynote presentations plus 22 abstracts evenly distributed across the conference themes. The researcher adopted a simple random sampling method using the conference handbook. The distribution of the reviewed papers is summarized in Table 1:

Table 1: Sample Distribution of Reviewed Abstracts

Conference Themes	Total Papers	Sampled	Sample (%)
Keynote Presentations	9	9	100%
Active Learning	37	11	30%
Learning Spaces Design	14	4	29%
Scholarship of Teaching and Learning	9	3	33%
Critical Thinking	11	2	18%
Professional Development & Leadership	6	2	33%
Total	**86**	**31**	**36%**

The overall distribution of abstracts is depicted in Figure 5:

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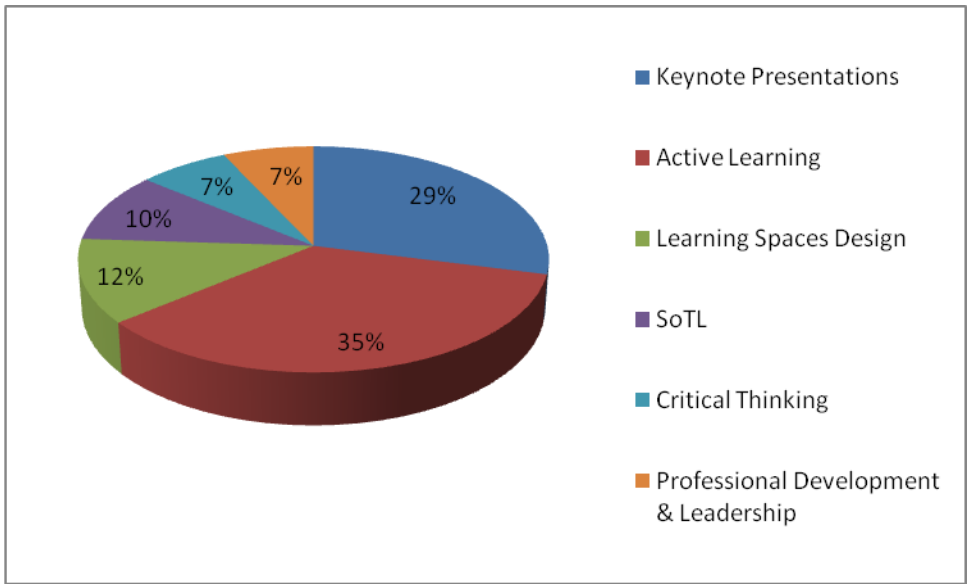

Figure 5: Abstracts Distribution

Findings and Discussion

The review of literature indicates that there are numerous university-based action research programs. According to literature, examples of these action research networks include: Deakin University School of Education; University of Bath Centre for Action Research in Professional Practice; the Cornell Participatory Action Research Network; Participatory Research in Asia; Southern Cross Institute of Action Research; Case Western Reserve Department of Organizational Behavior; the Leadership for Change executive program at Boston College (which brings together faculty from the Lynch School of Education, the Carroll School of Management, and the Sociology Department); Boston University School of Management; Griffith University; the University of Sydney; and research groups such as Action Learning, Action Research and Process Management (ALARPM); the UK-based Collaborative Action Research Network (CARN); the New Zealand Action Research Network (NZARN); and US-based Community-based Research Network.

Literature indicates that it is essential for HEIs to make use of action learning to enhance scholarship of discovery. Research and development should focus on producing webinars while building written content, maps, milestones, and self-assessments. In a classroom, faculty members can set up a scaffold ladder of experience to guide the student through known teaching and learning options, each presented in their own time and required for class completion. Table 2 depicts findings regarding the link between the participatory approaches and dimensions of scholarship.

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Table 2: Link between participatory approaches and dimensions of scholarship

Participatory Approaches	Dimensions of Scholarship	The connection
Action Research (AR) *(Technical, Practical, Emancipatory)*	Scholarship of Discovery *(research)*	AR enhances obtaining different perspectives (interdisciplinary research) of key stakeholders in studying complex problems (Van de Ven, 2007)
	Scholarship of Integration *(synthesis)*	AR facilitates close partnership between practitioners and scholars thereby linking theory to practice.
	Scholarship of Application *(engagement)*	Knowledge comes from doing. AR focuses on problem-based scholarship.
	Scholarship of Teaching (imparting knowledge)	AR facilitates practices that involve changes in relationship, positioning, authority, and knowledge production practices.
	Scholarship of Practice	AR seeks for practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities
Appreciative Inquiry *(4-D Cycle)*	Scholarship of Discovery	The discovery dimension of AI focuses on data gathering and questioning insight. This is also enhanced through inquiry-based scholarship.
	Scholarship of Integration	AI supports the synthesis dimension of scholarship through collaboration, dialogs, discussions, and interaction.
	Scholarship of Application	The Design stage of AI encompasses problem-based learning and outcome-based learning.
	Scholarship of Teaching	Through observation and questioning insight, the Design stage approaches that enhance teaching, such as technology-enabled teaching and curriculum re-design.
	Scholarship of Practice	AI supports design-based courses, evidence-based interventions, and problem-based approaches.

The matrix in Table 2 supports the view that engaged scholarship can be enhanced through Action Research and Appreciative Inquiry methodologies. This is because Action Research and Appreciative Inquiry support the main characteristics of scholarship: 1) critical reflectivity expressed

as content pedagogical knowledge, 2) learning partnership as a result of a student-focused teaching, and 3) scrutiny and critique by peers, through publication (Almeida, 2010). Through the adoption of participatory methodologies, pedagogical resonance is enhanced across all dimensions of scholarship.

Thematic Analysis Results

Thematic analysis is based on the conference themes: Active Learning (AL), Learning Spaces Design (LS), SoTL, Critical Thinking (CT), and Professional Development & Leadership (PDL). Thematic analysis results indicate that most of the themes in scholarship literature support the need for participatory approaches such as Action Research and Appreciative Inquiry. Common themes covered in the reviewed abstracts include problem-based learning, active learning, evidence-based interventions, case studies, technology-enhanced learning, and outcome-based learning. These themes are essential in facilitating an engaged scholarship. Action Research and Appreciative Inquiry interventions are also useful in fostering these themes in HEIs. All the reviewed articles emphasized the need for maximization of student learning through engaged scholarship. Though no abstracts were inclined towards the Dream phase of Appreciative Inquiry, the concept of imaginative variation is fundamental to engaged scholarship.

Engaged scholarship require the adoption of participatory approaches embedded in the concept of development. Engaged scholarship should be a priority in HEIs in order to maximize student learning through the enhancement of scholars' pedagogical content knowledge (Prosser, 2008). In line with Action Research, HEIs need to ensure the practice of reflection on, and codification of teaching (Kreber and Cranton, 1997). The creation of pedagogical content knowledge requires engaging in classroom teaching embedded in research (scholarship of discovery) (Paulsen, 2001; Kreber, 2001), and practice (scholarship of practice). Almeida (2010) advocates for introduction of collaborative action research programs in which teachers and faculty developers explore teaching and learning in specific disciplines. This is corroborated by Andresen (2000) who described scholarly as involving personal, but rigorous, intellectual development, inquiry and action built on values such as honesty, integrity, open-mindedness, skepticism and intellectual humility.

Implications for Engaged Scholarship

This contribution advocates for HEIs to consider Organization Development (OD) interventions such as Action Research and Appreciative Inquiry as strategic imperatives for enhanced scholarship. The adoption of such participatory approaches has a tectonic impact on scholarship of discovery, engagement, application, teaching, and practice. The research noted that participatory approaches facilitate pedagogical resonance hence an engaged scholarship. Engaged scholarship require the adoption of participatory approaches embedded in the concept of development. Engaged scholarship should be a priority in HEIs in order to maximize student learning through the enhancement of scholars' pedagogical content knowledge. The paper confirms the significance of participatory approaches in engaged scholarship.

Conclusion

Action research and Appreciative Inquiry interventions are being legitimized as a useful strategic tool to include community people in addressing the critical issues of their lives. Participatory approaches to research, evaluation, appraisal, and training are being promoted as part of a complex counter to the 'dismal failure of the past several decades of world "development" efforts in improving the conditions of the poor' (Wilson & Whitmore, 2000, p.104). Just as the corporate university's social connection is mainly through competition in the neo-liberal global market, development practitioners who promote action research must continue to promote dialogue on how best to mount a meaningful challenge to the neo-liberal global development enterprise. Who actually participates and for whose purposes? Whose practices are targeted for improvement? How are inequitable power relations actually unsettled and rearranged? Action Research meets criteria of validity testing more effectively than do most other forms of social research. Action Research projects test knowledge in action and those who do the testing are the interested parties for whom a base result is a personal problem. Action Research meets the test of action, something generally not true of other forms of social research. HEIs need to adopt participatory approaches to scholarship of teaching and learning through problem-based approaches, active learning, evidence into practice, and dynamic collective learning. To enhance scholarship, those in education should be authors, advocates, agents, arbiters, and ambassadors (Chinoperekweyi, 2019) of holistic scholarship. With respect to the main question raised in the introduction section of this paper, the study shows that scholarly work across disciplines advocates for participatory approaches such as Action Research and Appreciative Inquiry. These methodologies should therefore be incorporated as strategic imperatives for engaged scholarship.

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Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
Volume.5, Issue.1; 2023
Centre for Organization Leadership and Development (COLD), Zimbabwe

Management During a Crisis: Case of COVID-19 Pandemic in Malawi Public Sector Companies

Geofrey Joseph Mfuni
PhD in Business & Management (Candidate), MSc in Management Studies, BSc in Civil Engineering
Project & Planning Engineer, Electricity Generation Company (Malawi) Limited
mfunigeofrey@gmail.com, +265995424485

Abstract

The purpose of this research paper is to find out how managers in the Malawi public sector companies were able to make decisions during the Covid-19 pandemic. The paper also evaluates how agile the managers were and how effective they were able to manage the companies during the pandemic. Data in this study was collected from online reliable newspapers, articles and personal observations of how public institutions were managed during the Covid-19 pandemic. The research found out that the managers in the Malawi public sector were not fully prepared to handle the Covid-19 crisis, they were not agile and lacked creativity in their management approach. They were also indecisive evident in them taking too long to make decisions on what should be done. This paper if of original content and aims to close a gap of how managers in the Malawi public sector were able to handle to Covid-19 crisis. Since the pandemic was not unique to Malawi other companies outside Malawi can make use of the findings to improve their own management approaches during a crisis.

Keywords: Covid-19, Management, Leadership, Crisis

Introduction

Covid-19 pandemic hit the world unexpectedly in December 2019. Never before has this current generation experienced a devastating and trying time as was during the peak of the pandemic. Covid-19 is a respiratory disease which was discovered in Wuhan City China in December 2019 (Hadi et al., 2020). The virus spread so quickly between human beings that as of September 2022 it has claimed 6,542,050 people's lives. This was an unprecedented global pandemic. Everyone was in shock and despair. The normal way of life was disrupted. The normal way of doing business was turned upside down. With hundreds of deaths being reported everyday it was a nightmare to think of what was going to happen next (Lu et al., 2020).

The Malawi public sector was not spared from the vicious effects of Covid-19. The managers in these public institutions were now supposed to manage in an unfamiliar territory. Management is about planning, organizing, directing and coordinating activities so as to achieve a particular goal in an organization. It is the responsibility of top management team in a company to be on the lookout for changes and opportunities so as to make the company competitive at all times (Daft, 2015). Covid-19 presented a change in the business environment. A gigantic disruption of the normal so to speak. Failure by top managers to quickly respond to the pandemic could be catastrophic.

The Malawi public institutions have over the years been filled by party zealots. The management positions are filled based on political affiliation rather than competence of an individual (Chiweza, 2007). This becomes a challenge when managers are put to the test like Covid-19 did. Managers who have no skills nor required training will be exposed as they would not know how to react to the prevailing situation. It takes experience to lead during a crisis. It takes boldness to make tough decisions when all seems lost.

Statement of the Problem

Covid-19 present a very unprecedented business environment. It caused a crisis in the world. Managers in public institutions were forced to manage in a crisis. It was a trying time as managers had to make quick decisions. Resources had to be reallocated to fight the pandemic. New work policies had to be developed to accommodate shift work, social distancing, and remote work. It is a known fact that managers in public institutions are slow at decision making. They fail to be agile but rather stick to the same old ways of doing things. During the pandemic it was a time to think outside the box. A time to make bold and quick decisions so as to save the institution and prevent further spread of the virus.

Objective of the Study

The main objectives of this study are:

- To find out how managers made decisions during the pandemic.
- To evaluate any agility in the managers.
- To analysis how effective the managers were during the pandemic.

Decision Making During a Crisis

Making critical and timely decisions in a crisis is a major factor in the success of an organization (Sommer & Pearson, 2007). To be successful as a manager you need to respond promptly to internal and external changes. This means that a manager must be able to make decisions. Decision making is about making a choice amongst a number of alternatives (Simon, 1977). An organization must have well defined objectives, clarity of problems, and specific solutions as per the strategic plans. Uncertainties will be there so it is the responsibility of the manager to plan for them. Unfortunately, most managers would rather avoid uncertainties than face them head on.

In times of a crisis such as Covid-19 the normal way of making decisions cannot be followed. Decisions have to be made in an unconventional manner. It is during crisis that creativity is key in saving an organization from total collapse. New ideas and a new thinking would go along to meeting the prevailing challenges. Of course, during a crisis it is very difficult to make decisions because there is scarcity of information, a lot of stakeholders come into play, the time is not adequate and the crisis comes as a shock. All these make decision making in a crisis a very cumbersome endeavor (Pearson & Mitroff, 1993).

Some organizations. in an attempt to improve decision making during a crisis set up a crisis

management team. The team comprises of key members who have the actual authority to make decisions in the organization. This team will be responsible for the systematic development of tools and procedures to follow in the event of a crisis. Dry runs or crisis simulation is created so as to test the systems that are developed (Pearson & Clair, 1998). These dry runs help those responsible to get a feel of what a crisis will be like and also help to fine tune some areas that need to be improved.

Managerial Styles & Behavior

People will respond according to how they are treated. It is the responsibility of a manager to handle the employees in a manner that allows for effective and efficient work output (Mullins & White, 2007). How eager or motivated an employee is about a job is directly related to how the manager is perceived to treat them. If they are treated well, they will perform well. If they are mistreated, they will perform poorly. So, ultimately the management style and behavior have a very important impact on the success of an organization.

In the modern times management is now more about the people than the tools and plans. The people have to be understood and their potential harnessed. People have to get a buy-in and eventual ownership of the vision and plans (Macken, 1997). They have to get involved and not just be used as mere robots to complete tasks. To manage better a manager should be seen to be in listing the help of other people. People prefer to be consulted rather than be told what to do. More especially now that more and more people are getting educated (Stewart, 1999). Despite the formal authority to manage a manager who ignores these facts will have a tough time to manage the organization.

McGregor came up with two theories to explain the behavior of managers towards their employees. This is Theory X and Y. In theory X, the manager assumes the worst about the employees such as laziness, need to be pushed and only react to punishment. On the other hand, theory Y assumes the best about the employees such as they are self-motivated, they will work hard and that they like their work (McGregor, 1987). A study by Blake and McCanse (1991) found out that managers tend to use a variety of management styles depending on the situation. The manager would have a dominant style that they would use in the worst-case scenario if the secondary one is proving not to be effective.

Effective Communication

Communication is all about generating and transmitting information from one place to another or from one person to the other. Communication can be both verbal and non-verbal (Hanna and Wilson, 1998). When communication in an organization is effective, there is very high likelihood of achieving the set goals and objectives in an agreed time frame. Communication in an organization is in the form of media relations, online communications, community outreaches, marketing and special activities. The effectiveness of these communication functions is key to the success of an organization (Conrad & Newberry, 2011). It is highly desirable for employees to have great skills in communications since this is important not only for career growth but also for organization success.

Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
Volume.5, Issue.1; 2023
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Despite the outlined importance of having effective communication skills in an organization, Bolt-Lee & Foster (2003) proved that recent graduates and those already employed lack the necessary communication skills. Oral communication skill is key in success at a manager's position but unfortunately these skills are missing in most managers (Conrad & Newberry, 2011). According to the NCW (2004) report, the employers blame the lack of communication skills to the poor teaching happening at the academic level. This is a cat and mouse blame game between the employers and the academics.

Communication barrier can be defined as things that make the transmission of information complex and difficult to understand the message (Uppal & Pooja, 2019). If communication faces barriers, it would mean that the core messages in the organizations are not transmitted to the intended recipient. The barriers to communication are physical, emotional, cultural, attitudes, organizational, perception, and language. It is the responsibility of the top management team to ensure that it removes all barriers to communication if the organization is to remain successful.

Working in Teams

Mullins (2005) states that if a manager is to make the most out of his employees, he/she ought to understand the concept of working in teams. Human relationships and interactions have a direct bearing on how effective a team will be in the workplace. The specific behavior patterns of individuals must be considered and analyzed so as to ensure maximum utilization of skills. Working in teams is a very powerful tool that can make a company very competitive. Teams bring out the strength of each employee hence helping companies advance forward and make profits.

Despite the positives of working in teams there are down sides too. The problems included slow decision making, less effort when working in groups, group thinking, and lower standard of decision making (Karau and Williams, 1993). Working in groups also encourages the risk shift phenomenon. This is about individuals in a group taking on riskier decisions than they would if they were alone (Kogan and Wallach, 1967).

Discussion - Decision Making During a Crisis

Malawi public sector companies struggled to make decisions during the Covid-19 pandemic. The situation was new and unprepared for in the companies. They failed to even have emergency funding to use for normal operations. For example, hospitals were the most overwhelmed during the crisis. Hospital management failed to raise funds to procure oxygen tanks, beds, and critical medicines. It took up to four months before a decision was made to use the national stadium as a field hospital in Lilongwe. Funds from other non-critical projects were diverted to support the pandemic only six months after the virus hit Malawi. This slowness in decision making was costly as Malawi lost lives and allowed the virus to spread rapidly.

Managerial Styles & Behavior

Managers in Malawi public sector have very strange management styles. They are too timid to

make any decisions. They sort of wait for the politicians to give directions then they follow through. This is the reason why the organizations do not fully develop as there is lack of creativity and innovation. For example, Malawi did not see any innovative ideas coming out of these institutions on how to contain the Covid-19 pandemic. While the private sector management quickly adopted online working and meetings, the public sector companies just laid idle with no idea of what to do during the pandemic.

The behavior of managers towards the employees in the public sector is one that is more of suspicion. They ask are you politically connected to the current ruling party? Are you one of us? They continue to exhibit Theory X that shows that they do not trust employees to make independent work decisions, think employees are lazy, and also think that employees need to be forced to do their work.

Effective Communication

Communication is key to the success of every organization. Public sector organizations did their part in communicating the pandemic issues to employees. They used the traditional methods of communication such as printed memos on notice boards. This was a bit of a problem since people had to work from home. To counter that they also made use of WhatsApp groups to send communications to employees. Of course, this was more effective and faster but was not official like an email would be.

Working in Teams

Organizations are made up of people who in turn work in teams to achieve certain objectives. Working teams offer both advantages and disadvantages. The Covid-19 pandemic required organizations to work in teams like never before. The situation demanded that organizations maximize the advantages of working in teams at all cost. No one knew what will happen next so collaboration was the only hope. Malawi saw the public sector working in teams. Committees were formed comprising of various stakeholders to plan and coordinate the response to the pandemic. Information was shared openly to everyone in good faith to ensure that everyone was well informed about the pandemic.

Conclusion

Malawi public sector was not fully prepared to handle a crisis of the Covid-19 magnitude. The managers lacked innovation and creativity. They were not agile and took too long to respond to the crisis. Due to the culture of not making decisions in the public sector the managers were very indecisive. They would second guess themselves on decisions. Unfortunately, the pandemic needed managers who were decisive to make decisions on the go.

It is difficult to fully understand the leadership style pursued by managers in the public sector. They seem to just be on the fence. They do not make decisions and rely on directives from the politicians. Even on matters that are technical in nature it is surprising the managers would wait for

politicians to make decisions.

Recommendations

The study proposes the following recommendations:

- Managers in the public sector should be given more freedom to make decisions and not work under political pressure
- Recruit managers using a competitive process
- Give managers performance targets so that they work with urgency
- Organize more leadership training sessions for the managers.

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Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
Volume.5, Issue.1; 2023
Centre for Organization Leadership and Development (COLD), Zimbabwe

Identifying The Core Data Governance Framework Principle: A Framework Comparative Analysis

Tosin Ekundayo
Lincoln University College, Malaysia
oluwatosin.phd@lincoln.edu.my
Synergy University, Dubai, United Arab Emirates
TEkundayo@synergy.ru

Dr. Amiya Bhaumik
Lincoln University College, Malaysia
amiya@lincoln.edu.my

Dr. Justine Chinoperekweyi
Centre for Organization Leadership and Development (COLD)
justine@centreold.com

Abstract

Data governance is a modern economic specialization relative to the development of the internet and the management of data. According to DAMA – the Data Management Association, Data governance is the exercise of authority, control over the management of data assets. As a developing field, its growth has seen the publication of varying frameworks to support data governance understanding, development and implementation. These frameworks are backed with principles for effective deployment. Abraham et al., (2019) in its systematic literature review study of 145 articles posit a state-of-art structure for data governance framework. However, Abraham et al., (2019) review of framework does not list principles for its suggested framework deployment. As with data governance framework, principles vary even when it is implied as with Abraham et al., (2019). This has created a gap as to which principles are core to data governance and their implementation. To this end, this study deploys the Grounded Theory for a framework comparative review of three data governance frameworks, based on epistemological assumptions. The frameworks are (1) Data Governance Institute Framework, (2) General Data Protection Regulation (GDPR) and (3) Open Data Charter (ODC). The aim of this study is creating a theory by identifying the core principle of data governance frameworks. The review findings theorized that "*Data Transparency and Openness in accordance of the law*" is the core data governance framework principle**.** This is significant for data governance senior managers, stewards, custodian as well as other stakeholder at international, nation and corporate settings.

Keywords: Data Governance, Data Governance Framework, Data Governance Principle, National Data Governance, Corporate Data Governance.

Introduction

Data Management becomes inevitable if data cum organizational objectives are to be achieved. Data management comprises of all disciplines related to managing data, as a valuable/vital resource (Otto, 2015). The Data Management Association (DAMA) defines Data Management as "*the*

development, execution and supervision of plans, policies, programs and practices that control, protect, deliver and enhance the value of data and information assets" (Rowat & Lafond, 2008). Conscious development and implementation of *policies* is an aspect of data management termed "Data-Governance". The study's aim to identify core principle/s for Data Governance effectiveness. The findings will help formulate a theory for the development of framework and the selection of principles in support of framework elements.

Aside, Data Governance, Data Management spans across a variety of activities. DAMOK – The Data Management Book of Knowledge categorizes data management into eleven (11) specializations. The publication specifically referred to them as specialization to deter professionals, from limiting them to mere functions. Each specialization is actually a robust program of its own (DAMA International, 2014). DAMOK – The Data Management Book of Knowledge equally refer to Data Governance as the "*planning*, *oversight*, and *control* over management of data". That is why Fig 1 shows data governance as one Data management specialization like all other specializations but it impacts cuts across and correlates with all other specializations.

It comprises of activities such as (1) Data Architecture. This covers the entire IT structure of data including data resources. These resources, the data and the IT structure that puts it together, make up an enterprise' Data architecture (2) Data Modelling. This involves an iterative analysis, design, building, testing data models and communicating it outcome within an enterprise (3) Data Quality. This covers the integrity of data and consistent improvement of data integrity (4) Data Integration. This denotes activities that contribute to the consolidation of data within store, application and the organization to ensure key operational support. (5) Master and Reference Data Management. This is a data management specialization that ensures data are updated in a bid to reduce redundancy of data. It also covers how, where and if the data can be referenced, which by extension, improves data quality (6) Data Warehousing & Business intelligence. This covers data storage and analytics of data. It covers how the output of these storage and analysis can/should communicate intelligence and insights relative to decision making (7) Data Storage. This is simply the physical data assets storage system and the management of the same. (8) Metadata Management. This refers to the management of data that sufficiently describes a data and dataset (9) Data Security. This covers areas of privacy and confidentiality relative to collection and use of data (10) Document and Content Management. This is the management of unstructured data and its sources, to make it structured, available for integration and purposeful deployment or use (DAMA International, 2014). Fig 1 shows these specializations.

These data specializations require management because it comes with lifecycle (Rahul & Banyal, 2020a). A period where it is generated to a period, it becomes obsolete for use (Arass & Souissi, 2018).

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Volume.5, Issue.1; 2023
Centre for Organization Leadership and Development (COLD), Zimbabwe

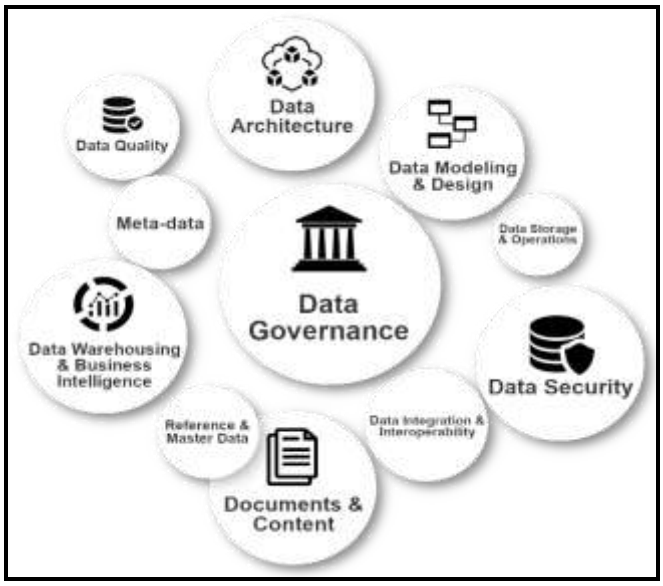

Figure 1: Data Management Specializations:
Source: DAMA

Data Lifecycle

With the emergence of the Big-data and technological development, data management is becoming increasingly complex. The most efficient way to manage these datasets viz a viz dataset size is to indicate data lifecycle. Data lifecycle cover the lifespan of a data. i.e., from creation to destruction (Arass & Souissi, 2018). (Mosconi et al., 2019) referenced data lifecycle as shown in Fig 2.

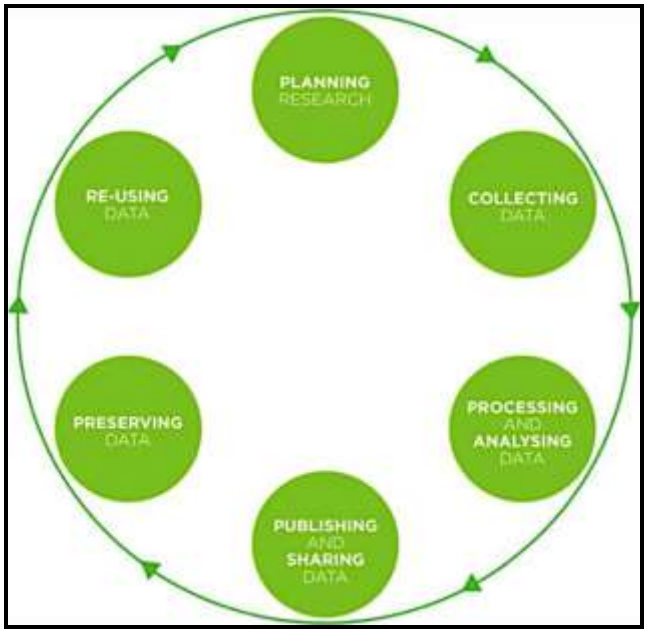

Figure 2: Data Life Cycle Model

Source: Mosconi et al., 2019

Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
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Data life cycle management is very much useful for any enterprise where data is being used for producing results. It is for a certain period of time, ensuring accessibility and usability within the system (Rahul & Banyal, 2020b). Such time-related value is a function of an effective data governance system. Ensuring that the right data is available at the right time, place and format for optimal use. This need for responsible data management within this lifecycle intensifies growing impact of data within/on a society (Stoyanovich et al., 2020).

However, it is important not to mis-conceptualize Data Management for Data Governance. Their integration does not equate, similarity. Such mis-conceptualization, leads to mischaracterization on the need and importance of data governance optimization and basis for data management. Data governance is as shown in Fig 3 relative to Fig 1, which is Data Management.

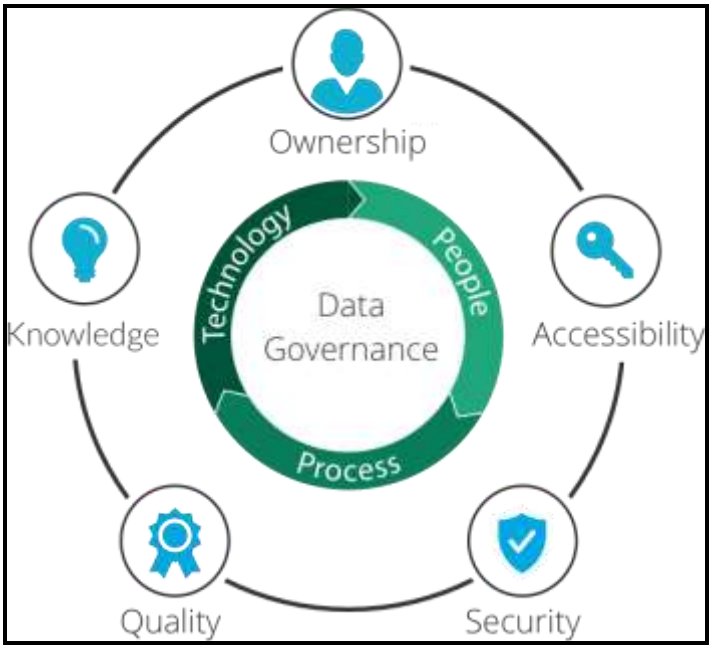

Figure 3: Data Governance

Source: Frameworks, Tools & Best Practices | Imperva

Data governance is a key specialization of data management as shown in Figure 3 to further highlight its importance as, core and centra to the management of data (Data-management). It is the governance of data matter to aid quality of use. It is the regulations that determine, if the activities of the other data management specializations are wrong, acceptable or right relative to set objectives. It is an emerging research topic/industry that still requires further analysis within this new world settings (Lis & Otto, 2020). It is the complete management of the availability, usability, integrity, and security of data, to right person, in the right place, right time and right format. It is mechanism that is 'supposedly' based on transparency in decision making. If the output from governance process is to

be validated, credible and acceptable, it should be based on value – "principles" to demonstrate compliance and trustworthiness, enabling stakeholders to maintain compliance, democratize data, and support collaboration (*Data Governance Framework: Pillars for Success | Informatica United Arab Emirates*, n.d.). Data governance indirectly ensures, the management of data remains within the confines of regulations (both local and international) to preserve its validity and value (Practices & Data, n.d.).

Globally, Data Governance frameworks have been enacted and published to guild the development and implementation of data use within a variety of polity both at business, national and international settings. Each Framework is guided by principles that guilds the effectiveness of each framework elements.

Commonly referenced framework for this study is listed below

1. Framework I: Data Governance Institute Framework
2. Framework II: General Data Protection Regulation - GDPR
3. Framework III: Open Data Charter

Understanding the Frameworks

Framework I: Data Governance Institute Framework

Data Governance Institute (DGI) was founded in 2003. It is mostly regarded as the industry's best-known source of in-depth best practices and guidance on most Data Governance matters. It confers its framework as *"the exercise of decision-making and authority for data-related matters"*. Simply put – The **5W-1H** referring to Who-What-When-Where-Why-How of data in an organization or a polity. Pictorial representation is as shown in Fig 4.

Organization Leadership and Development Quarterly
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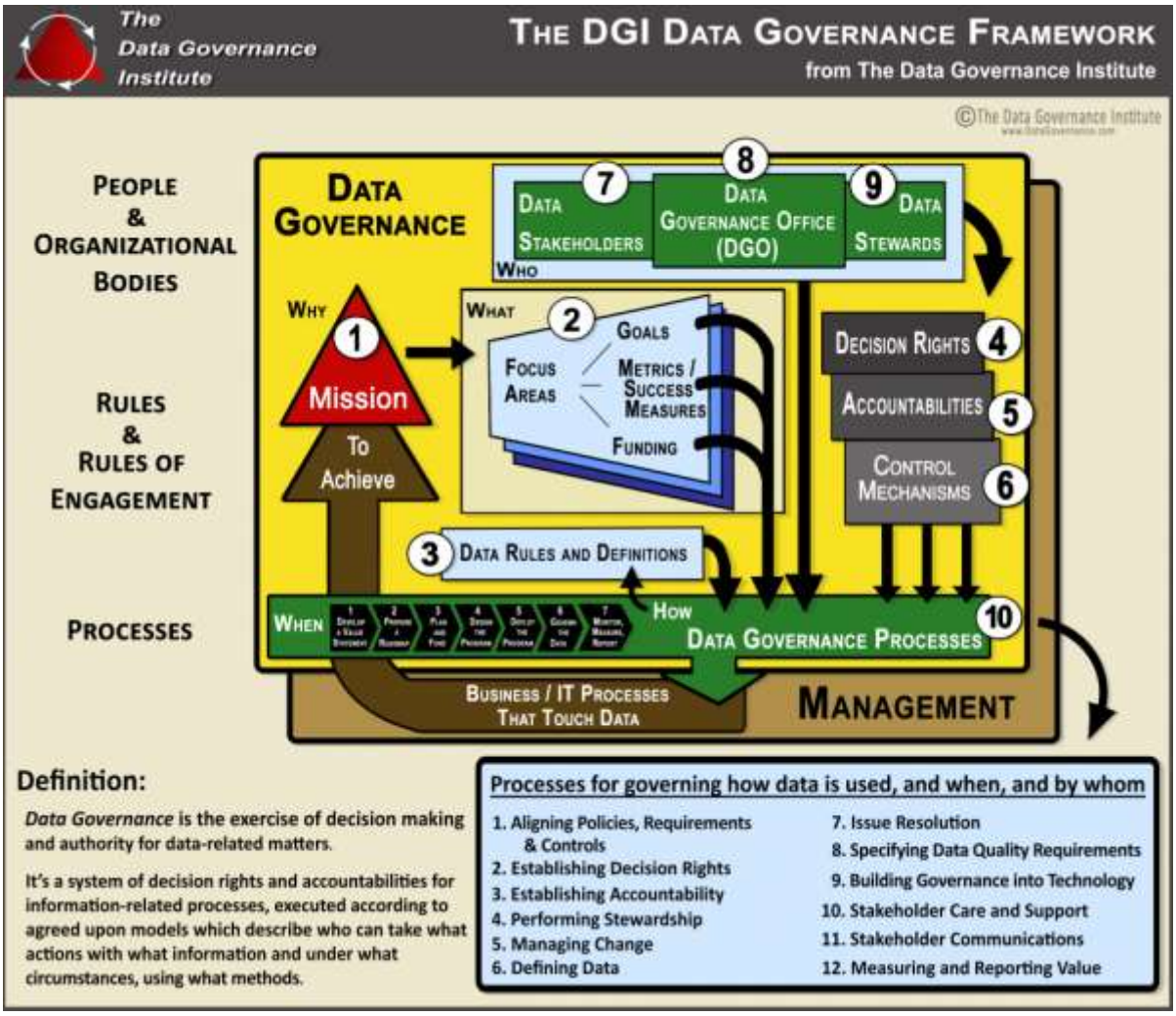

Figure 4: Data Governance Institute (DGI) Data Governance Framework

According to DGI, the framework is divided into three (3) sub-elements namely; Rules and Rules of Engagement, People and Organizational Bodies and Processes, with the three subdivided into sub-elements. Theses sub-elements determines the function, process and impact of DGI Data Governance framework (DGI, n.d.).

DGI Framework Elements

Category I: Rules and Rules of Engagement

Element #1: **Mission and Vision** -The vision refers to a desired future state, mission is how to get to the desired future state. The framework posits, that vision and mission should be creative enough to energize the use of data for creative development and implementation (DGI, n.d.).

Element #2: **Goals | Metrics/Success Measures | Funding Strategies** – The framework posits such goals must follow S-M-A-R-T methodology. That is, Specific, Measurable, Achievable, Relevant, and Time-Bound (DGI, n.d.).

Element #3: **Data Definitions & Policies** – This sub-element of DGI framework integrates forms of regulations, compliance requirements, and definitions to avoid mischaracterization and misrepresentations of processes (DGI, n.d.).

Element #4: **Decision Rights** – This sub-element structures the cascading and hierarchy of decision-making process within an entity. Such structure determines decision makers, when, and how (DGI, n.d.).

Element #5: **Accountabilities** – This sub-element determines who is saddled with the responsibilities of implementing decision and also determine how the responsible personnel is held accountable relative to the decision made (DGI, n.d.).

Element #6: **Controls** – These sub-elements are for risk management purposes, that can be preventative or detective/corrective. Either approach can be automated or manual or a combination of both (DGI, n.d.).

Category II: People and Organizational Bodies

Element #7: **Data Stakeholders** – This sub-element identifies persons or group of persons that have vested interest in the data and data-related decisions. This could be those who create data, those who use data, and those who set rules and requirements for the creation and use of data (DGI, n.d.).

Element #8: **Data Governance Office (DGO)** – This office whether physical or virtual is saddled with the responsibility of facilitating data governance and stewardship responsibilities within the data management space (*DGI Data Governance Framework - The Data Governance Institute*, n.d.).

Element #9: **Data Stewards** – These are persons or group of persons that ensure data objectives are pursued and achieved. They are referred to as care-takers of everything data. They are mostly mid-level personal with managerial responsibilities to specify standards and ensure compliance of Data Governance board recommendation. (*DGI Data Governance Framework - The Data Governance Institute*, n.d.).

Category III: Processes

Element #10: **Proactive, Reactive, and Ongoing Data Governance Processes** – This process cites the "rules of engagement" that should be standardized, documented to develop an operational

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culture for sub-elements #7-9 to function effectively (People and Organizational Bodies Category) during governance of data. (*DGI Data Governance Framework - The Data Governance Institute*, n.d.)

Principles of DGI Data Governance Framework

The data governance institutes posit, that if the effectiveness of this framework is to be optimized, to mitigate rising and/or existing problems, the implementation of this framework should be principled on the following (1) **Integrity -** Truthfulness in all dealings (2) **Transparency –** Entire processes should be clear, without any form of ambiguity (3) **Auditability –** Process should be open to periodic compliance audits based on set objectives or standards **(4) Accountability -** Accountabilities for data-related decisions processes and regulatory requirement (5) **Stewardship -** Responsibilities for stewardship activities (6) **Checks-and-Balances -** Accountabilities in a manner that introduces power sharing capabilities between stakeholders (7) **Standardization -** Introduce and support for framework of enterprise data management and (8) **Change Management -** Proactive and reactive change management for referenced data, values and structure (*DGI Data Governance Framework - The Data Governance Institute*, n.d.).

Framework II: General Data Protection Regulation - GDPR

The General Data Protection Regulation - GDPR is the apex disruption of Data Governance that the world has witnessed. Unlike, the DGI framework, it does not cover iterative process of data usage. However, it singles out an aspect of data governance – security, the GDPR is regarded as the toughest privacy and security law in modern economy. It is drafted and passed by the European Union (EU) yet globally imposed. The imposition targets organizations/businesses whose business requires collection-for-use of data in the EU. It was enforced in 2016 after passing European Parliament, and enforced as of May 25, 2018 (*Does the GDPR Apply to Companies Outside of the EU? - GDPR.Eu*, n.d.).

The GDPR regulation stems from the development in technology and Internet. The EU recognized the need for modern version of data protection regulation from 1950 - The European Convention on Human Rights. It states that*, "Everyone has the right to demand respect for his private and family life, his home and his correspondence"*. The GDPR covers **Personal data**, which is any information that relates to an individual; Data **Processing,** which is any action performed on data. Either automated or manual; **Data Subject** which refers to a person whose data is collected and processed; **Data Controller** which is the person who decides why, where, when and how personal data will be processed; and **Data processor**, referring to any third party tasked with the responsibility of processing personal data on behalf of a data controller (Alex Hern, 2018). A pictorial representation is as shown in Fig. 5.

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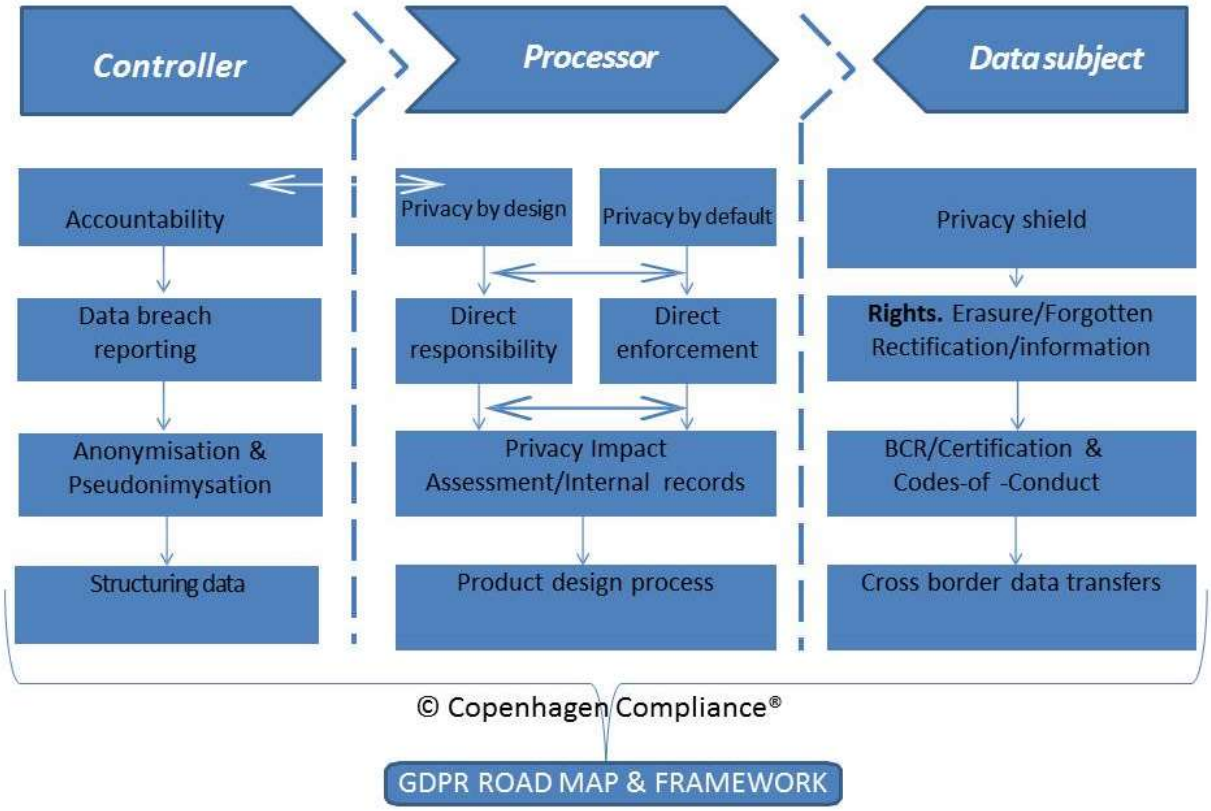

Figure 5: General Data Protection Regulation – GDPR Data Governance Framework

Source: copenhagencompliance.com

Principles of GDPR

According to Article 5.1-2 of the General Data Protection Regulation (GDPR), Data Governance must base on key principles namely; (1) **Lawfulness, Fairness and Transparency** - Data Processing must be lawful, fair, and transparent to stakeholders; (2) **Purpose Limitation -** Data Processing must be for the legitimate purpose. This must be explicitly explained to the data subjects; (3) **Data Minimization -** Only collect and process data that are absolutely necessary for the purposes afore-specified; (4) **Accuracy -** Keep personal data accurate and updated (5) **Storage Limitation -** Only store personal data for as long as necessary. This must be for clearly specified purposes (6) **Integrity and Confidentiality;** Processing of data must guarantee integrity and confidentiality and (7) **Accountability;** The data controller is responsible for GDPR compliance (Alex Hern, 2018).

Framework III: Open Data Charter (ODC)

The Open Data Charter was and still a collaborative agreement between 150+ governments and private organizations. The goal at its inauguration was/is to open up data, based on a shared/agreed upon set of principles. Stakeholders of this collaborative effort includes **Countries** like UK, Canada, and Mexico; **Civil societies** like Open Data Institute, the Initiative for Latin American Open Data, World-Wide-Web Foundation, The Center for Internet and Society and Open Knowledge Foundation. In this collaborative effort, six (6) key agreed-upon principles on which global open data framework as a Data Governance initiative should be implemented. The vision was to *"create a world in which governments collect, share, and use well-governed data, to respond effectively and accountably to our most pressing social, economic, and environmental challenges".* This international all-inclusive data opening collaborative effort is overseen by an Advisory-Board. The Advisory Board is made up of representatives from governments, expert organizations and a broader network of Data stewards/stakeholders. It has its resident organization at Civic House. Civic House is a group of passionate and committed team aimed at uniting technology with social change. They believe in the power of technology to deliver ground-breaking citizen action-solutions (*Open Data Charter*, n.d.).

The Open Data Charter (ODC) was an extension of role and governance of data of in the United States of America especially in space exploration, just like every other global concept. It moved from an almost exclusively governmental function to increasingly private investment-oriented venture (Lamassoure, 2003), (Gomes et al., 2013). As such, commercialization of that industry developed a number of firms, to progressively create markets and related forms of developments, in areas such as automobile production, high resolution imagery communications, or materials processing in microgravity etc. The Americans, who were pioneers in modern space exploration developed legislations to reinforced the commercialization and replicate its impact in other sectors. Examples of this legislations are the Launch Services Purchase Act of 1990, the Land Remote Sensing Commercialization Act of 1984 and the Communications Satellite Act of 1962. Worthy of note, is the US President Regan administration, who for the first time, issued a presidential directive to commercialize opportunities in space exploration. This opened-up accessibility of data information. Stakeholders exploited this data/information as resources and created opportunities in the manufacturing of weather instrumentation, studies of weather modification, forensic meteorology, risk management, media meteorologists. This gave rise to an entire economic sector that till date contributed billions of dollars to the US economy (Branchet et al., 2018). Evidentiary impact is the development in the Department of Health and Human Services (HHS).

This created the basis for Open Data Charter (ODC) advocacy. On May 9th, 2013, President Obama signed Executive Order 13462. The aim is to make Data, 'Open and Machine-Readable' - the new default for Government Information. It mandated efforts to ensure, that government-held data/datasets are more accessible to stakeholders to drive innovation and economic growth (*Open Data Going Global | Whitehouse.Gov*, n.d.). The impact on entrepreneurship and economic growth, increased government transparency and economic advancement set the ball rolling for the G8 Open Data Charter Agreement. It envisioned to *"create a world in which governments collect, share, and use well-governed data, to respond effectively and accountably to our most pressing social, economic, and environmental challenges"*. (*Open Data Going Global*, n.d.) To further emphasis the need for this data governance approach, President Obama meets with entrepreneurs in a startup

incubation program, discussing government data governance approach and discuss entrepreneurship opportunity that contribute to economic success and sustainability (Whitehouse.Gov, n.d.).

With the United States economic development as proof of this data-governance-infused development, Barak Obama suggested it to the G8 as a show of leadership for developing and under developed nations. After deliberation on July 2013 summit, the G8 leaders signed the G8- Open Data Charter. The charter outlined a set of five principles. The principles employ how this Data Governance initiatives can/should motivate innovation, transparency and accountability. While the charter was/is supported by other nations, there remained a broad sense that the charter could be broadened to spread the new-found economic development strategy.

Principles of ODC

According to the ODC, there are six principles namely **(1) Open by Default;** All government data should be open and when closed, should be validated with reasons **(2) Timely and Comprehensive; A**ll government data should be original, comprehensive enough with meta data to avoid mis-use and should meet time requirement of stakeholders **(3) Accessible and Useable; A**ll government data should be made available for anyone to access, use, and share without technical or administrative barriers **(4) Comparable and Interoperable; A**ll government data should be easy to compare and combine within and across sectors, geographies, and time **(5) For Improved Governance and Citizen Engagement;** All government data should improve the relationship between and within government and citizens and (6) **For Inclusive Development and Innovation: A**ll government data should improve partnerships, education and development (ODC, n.d.).

At the 2015 United Nations General Assembly, the International Open Data Charter (ODC) was launched for adoption. So far, the, the charter is adopted by 85 nations and local governments and endorsed by 73 organizations.

NOTE: Till date, DGI seem to be the only visual-oriented framework itemizing the integration of people process and system/technology. GDFR and ODC are mainly principle-focused supporting a facet of Data governance.

Problem Background

The internet has changed the world in ways more than one (Cardoso et al., 2009). In retrospect, the abundance of information as a result of the internet technology has given birth to further creativity and innovation. Its impact on communication and dissemination of data, is in its timeliness and varying format of data. Though, the internet is merely a connection of PCs but it has produced data that can be processed to proffer information and intelligence. Information and intelligence that optimizes the process and the act of decision making. Business decisions are based on founded on information. Information are ingredients for innovation and creativity (Corte & Del Gaudio, 2017) yet the right information cannot be made available without the input of data governance initiates, to guarantee the data quality. The afore-mentioned reviewed ODC, GDPR and DGI framework are key

framework that ensure that information that could optimize decision making are made available in the right format and at the right time as per developing requirement and guiding principles.

Data are units of information either numbers, alphabet, facts, statistics in any format integrated together for reference or/and analysis. The term 'data' has gone through several change in definition and understanding, in history. Humans began dealing with data-like activities using tally sticks for recording in 18,000BC. Cited as another early use of tally is the discovery of 1960, now referred to in Uganda as the Ishango Bone (a bone tool and possible mathematical object, dated to the Upper Paleolithic era). Till date, the combination of this events, is tagged as one of the data related evidence on data storage. Abacus was discovered in Babylon by C 2400 BCE, representing the first dedicated device specifically constructed for basic calculations. The mechanical computer called the Antikythera Mechanism in trended in C100 – 200AD, produced by presumably by Greek scientists. Its "*CPU*" was made up of 30 interlocking bronze gears. They were designed for astrological purposes and for tracking the cycle of Olympic Games. This means, statistical analysis had started earlier. But it was not until, 1663, that an English statistician and founder of demography - John Graunt documented the first statistical data analysis, in London.

The term "*business intelligence*" was then used in 1865, by Richard Millar Devens who doubles as the author of *"Cyclopedia of Commercial and Business Anecdotes"*. With this term, he expresses how Henry Furnese, a banker achieved an advantage over competitors because, he systematically collected and analyzed data relevant to his business. Herman Hollerith, an engineer, produces what became known as the Hollerith Tabulating Machine in 1881. He was an employed by the US Census Bureau to solve a data problem that would otherwise take the bureau 8-years to crunch.

As data grew in quality and quantity, the need for storage capacity emerged. In 1926, inventor Nikola Tesla stated that the Earth will be converted into a huge brain and a man will be able to carry one in his vest pocket. Fritz Pfleumer who was a German-Austrian engineer invents a method of storing information magnetically on tape a in 1928. Fremont Rider published a paper titled *"The Scholar and the Future of the Research Library"* in 1944 where he established that American library will need to double their capacity every 16 years. This is because of store academic and popular works of value being produced, requiring storage and accessibility. As such, he speculated that the Yale Library will contain 200m books in 2040 and would need 6,000 miles of shelves for books.

With data advancement at the time and the capability induced by computer technology, it was break of dawn for business intelligence. However, the use of data has being the same, which is to analyze bulk of if, for timely decision-making episodes. This developmental events in IT, storage, accessibility and analysis created the need for Data Governance, because there has to be an acceptable and unacceptable ways of for data related initiatives.

In a May 2013, "data-revolution" gained airwaves. There was in the High-Level Panel of Eminent Persons, on the United Nation's Post - 2015 Development Agenda. The co-join word, was used to represent *"an explosion in the volume of data, the speed with which data are produced, the number of producers of data, the dissemination of data, and the range of things on which there is data, coming from new technologies such as mobile phones and the "internet of things*", *and from other sources, such as qualitative data, citizen-generated data and perceptions data*" (United Nations, 2014). This data growth also indicated an evolution in the pathway to decision making (Hampson et al., 2018). Hitherto, it became the foundation that necessitated the practice of collecting, keeping data secured. It extended into efficiency, and cost-effectiveness of data. Hence, the birth of a niche called "**Data Management".**

It became evident that data storage alone does not necessitate its correctness or its usefulness. Storage of data requires following a good framework based on principles. But as data increases, varying framework emerged but objectives remained same - the need and ability to maintain *data quality.*

To this effect, Data Governance develop as a side support to Data Management in pursuance of data quality. It represents a set of people, process, systems based on principles that guarantee data quality throughout the data lifecycle. Empirically, the thin line between Data Governance contribution and totality of Data Management, devoid Data Governance, the attention it deserves. Confusing data governance for data management make it look like the core function of Data Governance is been handled. But as speed, accessibility, timeliness and correctness became necessary to decision making, data governance gained prominence (Kouper et al., 2020).

Statement of the Problem

The Open Data Barometer (ODB) is the Open Data Charter (ODC)-based index for the implementation of the ODC principles. ODB was co-founded by the Inventor of World-Wide-Web, Sir Tim Berners-Lee. Its latest report suggests the lack of commitment to the Data Governance ODC framework principles, notably amongst leading/developed nation, even though, it was co-signed by 85 governments (ODC, 2017). The ODB 2018 report states that the 30 leading signatory countries are failing in the implementation of the framework principles as per agreement. Specifically, it states the "*Fewer than 1 in 5 datasets are open"; Early world leaders are faltering"; and "Governments still treat open data as a side project"* and this hampers the advocacy for Open Data form of Data Governance. It is argued that, perhaps this principle is not considered core, in the deployment of this data governance approach. As such, there is a lack of consensus on what the core principle of Data Governance is or should be, especially in an era, when and where, the initiatives of Data Governance have become an inevitable leverage for strategic growth and development both at business or country level.

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Objectives and Significance of the study

The aim of this study is to identify the core of principles of data governance, via comparative and empirical analysis of three popular data governance frameworks principles. This is significant to United Nation's open data and other data governance specialization stakeholders, some of which includes, Information managers, Data owners, Stewards, and Administrators both at the national and business level. Such insight on framework principles would guide the deployment of framework elements and sub-elements. By extension, it guarantees data quality for effective decision-making process. It also serves as the basis for auditing/reviewing existing data governance frameworks and an impactful model for developing new ones.

Research Question

What is/are the core principle of Data Governance framework implementation?

Scope of the study

This study focuses on the afore-mentioned Open Data-Data-Governance framework namely: Data Governance Institute Framework - (DGI), General Data Protection Regulation (GDFR) Framework and Open Data Charter Framework. Empirically but systematically reviews the elements, sub-elements with emphasis on their relative principles, for the three frameworks.

Limitation and recommendation for further study

There is almost no research-based basis for creating the principles of Data Governance framework. This is due to newness of the sector. It is also due to attention on framework but by extension it limits the development of principles on which Data Governance framework can be deployed. The Principles of DGI, GDPR and ODC are about the only principles that are generally utilized for Data Governance either in the business domain or national space.

Literature Review

This study used the google scholar to search for data governance framework principles literature. Google scholar is considered suitable because of coverage of high specialization and its ability to index all of the research databases. The search shows that, there are less study on Data Governance and almost no prominent study on the **principles** of the data governance frameworks. This further indicates the novelty potential of this study to understand the principles of Data Governance Framework. It also establishes it, as a worthy area for further academic research.

The Principle Theory

Principles are a set of guidelines that impacts a process. It is a guide for a particular behavior relative to expectation and polity objectives. An element with the potential of determining characteristic behavior. The Principle theory is an extension of Theory of Relativity by Albert Einstein proposed and published between 1905 and 1915 (Lange, 2014). The Principle theory speaks to concept of organization being committed to ideologies – principle/s. It posits that, these ideologies are a form of guides setting parameters in the form of accepted laws that regulates even relative to the organization. Though, some scholars argue, that the Principle Theory lacks explanatory power

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(Felline, 2011; Lange, 2014). The key to implementing this theory, effectively, is in its systemic alignment or commitment to aforementioned goals and objectives. This brings a uniting purpose or theme in pursuance of objective, using set principle as a guide. This theory posits that for Organization-set core values referred to as principle to be utilized in the governance process. As such it is the responsibility of organization manager to determine how to implement operations, based on such principles, to achieve business/organization objectives (Caldwell et al., 2006). The Principle Theory are used to provide Top-Down explanation for business phenomenon. This study assumes the principles that guide the implementation of data governance framework is instituted from the top-level management of the organization.

Smolicz's Theory of Core Values

Another applicable theory is the Smolicz's Theory of Core Values. This theory establish that principles are the core values deployed for the governance of an entity. The theory posit that core values identifies a social groups as distinctive communities with distinct culture and as the culture becomes their core value. This value becomes a form of identity for the group and remains fundamental to their existence. A removal could cause entire structure of the group to collapse (Nemoto, 2011).

Conceptual Framework

The study conceptualizes the commonality in principles for the under-studied framework as shown in the Fig 6. As such, where there are common principles applicable to all three (3) data governance framework, this study proposes that such principle is to be considered 'core' to the implementation of data governance framework.

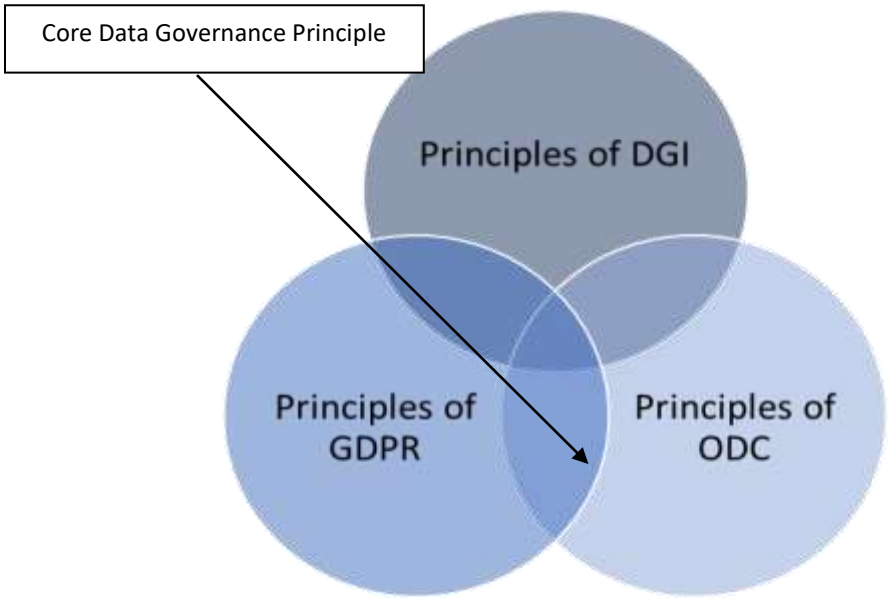

Figure 6: Conceptual Framework for the study

In 2013, Erkka Niemi of Aalto University School of Economics – Finland conducted a study in 2012-2016 that was expected to result in a generic data governance framework. The working paper themed *"Designing a Data Governance Framework"* argues that organizations ought to posit corporate data as a strategic asset in order to optimize sustainable competitive advantage just as it invests in optimizing facilities and equipment to boost productions. The researcher necessitates the need for Data Governance framework, because of its potential to elevate 'Data' as an organizational resource to the level of other asset with feasible features like production plants and machineries. The paper argued that the management of data surpasses mare collection of data. To this end, the study's objective is to design a generic data governance framework for globally acceptance and deployment. The study's review of literature reveals that data governance creates a competitive advantage for any company that deploys the right framework or model. The study posits that while this data management initiatives provides an opportunity to identifies issues in organizations process and practices. Where solution is provided identified issues, it proffers an opportunity to counter deteriorating or improve data quality. The study establish that these can be leverage to boost overall organization development (Niemi, 2013).

For the study, the authors deploy the Action Design Research (ADR) methodology which is based on four stages. The stages integrated iterative loops. It is common approach for generating prescriptive design knowledge, using integrated IT artifacts in a setting. Stage one (1) is **Formulation of Problem**, Stage two (2) is **Building, Intervention and Evaluation**, Stage three (3) is **Reflection and Learning** and Stage four (4) is **Formalization of Learning**. This is then applied to an Enterprise Resource Planning (ERP) development network in three enterprise-scale case-study organizations during 2012-2016. The ERP analyzes current practice of Data Governance under several spectrums (1) *Data Governance in Practice* where, it assess, if the organization have or does not have, a commonly accepted definition for data governance; (2) *Data Quality in Practice* where, it indicates the various interpretation of the term quality in relation to data; (3) *Data Governance and Big Data* – where it determines, how data governance is a crucial enabler to derive maximum value from a big data program; (4) *Organizing Data Governance* where it accesses the inception of data governance specialization specifically in the early 2000's (Niemi, 2013).

The action study spanning a 4year period. It started in 2012 and concluded in 2016. It identified three different governance approach from the three understudied organizations. Hence, the study proposes the need for a data governance framework that would be suitable for all types of company. It concludes that such approach to data governance provides an empirical opportunity to theorizing data governance framework for data development, implementation of data quality (Niemi, 2013).

A Sultan Qaboos University, Muscat-Oman study - Ali et al., 2018, themed *"Exploring Big Data Governance Frameworks"*, (Published in an Elsevier indexed publication) established that even though, the emergence of big data provides great convenience, it also brings challenges that necessitate, the governance of big data. As such, there is need for data to be prepared in a timely, consistent, reliable and trust-worthy manner. Such level of data quality can only be provided by data governance frameworks, that is considered rare in some sectors and businesses. The study aims to explore the existing Big Data Governance frameworks and their shortcomings, and by extension propose a new framework with eight 'considered-important" components. The authors cited that,

Data growth is very fast and thus, impacts all sectors like healthcare, pharmaceuticals, energy, telecommunications, and transportation (Al-Badi et al., 2018).

The study deploys four steps as its methodology namely; Step (1) The Review of Literature to generate ideas and identifying problems; Step (2) Articles filtration and selection to analyze components and characteristics of the Big Data governance frameworks; Step (3) Identification of Keywords; "Big Data governance", "Big Data governance framework", "Big Data governance model" in databases like the Google scholar, Scopus, Science direct, Springer, and IEEE. The process identified 200 articles published between 2008 - 2018. Duplicity, relevance and in-depth analysis of the abstract and body of the paper reduced it to only 12 papers, suitable to the data governance framework spectrum based on uniqueness, completeness, accuracy, time framed of the study, accessibility and Step (4) was developing a fresh data governance framework based on the limitations of framework in the 12 studies under review (Al-Badi et al., 2018).

The emerging data governance framework consists of eight (8) components namely (1) Identify organization structure, (2) Identify relevant stakeholders, (3) Identify the scope of big data, (4) Set the policies and standards, (4) Optimize and compute, (5) Measure and monitor quality, (6) Store the data, (7) Communicate and manage the data and (8) Measure and monitor quality (Al-Badi et al., 2018). However, this study did not state the principles for the deployment of this elements.

It is important to note, while there few articles discussing the development and elements of a framework, there is also no article evaluating the principles that governance the Data Governance Framework. This gives this study, the Nobel nature in the area of data and all its specializations.

Methodology

This study methodology uses Grounded theory techniques to analyze the three (3) Data Governance Framework's principles as elaborated above, to determine the common principles in their relative framework the implementation. The research design follows the disposition of the research onion (Saunders et al., 2007) (Sahay, 2016). *Research philosophy* is based on Epistemology's Positivism, Realism & Interpretivism and Ontology's Constructivism assumptions. In this study, Epistemology denotes the need to obtain knowledge from the data governance framework that is under-studied. Positivism extension hold, the review of this frameworks principles is not the definite scope of principles of data governance framework; Realism extension holds that the study is assumed objective regardless of known core principles of the data governance framework; Interpretivism extension of this study's approach indicates that interpretation of principles will be based on the researchers understanding. Ontology's Constructivism assumes the construction of knowledge for what should be core data governance principles (Saunders et al., 2007).

Research approach is inductive as it gathers theory to be understudied framework as such develop a theory that support certain principles as core to the data governance framework

development and implementation. Research strategy is qualitative because it focuses on textual data with Archival Research as its research strategy (Saunders et al., 2007).

Research Time Horizon is Cross-sectional. Out of the rare collection of Data Governance Framework and their principles, the studies understudy a selected framework. Research Participant frameworks are Data Governance 21 Principles Data Governance Institute – from (1) Data Governance Institute (DGI) - 8 Principles; (2) General Data Protection Regulation - GDPR - 7 Principles and (3) Open Data Charter (ODC) - 6 Principles.

Research Settings: The study context is the understanding of Data Governance Framework, the elements and their respective under-lining principles for three top tier data governance frameworks. Each framework is diagram of processes and elements indicating the implementation of data governance initiatives based on its set principles (See Fig 5 & Fig 6). This study empirically reviews each framework elements and expression of the principles.

Data Collection

Research Data Collection is secondary data from the respective website of the institutional/organizational authors of the frameworks and their relative principles.

Data Analysis

Deploying Grounded theory as a system of generating theory based on systematic collection of data. The study analysis takes the following steps with the tri-category Data Governance Principles.

Step 1: Open coding - Identification and highlighting of concepts and key phrases into subcategories and categories.

Here the principles are coded into categories and each principle is sub-coded as shown below

DGI (8): CODE – D	GDPR (7): CODE - G	ODC (6): CODE - O
1. Integrity – D1 2. Transparency - D2 3. Auditability – D3 4. Accountability – D4 5. Stewardship – D5 6. Checks-and-Balances – D6 7. Standardization –	1. Lawfulness, fairness and transparency – G1 2. Purpose limitation – G2 3. Data minimization - G3 4. Accuracy – G4 5. Storage limitation – G5 6. Integrity and confidentiality -G6	1. Open by Default - O1 2. Timely and Comprehensive - O2 3. Accessible and Useable -O3 4. Comparable and Interoperable - O4 5. For Improved

Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
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D7 8. Change Management – D8	7. Accountability -G7	Governance and Citizen Engagement- O5 6. For Inclusive Development and Innovation. - O6

Table 3: Open Coding of Data Governance Principles

Step 2: Axial coding - Identification of Commonalities between Data Governance Principles

*This takes the form of determination of one data governance principles fitting as a **synonym**, for a principle in another category of principles. Synonyms are word or phrases similar in meaning.*

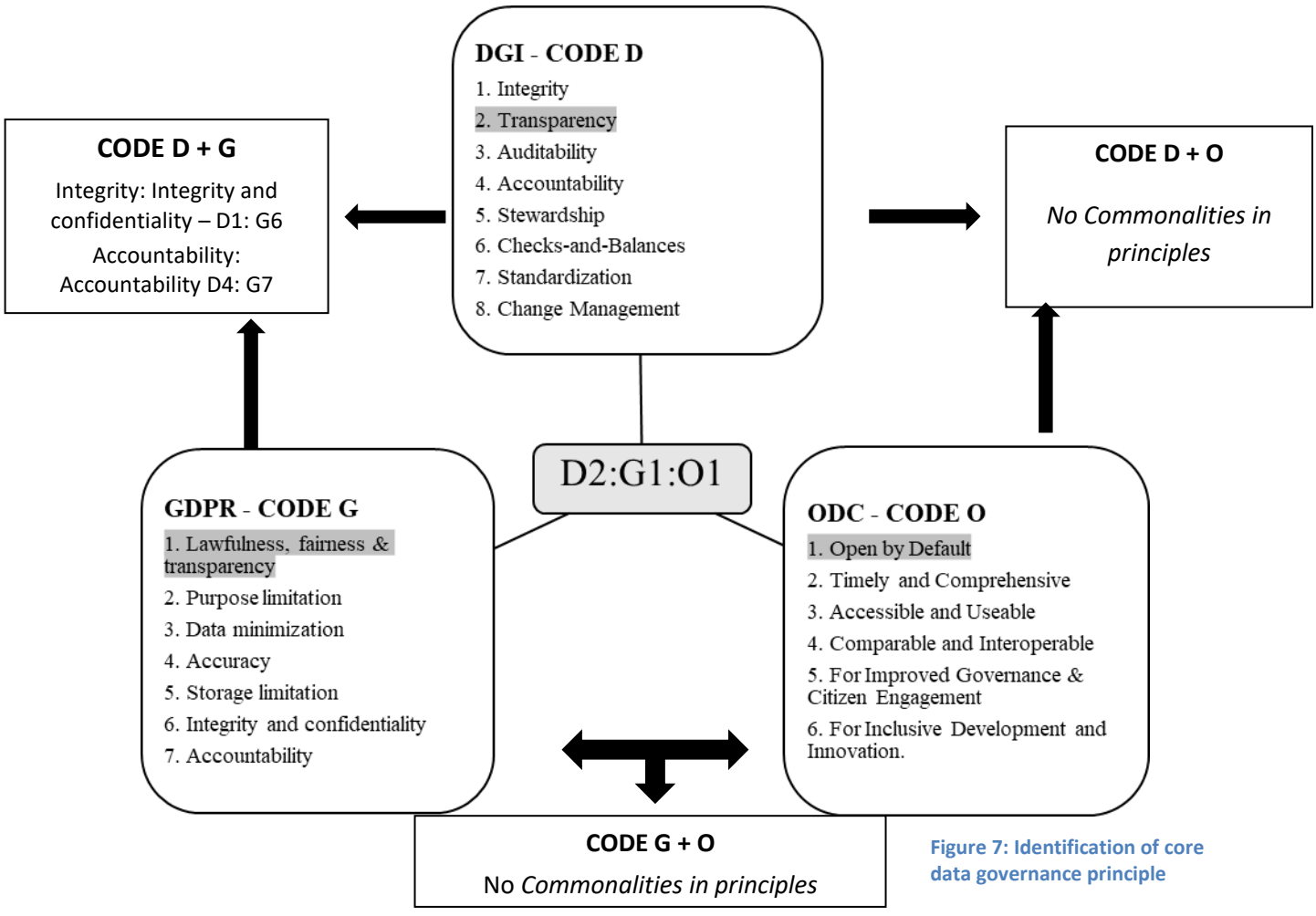

Figure 7: Identification of core data governance principle

Organization Leadership and Development Quarterly
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ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
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Step 3: Selective coding - Extraction of Commonalities between Data Governance Principles.

Empirical reviews show three (3) category of principles that are relative to the comparative analysis of the three (3) data governance framework.

Tri-Commonalities

These are the principles that are common amongst the under-studied frameworks.

Dual- Commonalities

These are principles that are common to only two of the under-studied frameworks.

Zero Commonalities

These are principles that only common to a single data governance framework.

Results Interpretations

Tri-Commonalities - Observations of principles

According to DGI, **Transparency** principle indicate that *"it must be clear to all participants and auditors, how and when data-related decisions and controls were introduced into the processes*"(*DGI Data Governance Framework - The Data Governance Institute*, n.d.); ODC posit by **Open by Default,** data must be open with confidence but open data should not compromise their right to privacy(ODC, n.d.); The GDPR establish that **Lawfulness, fairness and transparency** principle is data collection practices open but should not break the law in the process of data utilization(Alex Hern, 2018). So, DGI Transparency = ODC Open by Default = GDFR's Lawfulness, fairness and transparency.

Other commonalities Worth Considering

Dual- Commonalities - Observations of principles

DGI's Integrity | GDPR's integrity and confidentiality

According to Data Governance Institute (DGI), Integrity principles means *"truthfulness and forthcoming with data related drivers, constraints, options, and impacts for data-related decisions"* (*DGI Data Governance Framework - The Data Governance Institute*, n.d.) while GDPR Integrity and confidentiality denotes ensure of the appropriate security of the personal data (Alex Hern, 2018).

DGI's Accountability | GDPR- Accountability

Data Governance Institute (DGI)'s Accountability principle establish the need to *"define accountabilities for cross-functional data-related decisions, processes, and controls*" (*DGI Data Governance Framework - The Data Governance Institute*, n.d.); GDPR's **Accountability** principle posit that *"organizations must take responsibility for the data they hold"* (Alex Hern, 2018)

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Discussion & Conclusion

As data governance gain prominence and the creativity scope of the technology industry widens, global businesses/economies will witness a varying amount of data governance frameworks relative to the growth of data. Varying data framework could be developed to suit the uniqueness of economic sector or business model. Abraham et al., (2019) posit a state-of-art framework that serves as precedent for data framework development. However, the complexity of modern business economy could be a challenge for advocating universal data governance framework. This counter the state-of-the-art data governance framework suggested by Abraham et al., (2019). In another lane, it is important to indicate the role of principles that governs the framework element and its implementation. Especially in an era where data governance impacts economic development by 12% (Ekundayo, 2021). It is thus imperative, to establish the principles that optimizes data governance framework because the principles that governance the implementation is as important as the framework itself. Thus, this study infers addition positions to Abraham et al., (2019) on the importance of Data governance principles as make or break inclusion for data governance framework, regardless of whether its stand-alone or customized for sector as per Abraham et al., (2019) concludes.

Conclusion: The Data Governance Core Principle (DGCP) Theory

To answer the RQ, the core data governance framework principle is "lawful transparency and openness

Thus, **Data Governance Core Principle (DGCP) Theory**;

"Regardless of economic sector, organization structure or business model, data governance framework should be founded on the principles of transparency and openness in accordance to the law"

Recommendation for further study

Further study could systematically review other data governance framework principle as they emerge, using similar grounded theory to extract/update the DGCP theory. The theory will guide stakeholder on the importance of principles and what the core principles should be.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Organization Leadership and Development Quarterly
Abbreviated Title: OLDQ
ISSN: 2663-0478 (P) ISSN: 2707-6083(O)
Volume.5, Issue.1; 2023
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