DATA GOVERNANCE FOR SME: SYSTEMATIC LITERATURE REVIEW

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ABSTRACT: Data management is the practice of authority and supervision of data management. Data governance plays an important role in increasing data value and reducing data risks and costs. In the recent era, the interest in data governance has increased significantly, and it provides a comprehensive view of data management that can be directed to decision-makers in small and medium-sized companies. Data governance is a growing issue requiring additional research and improvement. This paper aims to bridge the gap around adopting data governance in small and medium-sized companies by building a model for adopting data governance, and after reviewing Papers We found six factors on the following: Technology Context, Organizational Context, External Task Environment Context, Technology Use, and Data Quality.

1. INTRODUCTION

Data management is the practice of authority and supervision of data management. It seeks to achieve a corporate-wide data strategy, maximizing data resource worth in an enterprise Maximize the importance of an organization's data properties. Whereas in the past data management was cool, today it is becoming more important in companies and government agencies (Abraham et al., 2019).

The growing volumes of data from various sources lead to data anomalies that must be detected and resolved before decision-making based on wrong data. More self-service reports and analyses are introduced by companies to generate the need to provide a shared understanding of data across the company. The growing amount of data from different sources contribute to data inconsistencies that have to be detected before decisions based on incorrect data are made. Companies implement more automatic supervision and analytics to create the need for knowledge to be interpreted jointly around the company (Abraham et al., 2019).

The growing volumes of data from various sources lead to data anomalies that must be detected and resolved before decision-making based on wrong data. More self-service reports and analyses are introduced by companies to generate the need to provide a shared understanding of data across the company. Data governance has the primary purpose of making informed decisions possible, reducing organizational friction, protecting data stakeholder interests, training management and employees to develop common methods for data problems,

creating standards, reproducible procedures, reducing costs, and enhancing cost efficiency by coordinating effort and ensuring process transparency. (Al-Ruithe & Benkhelifa, 2017a) underline that governance entails the establishment of who is entitled to decide on data quality requirements within the organization. Data control includes the identification of the real data quality requirements, while the DG deals with who is to make those decisions (Wende & Otto, n.d.).

2. OBJECTIVE

This paper aims:

- To study the value of data governance for select SMEs companies.
- To explore the variable that affects data governance at SMEs.

3. METHODOLOGY

The systematic mapping strategy that we used in this work is described in this section. This study seeks to investigate the factors influencing data governance in small and medium-sized businesses. Data governance is a rising subject that need further study and development. The chosen utility company maintains data from several systems or disparate sources, the data contains numerous line of business units from multiple users and stakeholders, and the data has to be reconsidered in terms of adoption and application.

4. LITERATURE REVIEW

The studies were searched in the database of google scholar and Scopus. By using primary search terms such as "Data governance; Data management, information governance; conceptual framework; literature review". Peer-reviewed articles containing these terms have been included as initial final points. The objective, design, data collection methods, and main results of each paper were reviewed, then the best papers were selected to create the model.
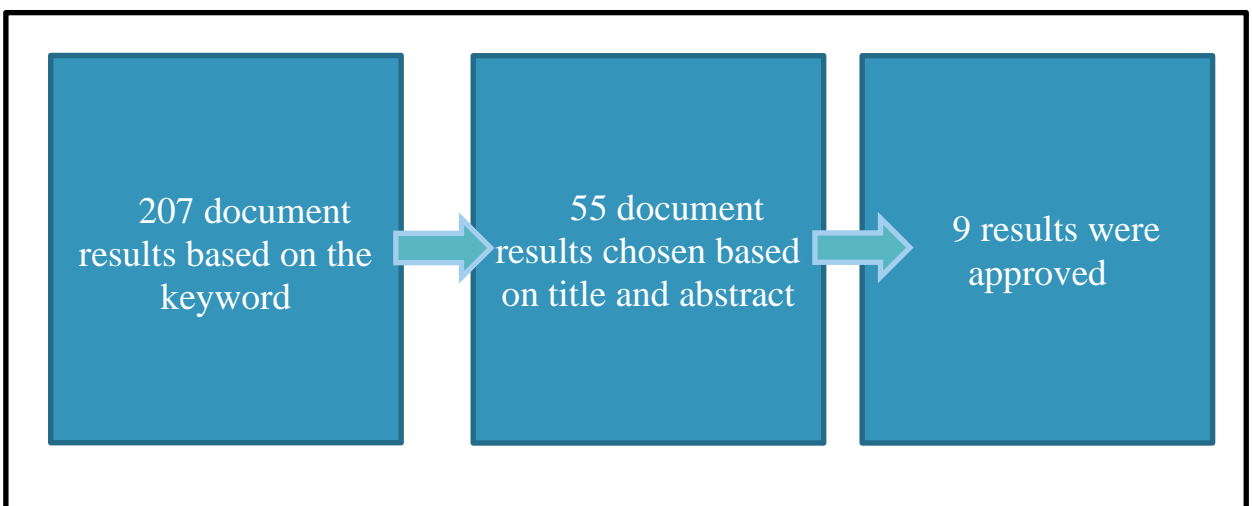

Fig.1. Summarizes The Search Process

- ➢ **Inclusion criteria:**
  - Both qualitative and quantitative methods.

- Studies related to Data Governance.
- Paper published between 2018 -2021

➢ **Exclusion criteria:**

- Studies not written in English.
- Studies that do not relate to Data Governance.

3.1 IT Governance

There is no dispute that the world is undergoing significant technological and informational transformations. It is thought that no other area evolves as quickly as the realm of information technology. The changes in this sector have resulted in a greater reliance on IT facilities in practically all aspects of life and business. This is most likely because growing reliance on IT improves excellence, quality, efficiency, and effectiveness. IT is defined as the use of computers in the processing, sorting, and classification of data via hardware, software, networking, the Internet, or Intellectual Capital (Al-Sartawi, 2020c). As IT helps the various departments, SMEs thus need to align IT with the core functions of the SMEs and other departments is crucial. Another threat to banks not including competitors is a risk. Since it is a threat to both IT and the SMEs, it is the role of IT governance to identify IT-related risks, mitigate them and manage the performance of IT.

IT in businesses had formerly been seen as the technical aid function, but IT in any single company became increasingly relevant and the three-stage approach is currently followed by IT organizations and companies: IT services, IT infrastructure management, and IT management. Control of company value (IT governance). As IT interventions have not only been a way of improving performance, reducing costs, and gradually a driver of commercial creativity, the market tools nevertheless remain incomprehensible. This may be attributed to many factors, one of them being that IT efficiency and IT governance processes sometimes cannot be measured systemically (Spremić et al., 2008).

The relationship between IT and data Governance is tightly linked in such a way that much of the relationship cannot be divided. Controls must be established to ensure data authenticity and to defend against unwanted changes to this partnership. Accuracy, timeliness, significance, completeness, durability, and the qualitative definition are evaluated in data quality. Good data consistency calls for efficient data storage. The study explores the need for efficient data storage. Through a review by the authors Cheong & Chang they found that data management efforts were hindered mainly by a lack of clear roles and responsibilities and a lack of mandate to implement data quality improvement initiatives (Cheong & Chang, 2007).

3.2 Data Governance

The phrase "data governance" cannot be included in a normative sense either in the academic community or in the information systems community of the practitioners. Nevertheless, proposals describing the concept accept that data management applies to the distribution of decision-making and associated data management duties in companies (Wang, 1998).

Data governance has been a major driver of public institutions' decision-making process. The loss of data governance is also a point of worry for policymakers as it serves as a deterrent in many countries to fulfilling their business plans, as well as affects organizational and strategic decisions. Data governance is a major problem among decision-makers, the literature suggests. In addition, data processing plays an important part in decision-making for medium-sized and small businesses, and this has a negative influence as decisions are made in good governance (Al-Ruithe & Benkhelifa, 2017a).

According (Al-Ruithe et al., 2019) Data governance in literature was an emerging theme in the governance of company records, with the number of studies discussing the critical area of data management being small. The foundations of data management science can be traced back to the early 80s; however, the first attempts to propose a 2007 data management system have been released(Al-Ruithe & Benkhelifa, 2017b). Also notice that all current forms of data judgment are analysts and professionals, based on the development of data quality control decision-making authority, indicating that organizations think they have a data management program and do not normally take all of the elements that need to be complete and efficacious systems into account. The number of data used in businesses, which plays a crucial part in commercial activities, has significantly expanded in recent years(Alhassan et al., 2016).

This paper examines the present data management literature and is designed to provide an exhaustive review of data management operations. Davenport (Niemi, 2013) believes that enterprises require corporate data strategy and governance to gain strategic benefits. Furthermore, he explains that companies invested millions of dollars in company systems to collect data from any imaginable source. Enterprise resource planning, customer service, supply chain management and other enterprise processes, for example, ensure that no major transactions or exchanges take place without marking. However, to compete with such data, enterprises must display this in standardized formats, integrate it, store it within a data warehouse and make it easy for everyone within and even outside the enterprise to view.

Redman claims that businesses from the IT department are responsible for data. First of all, it seems clear that the handling of the data should be as similar as possible to the action. The two most critical moments in the lifetime of a piece of data are when it is generated and when it is used. These very insightful and significant data moments exist in the business, not in IT. Secondly, the responsibility for management ought to lie with the most profitable or lost parties. By creating new meaning from data, business divisions benefit considerably. On the other hand, the use of IT data to enhance a good, service, or judgment is not so rewarding. The IT would not experience any discomfort if the data is incorrect. It is a company with bad choices, higher prices, and dissatisfied consumers. (Redman, T. C., 2012).

3.3 SMEs

Academic research into data governance in small and medium-sized enterprises is relatively rare. Begg and Caira (2012) have been researching ten distinct SMEs in the West of Scotland (Begg & Caira, 2012). They investigated Khatri and Brown's (2010) implementation of a small and efficient data governance system because it was straightforward to use. Its results include the fact that none

of these companies thought about the primary idea of implementing any form of data management. In truth, each had its own data management methods, but without defined guidelines throughout the company. However, their business has benefited from the modified strategy of data governance notably in terms of "more information".

Indeed, data governance frameworks just for small and medium-sized businesses are poorly implemented, and they are likely not suitable and scalable. Moreover, the knowledge needed to handle and understand data-based problems and technologies is typically lacking in a small company. Another difficulty in this area is the lack of a clear definition of duties and duties for such an approach (Cheong & Chang, 2007). In many situations, the work required to adopt data governance is considered considerably greater than the resultant advantages. Furthermore, before the effective IT system guarantee is supplied by IT governance, approval of an upper data management program (Khatri & Brown, 2010). Furthermore, SMEs often feel regarded as "data drops" with data flowing into their organizations, from various external sources (e.g. customers or suppliers). Wasteful and inefficient data management might be a simple data format and use follow-up (Barrenechea et al., 2019). Another difficulty is that small companies, especially for their businesses, cannot understand the intrinsic worth of their data, and are independent of the technical systems (Trope et al., 2007).

In an increasingly digital corporate world, data management should allow these firms to find data values to increase their competitiveness. SMEs will therefore gather enormous amounts of information that need to be regulated properly by Data Governance by employing e-business systems or extending their company plan with the increased use of IT systems. Furthermore, future legal requirements might oblige SMEs to deal with data-related concerns (Begg & Caira, 2012).

3.4 Benefits of Data governance for SMEs include:

- Cost savings: Assist in optimizing processes and thereby improving the bottom line.
- Increased customer satisfaction: Improvement of quality, increased customer satisfaction, and increased sales.
- Access to new: Prevention of trade barriers and the opening of global markets.
- Increased market share: Increasing productivity and competitiveness

3.5 DATA GOVERNANCE MODEL

After searching the database for keywords related to data management, 207 document results were based on the word and then these papers were analyzed, 55 document results were selected based on title and abstract, and 5 results were approved. The papers were analyzed to obtain factors that influence the adoption of data governance in small and large companies. The results were as follows in Table 1.

Table 1: Factors

Factors	Description	Number of paper	References
Technology Context	The technological background involves technological and innovation-related influences. The benefits the company perceives lead to the benefits that the technology adapts. In the particular case of data sharing, companies are only able to exchange data if it rewards them.	3	(Bouchbout & Alimazighi, 2008) , (Chwelos et al., 2000), (Lippert, 2006)
Organizational Context	The organizational meaning relates to the internal condition of the authorized entity, it is believed that the organization adopts a strategy when it is aware of the appropriate organizational means to do so. In the event of poor corporate readiness, the company would probably not implement technologies to deter failure or loss of reputation.	3	(Allen,2000), (Chian, 2010)
External Task Environment Context	External Task Environment Context is an inclusive term that incorporates all external factors and effects that affect the activity of an enterprise to which an entity must respond or respond to sustain its operational flow.	2	(Mäkipää, 2006), (Madlberger, 2008)
Technology Use	Effective ICT use has huge potential to deliver economic value and assist SMEs to accomplish their corporate objectives.	1	(Chian, 2010)
Data Quality	Data quality accuracy means that a particular data set is accurate. The accuracy of the data will affect the user's ability to choose his topic of analysis accurately and make the right decision.	2	(Niemi, 2013) (Barrenechea et al., 2019),

➢ **Organizational Context**

A communication variable that determines the content and appearance of both internal and external messages is organizational context. Organizations, or any collection of individuals working together, can have a flat or hierarchical structure, a casual or formal appearance, and a small, medium, or big size. All of these factors contribute to the organizational context, which determines communication expectations and communication options for both internal and external communications.

➢ **External Task Environment Context**

Companies need to adapt, exploit, and fit with the dynamics in their external surroundings to flourish and thrive. Organizations are groupings of individuals who have come together intending to serve a purpose through defined and coordinated goals and strategies. As a result, businesses function in a variety of external settings and are internally organized and structured to suit both external and internal needs and possibilities.

➢ **Technology Use**

Technology allowed for quicker, more convenient, and more efficient commercial transactions. Accounting systems, management information systems, point-of-sale systems, and other simpler or more advanced instruments are examples of technological acts in the business. New enterprises are born as a result of technological advancement. As the number of businesses increases, technology comes to the rescue by making things easier. The two have a symbiotic connection that assures they will always coexist.

➢ **Data Quality**

Data quality (DQ) is the extent to which a particular dataset fits the demands of a user. Data quality is a crucial requirement for ensuring that data-driven choices are as precise as feasible. High-quality data is of sufficient amount and detail to satisfy its intended applications. It is congruent with other sources, presented in unsuitable ways, and has a high degree of completeness. Other important data quality components include Accuracy, credibility, timeliness, consistency, and integrity.
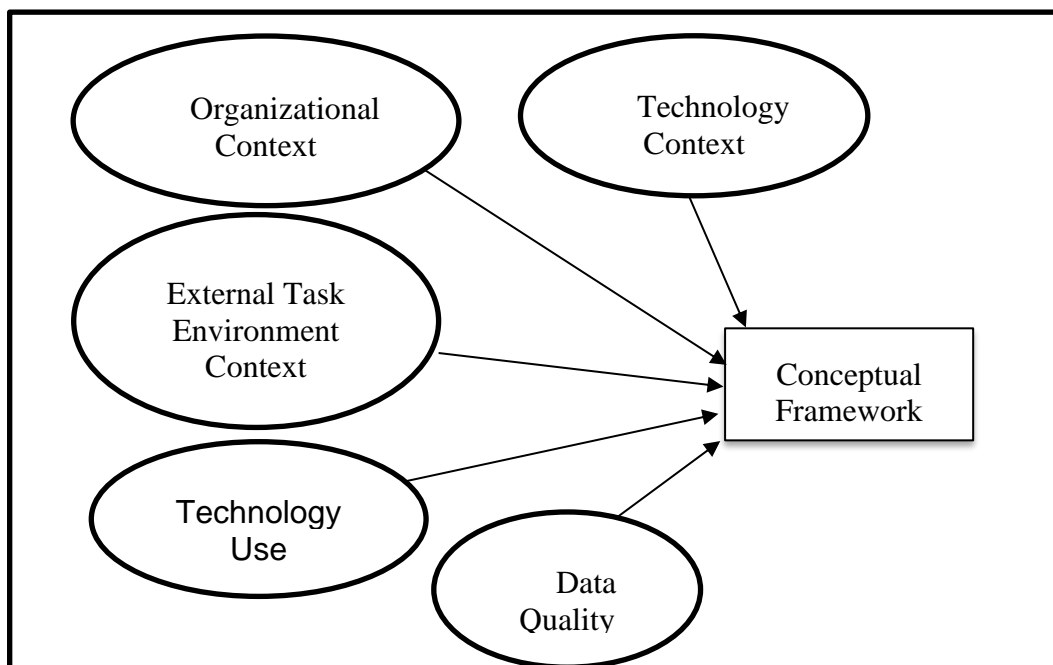
5. RESULTS

Fig. 2. Conceptual Framework for SMEs

6. CONCLUSION

IT governance was always thought to be done through IT control and Control Theory is the primary basis for IT governance conceptualization. Practitioners, therefore, embrace the position of Control Theory in IT governance operationalization. In this paper, we conduct a systematic literature review to examine the factors influencing the adoption of data governance for SMEs. After the search based on the keywords, 5 research papers were accepted, through which six consensus factors were identified that are likely to affect the adoption of data governance for SMEs. The results of the SLR were as follows: Technology Context, Organizational Context, External Task Environment Context, Technology Use, and finally Data Quality. The results of this study of SMEs can be used to identify these factors that influence the adoption of data governance. For future work, it is proposed to develop a model for data governance adoption and test the model by considering the relationship between factors that influence the adoption of data governance for SMEs.

The necessity for greater empirical data is emphasized by addressing an expanding and relatively young subject in IT governance in SMEs. As this study is a qualitative research based on several case studies, we urge researchers to use other approaches to research and expand the external validity of results through quantitative methodologies and surveys.

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