

## A Review of IT Governance and IT Management in the Context of Business Value of IT

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**Abstract:** The business value of IT has become one of the topmost concerns among scholars and industry practitioners. Enterprises are taking much effort for planning, evaluating, controlling, and aligning IT strategy with business strategy to create IT business value. Hence, the IT governance is aimed to bring alignment between IT strategy and business strategy while generating business value from IT investment. Similarly, the IT management has received greater attention among the business and IT executives as it proves the effectiveness and add business value for IT investment to business enterprises. This study used Web of Science core collection database to extract the dataset for the terms IT governance, IT management, and business value of IT. The bibliometric analysis is conducted for the 462 extracted publications in the dataset. The analysis includes various mapping by focusing co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation. A comprehensive demonstration with mapping is presented to clearly explain each bibliometric map.

**Keywords:** IT governance, IT management, Business value, Bibliometric analysis.

### 1. Introduction

IT Governance defined as the process by which decisions are made around IT investments. It focuses how decisions are made, who makes the decisions, who is accountable, how the results of decisions are measured and monitored are all aspects of IT governance. Investment in IT needs regulatory observance, cost control, risk management, business alignment, timely project delivery, innovation and change to deliver stakeholder value. On the other hand, enterprise governance of IT addresses the definition and implementation of processes, structures and relational mechanisms in the organizations; that enable both business and IT people to execute their responsibilities in support of business / IT alignment and the creation of business value from IT-enabled investments. The value creation of IT investments is one of the most important dimensions of IT's contribution to the business. It is clear that business value from IT investments cannot be realized by IT, but will always be created on the business side.

Managing IT investment is a key concern for business and IT executives

as it demonstrates the effectiveness and add business value of IT [1]. IT governance focuses the CIOs must use IT performance management approaches to improve their understanding of what the business wants from IT and as a result what IT has to deliver. The management of IT investment needs good governance and practices that establish how investments will be made and particularly how the different management levels like board members, executive management and operational management will be involved in this process. There are several third-party IT governance frameworks and standards that an organization may implement. These frameworks can be categorized into two such as proprietary frameworks such as COBIT, Val IT, ITIL and... etc. National/international standards such as ISO/IEC 38500:2008, ISO/IEC 27002:2005, ISO/IEC 27005:2008, ISO/IEC 20000:2006, BS25999:2007, Capability Maturity Model and... Etc. Now the question arises that, what is the appropriate IT governance frameworks in managing IT investments and generating business value?

The following three areas can address for the above question such as:

1. Currently organizations are using a combination of structures, processes and relational mechanisms to build up an IT governance framework.
2. The selected combination of structures, processes and relational mechanisms is depending upon multiple possibilities.
3. A well balanced mix of structured, processes and relational mechanisms will enable better IT governance outcomes.

The purpose of the research is to review the IT governance and IT management in the context of business value of IT. IT governance and IT management frameworks are vital in the aspect of managing, governing and controlling IT investments.

On the other hand, IT governance frameworks are essential to optimize and generate business value from IT investment. Nowadays organizations are heavily investing on IT investment and most of the time they failed to realize the expected benefits from their investments. IT governance domain includes strategic alignment, value delivery, resource management, risk management, and performance management which are highly focused on the management of IT investment. The researcher is inspired to investigate how the IT governance frameworks such as industry best practices, models, industry standard can be used to manage IT investment in an organization and how the IT governance frameworks can help to generate business value from IT investments.

There are evidences that insufficient academic literature exists to address a complete understanding and appropriateness of IT governance, IT management in the context of generating business value. The remainder of the paper proceeds as follows. Next section discusses background with literature review, followed by methodology, the results and findings and conclusion.

## 2. Background and Literature Review

IT governance is a subset discipline of corporate governance and focused on IT systems, their performance and risk management. [2] stated that

the term IT governance now increasingly and appropriately rebranded in the professional and academic literatures as the “Enterprise Governance of IT”(EGIT). IT governance enables the enterprise to take full advantage of its investments, thereby maximizing benefits, capitalizing on opportunities and gaining competitive advantage. [3] mentioned IT infrastructure refers to IT assets such as computer networks, data architectures, and hardware and software platforms. The effective IT governance helps to ensure that IT supports business goals, optimizes business investment in IT, and appropriately manages IT related risks and opportunities.

IT governance enables the management to take better decisions pertaining to IT initiatives and investments and provides several tools, guidelines and regulations- in fact, a comprehensive framework to make decisions, monitor outcomes and take appropriate actions towards optimizing IT resources of an organization. Raodeo [4] mentioned that good IT governance ensures that IT investments are optimized, aligned with business strategy, and deliver value within acceptable risk boundaries. Van Grembergen [5] highlighted that IT governance is a vital part of corporate governance and addresses the definition and implementation of processes, structures and relational mechanisms in the organization that enable both business and IT people to execute their responsibilities in support of business/IT alignment and the creation of business value from IT-enabled business investments. Moreover De Haes and Van Grembergen [6] claimed that the ultimate goal of IT governance is to achieve strategic alignment between the business and IT to ensure that IT investments lead to business value. Gu, et al. [7] revealed that firms with good IT governance can realize two to three times the value from their IT investments compared to an average firm and firms with poor IT governance obtain a little return from their IT investments.

Further Gunasekaran, et al. [8] stated that well-managed IT investments that are carefully selected and focused on meeting business mission can have a positive impact on an organization's performance. Likewise, poor investments that are inadequately justified or whose costs, risks, and benefits are poorly managed, can delay and even restrict an organization's performance. Further Symons, C. (2007) stated that, IT governance framework articulates decision rights with respect to IT investments to ensure that they deliver the maximum business value at an acceptable level of risk. Gu, et al. [7] mentioned that making the right IT investment, particularly the right IT infrastructure investment could thus have far-reaching impact on a firm's IT investment performance. Barua, et al. [9] stated that technology creates value because it changes the way that people do things. Fox [10] highlighted that effective IT governance helps to ensure that IT supports business goals, optimizes business investment in IT, and appropriately manages IT related risks and opportunities. There are a number of third-party IT governance frameworks and standards that an organization can implement. However, each of the framework deal with a different aspect of IT governance and there is often overlap between the standards.

Basically, IT Governance is viewed as a control mechanism and operationally oriented. Leveraging IT more successfully to transform the enterprise and generate value-added products and services has become a worldwide business competency. Since IT is such a vital function in supporting and enabling enterprise goals, effective IT governance creates real business benefits such as reputation, trust, product leadership, time-to-market and reduced costs. Nowadays enterprises are doing business on a universal scale around the clock, system and network downtime has become far too costly for any enterprise to afford. In some industries, IT is an essential competitive resource to distinguish and provide a competitive advantage while in many others it decides survival, not just success. Therefore, new industry requirements and risks mandate that management of IT investments be more effective and transparent.

### 3. Research Method and Methodology

This paper employs a tool to conduct bibliometric analysis. This bibliometric analysis uses the data generated in the Web of Science core collection database. The bibliometric analysis generates various visual maps based on the citation, co-occurrence, co-authorship, keywords, bibliographic coupling...etc [11]. The researcher used the IT governance, IT management, and business value of IT as the search term to get the relevant dataset from this database. Accordingly, there are 462 relevant publications are extracted for these search terms. The analysis includes various mapping focusing co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation. In which various elements are focused such as authors, countries, keywords, documents, sources, authors, cited sources and cited authors. The below figures demonstrate each of the map very clearly with their respective illustrations.

### 4. Results and Findings

#### 4.1. Co-authorship and authors

This section demonstrates various mapping for the bibliographic analysis. Accordingly, the below figure 1 shows the map for the co-authorship and authors. In which the minimum number of documents of an author's 1 that met threshold 1092 authors. Out of 1092 authors have been selected to generate the below map. This map has 4 clusters. Among the authors "svensson, goran" has highest number of papers and his papers has greater co-authorships.

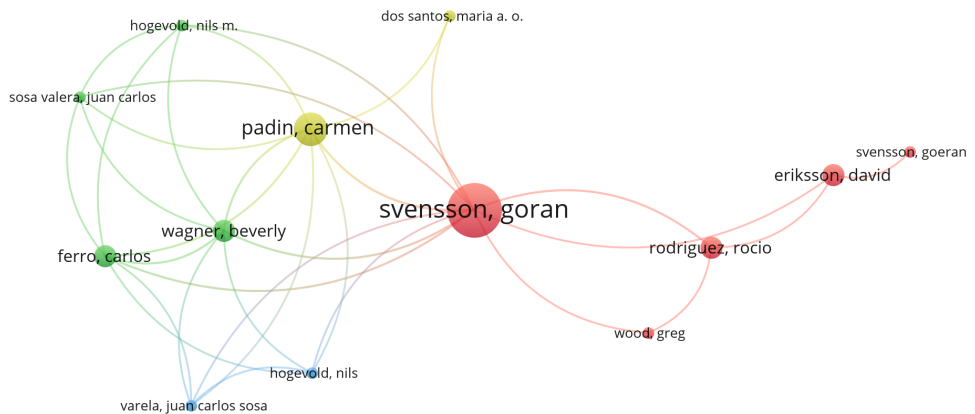


Figure 1: co-authorship and authors

#### 4.2. Co-authorship and countries

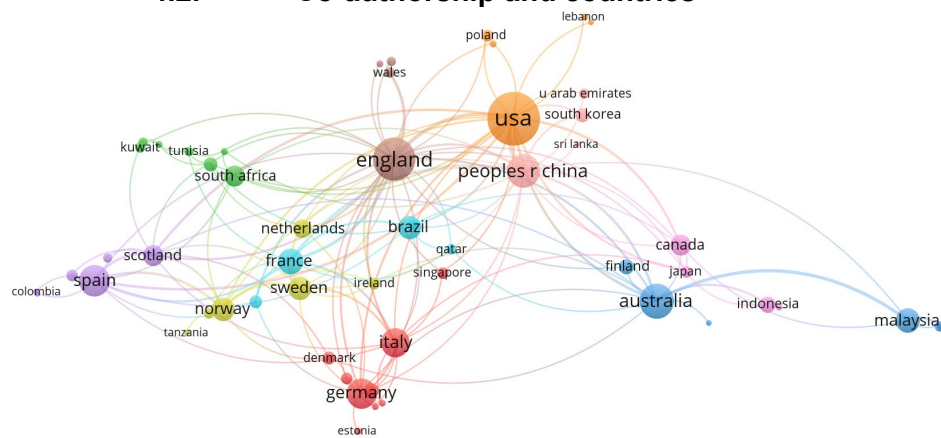


Figure 2: co-authorship and countries

The figure 2 demonstrates the map of the co-authorship and countries. In which the minimum number of documents of a country 1 that met threshold 71 countries. These 71 countries are selected to display the below map. This map has 10 clusters. Among these countries the highest number of publications are related to USA belongs to cluster 7 with 21 links with other countries and have 90 publications. Secondly, the England belongs to cluster 8 with 28 links with other countries and having 58 publications. Thirdly, the Australia belongs to cluster 3 with 13 links with other countries and having 40 publications.

#### 4.3. Co-occurrence and All keywords

The figure 3 exhibits the map for the co-occurrence and All keywords. The full counting option is used to generate this map. There are 2539 keywords





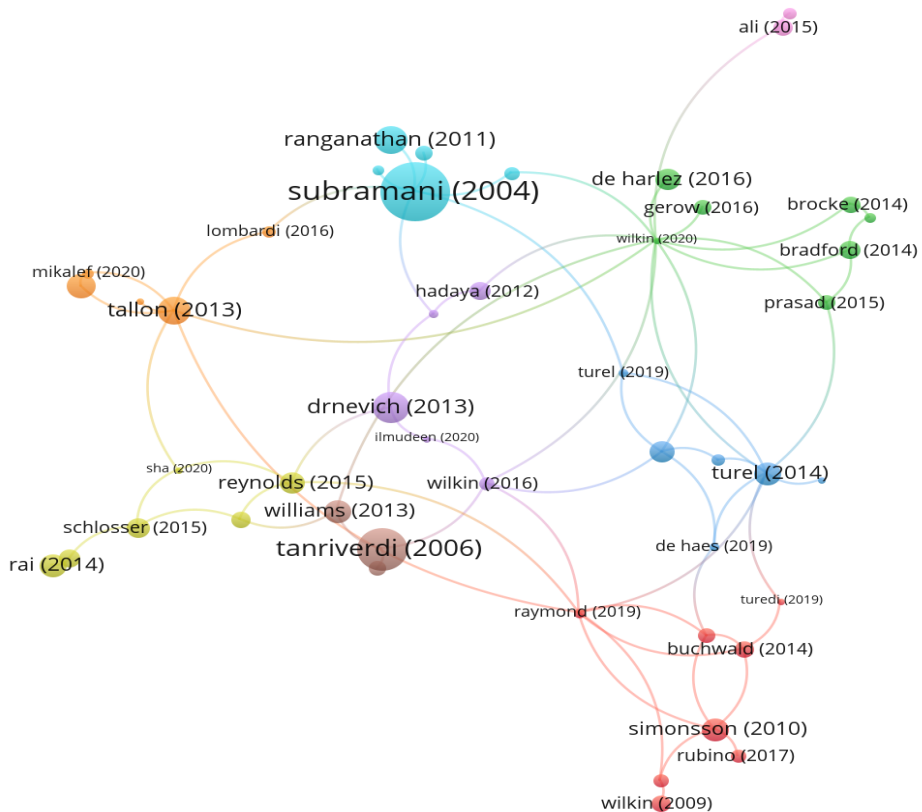


Figure 5: Citation and documents

#### 4.6. Citation and sources

The figure 6 shows the map for the citation and sources. In which the minimum number of documents of a source is set for 2. Hence; there are 84 sources met this threshold. There are 6 clusters in this map. Firstly, the supply chain management- an international journal belongs to cluster 2 which also has 11 publications. Secondly, the international journal of accounting information systems belongs to cluster 1 that with 8 links and 09 publications. Thirdly, information & management and information systems management has the same number of publications that is 5.



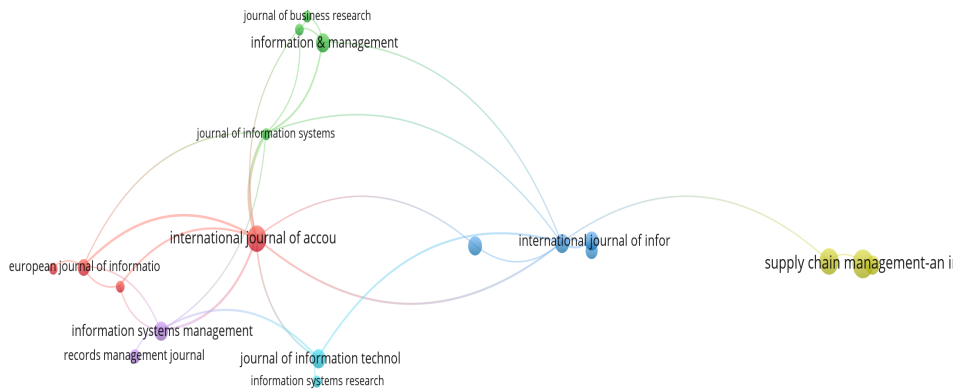


Figure 6: Citation and sources

#### 4.7. Citation and authors

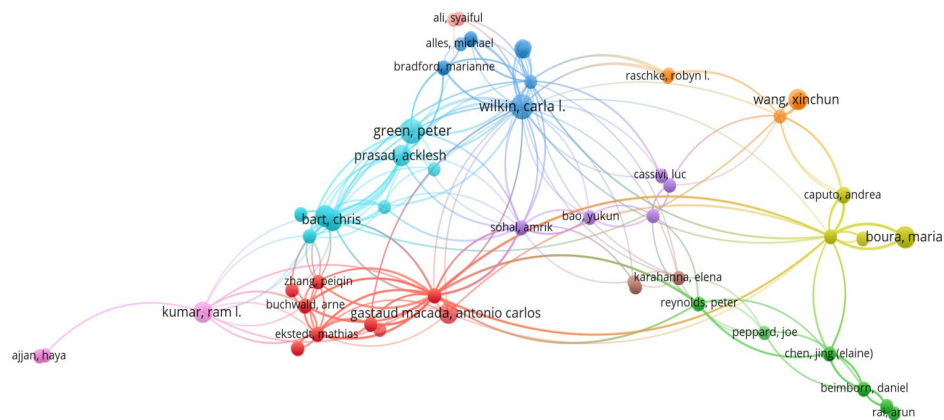


Figure 7: Citation and authors

The above figure 7 shows the map for the citation and authors. In which the minimum number of documents of an author is set for 1. Hence; there are 1092 authors met this threshold. Of the 1092 authors, 1000 authors have been selected for this map generation. There are 10 clusters in this map. The Wilkin, Carla belongs to 3<sup>rd</sup> cluster they are having 3 publications. Secondly, green and peter belongs to cluster 6 having 3 documents. Thirdly, the authors bart and chris, belongs to 6<sup>th</sup> cluster with 2 documents.

#### 4.8. Citation and Countries

The below figure 8 shows the map for the citation and countries. In which the minimum number of documents of a country is set for 1. Accordingly; there are 71 countries met this threshold. Hence, all the countries have been selected for this map generation. There are 7 clusters in this map. Firstly, the USA has the highest number of citations that belongs to cluster 2 with 90 publications. Secondly, England belongs to cluster 3 having 58 documents. Thirdly, Australia belongs to cluster 2 with 40 documents.



#### 4.10. Bibliographic coupling and sources

The below figure 10 shows the map for the bibliographic coupling and sources. In which the minimum number of documents of a source is set for 3. Accordingly; of the 225 sources 41 publications met this threshold. There are 3 clusters in this map. Among these the cluster 1 possess highly the business management journals. The cluster 2 possess the journals which are highly information systems and management related journals. Similarly, the cluster 3 possess the supply chain and operations management journals. Accordingly, the management decision belongs to cluster 1 which has 22 publications. Secondly, the supply chain management – an international journal belongs to cluster 3 which has 11 publications. Thirdly, the international journal of managing projects in business which is belongs to cluster 2 having 11 publications.

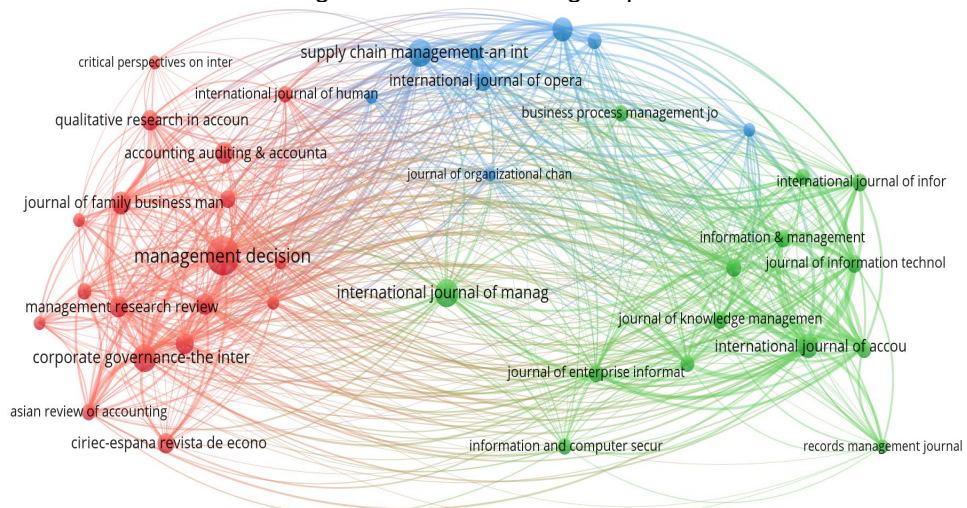


Figure 10: Bibliographic coupling and sources

#### 4.11. Co-citation and cited sources

The below figure 11 shows the map for the co-citation and cited sources. In which the minimum number of citations of a source is set for 30. Accordingly; of the 10026 sources 150 publications met this threshold. There are 6 clusters in this map. Among these the strategic management journal which is belongs to cluster 1 possess high citations of 785. Secondly, the journal of business ethics which is belongs to cluster 6 possess 727 citations. Thirdly, the academic management review which is belongs to cluster 1 has 710 citations. The fourth largest journal is MIS Quarterly which is belongs to cluster 3 has 633 citations.



## 5. Discussion

Investments in IT assets are rapidly growing and managers often worry that the benefits of IT investments might not be high as they expected. Therefore, getting business value from IT investments and generating values is becoming importance governance domains. Today major challenges for IT are total cost of ownership & IT value proposition, architecture & applications, security, asset optimization, on demand management & IT investment, and business/competitive intelligence. It is obvious that organization which makes successful IT investment because of better IT governance and IT decision making. IT governance is the most essential predictor of the value that organizations can generate from IT investment. Ensuring that value is sustained or increased from IT-enabled investments is a crucial part of enterprise governance. It is obvious that IT-enabled investments can bring enormous rewards, but only with the right governance and management processes and full commitment from all management levels.

IT governance aims to align business and information technology strategies and the organizations adopt IT governance to ensure efficiency, decreased costs and increased control of IT infrastructures [12]. The business/IT alignment maturity is likely to be higher when organization are applying a mix of mature IT governance practices and likely to be lower in organizations with a more poor mix of IT governance practices [13, 14]. Similarly, Fink and Ploder [15] mentioned that, to create sustainable value, it is necessary for organizations to link the development of an IT strategy to the business strategy.

The effect of IT governance on organizational performance has rarely been studied in IS literature. For instance, the effective IT governance allows to create IT capability, and that in turn results in superior firm performance [16]. The use of IT augments the ability of firms to sustain in the highly turbulent environment. However, the effective use of IT depend on good IT governance [17, 18]. Organizations are using a mixture of different structures, processes, and relational mechanisms that outline a layered system in order to provide higher levels of capabilities [19, 20]. IT governance signifies the strategic importance of IT so the firm can enrich IT resources, sustain its operations, and extend its businesses thus improve its' ability to leverage IT resources with other corporate resources [16]. On the other hand, the effective IT governance doesn't happen by accident [21]. To be an effective IT governance, it should focus on horizontal integration capabilities - the ability to coordinate and integrate formal and informal IT decision-making required for sustaining business value from IT.

Despite the increasing amount of IT investment, managing IT and IT investment decisions have ever more become complex due to vague cost relationships, uncertain payoffs, rapid technological changes, and ever more uncertain business environments [22-24]. According to Senn [25] study the investigation explored factors associated with eleven business-value related themes and thirty-five individual factors identified in advance by independent

group of senior IT directors. The findings clearly show a large number of areas where both managers and IT professionals agree on contributors and detractors from business value. Where differences were identified, it was clear that expectations related to the development and use of IT assets varied

## 6. Conclusion

Today, business enterprises are taking much effort in managing and governing their IT investments that in turn creates IT business value. The IT governance and IT management plays a vital role in achieving IT business value. This study employs bibliometric analysis for the Web of Science core collection database for the search terms IT governance, IT management, and business value of IT. The bibliometric analysis conducted for 462 publications in the generated dataset. The analysis includes various visual maps by centering on the co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation. The findings present a complete narration to clearly explain the bibliometric map.

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