A Comparison between IT Governance Research and Concepts in COBIT 5

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Abstract—Information Technology Governance (ITG) concepts have continuously evolved over the years. Introductions of new concepts, standards, regulations and frameworks in ITG, such as COBIT 5, create greater diversions in ITG concepts. This paper aims to investigate and compare concepts in academic literatures to COBIT 5. This study reviews and analyzes Information Systems (IS) literatures that adhere to ITG. We identified 100 articles that published in accredited journals during 2002 to 2012. Then, we compare the finding from these articles to the concepts proposed in COBIT 5. This study found both similarities and differences and also suggested some interesting researches on several key areas that should be conducted for better understanding of ITG.

Keywords—IT governance; IT management; IT decision making; COBIT 5; framework

I. INTRODUCTION

Information technology (IT) has been a backbone of business in recent years. IT usages range from simple productivity enhancement to complex strategic advantage creation. Subsequently, IT undeniably becomes a critical element that needs to be carefully managed among business organizations. A worldwide report shows that there is an increase in IT investment among firms. Gartner recently reveals that worldwide IT spending is expected to reach US$3.79 trillion in 2012 [1]. IT investment is expected to be properly directed and controlled not only to increase firm capabilities [2, 3] but also to ensure proper use of corporate asset [4].

Due to the dramatically increase of IT investment phenomena, the concept of IT governance has become a center of interest among practitioners and researchers. Despite this, IT governance and its concept have been defined in various ways [5]. This might be caused from the continuously changing characteristic of Information Technology Governance (ITG) [5-7] as well as the simultaneously developments from different communities [5]. Past literatures show that many researchers also attempt to propose various ITG models and concepts (e.g. Van Grembergen, De Haes and Guldentops 2004, Weill and Ross 2004, Peterson 2004b). From the practical perspective, different conceptualizations is resulting in the making of diversified and various versions of ITG frameworks and standards, such as, COBIT 4.1 [8], ITIL V3 [9] and ISO38500 [10]. This could create challenges for business organizations when they want to select and implement the ITG. From academic and practical viewpoints, different ITG concepts create complication and confusion in both research and practice [5, 11, 12].

ITG concepts continue to evolve over the years. There are introductions of new concepts, frameworks, standards and regulations. For instance, Sarbanes-Oxley Act (SOX) was introduced in 2002 and had changed the landscape of ITG practice and research [13-15]. Recently, there are few concepts that require more accountability from corporate executives, such as, GRC, compliances, ethics and green IT. More importantly, the most used ITG framework namely COBIT 4.1 [16] had just been updated to COBIT 5 [17]. Thus, it is important to ITG knowledge communities to cope with these changes.

It is also important to understand ITG knowledge landscape to facilitate new ITG knowledge expansion. However, literatures that propose conceptual maps of ITG knowledge are scarce. With introduction of new concepts, frameworks, standards and regulations, it is crucial to know how new concepts fit in existing knowledge base.

As a result, this paper proposes to provide an analysis of ITG research and concepts as well as a comparison to COBIT 5. It intends to demonstrate differences and similarities from research practical perspectives. We choose COBIT 5 because it is the recent update of the most popular ITG framework. We investigate by using ITG journal articles in the past decade. Each article is analyzed and classified by the article’s ITG research emphasis, investigating variables and its relationship to COBIT 5. We, then, discuss and present research gaps to propose future research directions.

This paper is organized as follows. It starts with a brief summary of past ITG literature researches and COBIT 5 introduction to encompass the research scope. Then, research methodology is discussed. Afterward, the classification of literatures to COBIT 5 areas is shown and discussed. We aim to provide an explanation of the link between academic and practical communities in ITG. This study concludes with discussion and future research directions.
II. BACKGROUND

A. Past Reviews on IT Governance Literatures

There are few scholarly articles that try to understand how ITG field of studies is developed and evolved. Those include Brown and Grant [18], Mähring [19], Webb, Pollard, and Ridley [11], Burtscher, Manwani, and Remenyi [20] and Wilkin and Chenhall [21]. These reviews interest in the directions and themes of ITG research. Brown and Grant [18] reviewed and identified three ITG research streams, structural analysis, contingency analysis and the combination of the first two. Such findings suggest the importance of structural and contingency perspectives in ITG literatures. Brown and Grant [18] contributes a conceptual map of ITG knowledge from literatures. This map greatly helps ITG scholars to understand how research communities see where research interests and gaps are.

There are other reviews but they often have specific objectives. For instance, Webb, et al. [11] reviewed a wide range of ITG literatures to integrate, explain and define a definite ITG definition. Webb, et al. [11] presented the diversification and confusion in ITG conceptualization. That review analyzed not only academic but also practical concepts. Mähring [19] reviewed ITG literatures that relate to board of directors’ role. The study argues that SOX have added compliance pressure and changed board responsibilities. While these reviews do not intend to provide total analysis of ITG field of studies, they offer a specific comparison to practical concepts, such as COBIT and SOX. These concepts exist in practices and can shape empirical data in academic research. For instance, COBIT has been recognized as the most used framework [16] while SOX is mandatory for all US public companies. Thus, these comparisons are vital in order to gain a more complete understanding of ITG field of studies.

Past literature reviews indicate different viewpoints and conceptual diversification in ITG field of studies, essentially, when different research communities differently conceptualize ITG. One outstanding finding is that ITG is constantly evolving since there are regular introductions of new concepts, legal requirements, standards and practical frameworks. It is vital not to ignore these changes in order to gain better understanding of ITG field.

The latest version of COBIT, COBIT 5 [17], is recently introduced. Thus, an analysis and comparison between COBIT 5 concepts and existing literatures may help researchers understand the gap between the practical world and academic world. COBIT 5 is new and has a limited number of academic literatures that discussed about it. This research aims to explore existing literature to demonstrate differences and similarities of COBIT 5 to existing ITG research.

B. IT Governance Concepts in COBIT 5

COBIT 5 is introduced as a framework for “Enterprise governance of IT” rather than “IT Governance”. Enterprise governance of IT shares similar concept to IT governance but it emphasizes on the involvement and responsibility of business side rather than technical side [22]. COBIT 5 is designed to be a single integrated framework that can be used for both governance and management [17]. COBIT 5 defines governance as:

“Governance ensures that stakeholder needs, conditions and options are evaluated to determine balanced, agreed-on enterprise objectives to be achieved; setting direction through prioritisation and decision making; and monitoring performance and compliance against agreed-on direction and objectives.” [17].

This definition is different from the previous versions of COBIT. It recognizes multiple stakeholders of organizational IT as well as balance of resources distribution while maintain overall firm goals. Second, it explicitly states what activities to do. Third, COBIT 4.1 mentions about leadership, structures and processes in the definition [8] while COBIT 5 does not. COBIT 5 reveals new conceptual ideas compared to COBIT 4.1. COBIT 5 proposes COBIT principles which guide the governance of IT. The five principles include: Meeting Stakeholder Needs; Covering Enterprise End-to-end; Applying a Single, Integrated Framework; Enabling a Holistic Approach; and Separating Governance From Management [17] as in Table I.

TABLE I. COBIT 5 PRINCIPLES [17]

<table>
<thead>
<tr>
<th>Principle</th>
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<tbody>
<tr>
<td>Principle 1: Meeting Stakeholder Needs</td>
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<tr>
<td>Principle 2: Covering the Enterprise End-to-end</td>
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<tr>
<td>Principle 4: Enabling a Holistic Approach</td>
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<tr>
<td>Principle 5: Separating Governance From Management</td>
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</table>

These principles demonstrate scope, how-to and objectives of COBIT. They highlight on certain concepts, such as, goal cascade and governance enablers. COBIT 5 also explicitly differentiates governance and management processes while COBIT 4.1 does not. COBIT 5 focus on business audience with value delivery as a primary goal.

From operational point of views, COBIT 5 provides 37 processes in two domains. The governance domain contains five processes while management domain contains 32 processes. These processes are provided as a guideline to practitioners. Fig. 1 shows key governance and management areas and Table II shows COBIT processes.

COBIT 5 indicates that governance processes will provide direction to management processes based on business needs. Then, governance processes will get feedback from management processes to evaluate how well the directions are...
carried out or whether they are needed to be adjusted. Governance actions include Evaluate, Direct and Monitor or EDM [23]. COBIT 5 sees board of directors is accountable for governance processes while executives are responsible to perform them. EDM and board accountability concepts are similar to ISO38500 [10].

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![Figure 1. COBIT 5 Governance and Management Areas [17].](image)

On the other hand, management processes are categorized by IT life cycle. There are four areas: Align, Plan and Organize (APO); Build, Acquire and Implement (BAI); Deliver, Service and Support (DSS); and Monitor, Evaluate and Assess (MEA). Each area contains different processes. COBIT 5 sees APO and MEA areas are directly linked to governance processes. These process areas contain different ITG activities.

Past research interests can be matched to these process areas. In this case, we can provide a perspective of research interest to COBIT. In addition, these research finding can be used to provide a better understand of COBIT usage in practice. COBIT 5 is not a minor update to its previous version. There are conceptual differences, new emphasizes and new arrangements. These distinctions could imply or effect governance practice and knowledge in many ways. Thus, this study will compare and discuss past literatures in relation to COBIT 5 key areas. This analysis is done to understand how existing knowledge can relate to the framework.

### III. RESEARCH APPROACH

This research takes a two-step approach. First, this study explores current literature to identify ITG literatures. We adapt an IS literature review methodology described by Webster and Watson [24]. We search through A*, A and B ranked journals indicated in ERA2010 journal list. The rank is published by Excellence in Research for Australia (ERA) initiative, which is an Australian governmental body that assesses the country’s higher education researches. Each journal was searched for ITG articles using its own publication search engine, EBSCO Academic Search Complete, EBSCO Academic Search Premier, EBSCO Business Source Premier or Google Scholar. The searches are done within the papers’ title, abstract and author-specified keywords. Sample search terms include IT governance, IS governance, COBIT, ITIL and governance.

Then, articles are classified to match COBIT 5 key areas. This step differs from Webster and Watson [24] due to our research objective. We analyze each article by reviewing its scope, key variables, methodologies and research settings. The groups of articles are analyzed and compared to related COBIT 5 key areas. Conceptual similarities and differences are demonstrated and further discussed. Last, limitations and research directions are drawn to guide future research.

### IV. KEY FINDINGS

#### A. COBIT 5 Related Articles

Our search identifies 24 out of 51 journals that have published ITG papers. The articles are then reviewed to confirm topic relevancy. In total, we found 100 ITG papers.

Then, we analyzed and classified articles based on COBIT 5 governance and management areas. We found that many research articles relate to more than one area. The distribution of articles is shown in Fig. 2.
Our classification demonstrates three research focus areas. Almost two-third of identified articles, 58%, shows relationships to COBIT 5 governance area. These literatures concern on the design, implementation and human aspect of ITG. Some of the papers are related to management areas, especially APO and MEA, which relates to planning, design and implementation, as well as, monitoring and feedback to governance area. On the other hand, BAI and DSS are not found in ITG articles. The next section provides detail discussion of articles in each area.

1) Evaluate, Direct and Monitor (EDM)

Based on COBIT 5 recommendation, EDM is considered to be the only governance area. Many articles interest in design, policy, implementation and human aspect of ITG. These focuses are related to many APO and MEA processes. For instance, Tillquist, King, and Woo [25] discusses and conceptualizes IT dependency which deal with ITG scope. Baptista, Newell, and Currie [26] challenges fundamental assumption of organizational IT institutionalization. Tallon [27] investigates strategic alignment concept on multi-focused strategies. Silvius [28] also investigate strategic alignment perception difference between business and IT executives. There are additional ITG concepts, such as, green IT [29], ethics [29-31], regulation [29] and risk [32].

There are a number of articles that discuss implementation of ITG. For instance, Huang, et al. [33] studies the use of steering committees and communication policies. De Haes and Van Grembergen [34] attempts to identify baseline ITG implementation. There are a number of case studies in various settings, such as, Peterson [5], Hvalshagen [35], Rau [36], Ali and Green [37], Wilkin and Riddett [38], Campbell, et al. [39], Marzullo and de Souza [40] and Pollard and Cater-Steel [41].

There are a few articles that investigate human aspect in ITG. Avgerou and McGrath [42] investigates culture, power and change management. Andriole [43] critiqued existing practices as well as theories regarding ITG board involvement. Bart and Turel [44] confirms the theory-practice deviation and critiques on suitability a recommended board practice. Li [45] and Clemons and Hitt [46] study issues in power usage. Last, Heart, et al. [47] investigates relationship between manager competency and ITG effectiveness.

In this category, there are a large number of articles that relate to other management areas. Those articles are also related to either APO or MEA areas. This may not be surprising since APO and MEA are directly linked to EDM. Further discussion of these papers will be provided in APO and MEA article discussions.

In addition, we did not find any article that empirically studies COBIT 5 yet. However, we observe related interests between COBIT and past literatures. For instance, there are articles that study framework adoption [40, 41, 48] and demonstrate multiple framework integration in organizations [49]. There are articles that focus on compliance [14, 50], value delivery [51] and risk management [52]. Those topics share interests with COBIT process (EDM01, EDM02 and EDM03). However, past literatures also focus on other aspects, such as, strategic alignment. COBIT 5 conceptualizes strategic alignment as a goal. There are articles that focus on ITG implementation artifacts, such as, structure [53, 54], processes [54] and mechanisms [33, 37]. While those artifacts reflect similarity to COBIT guideline, those articles are not COBIT 5 specific. Table III summarizes number of articles that relate to EDM areas.

<table>
<thead>
<tr>
<th>Related to Other Areas</th>
<th>APO</th>
<th>BAI</th>
<th>DSS</th>
<th>MEA</th>
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<tbody>
<tr>
<td>Topics</td>
<td>Governance Practice, Governance Principle, Implementation, Human Aspect</td>
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2) Align, Plan and Organize (APO)

There is a large portion of literatures that relates to APO area. This is not surprising since APO directly links to governance area. For instance, APO02 process relates to strategic alignment which interests researchers. Luftman and Kempaia [55] studies success factors for strategic alignment. Tallon [27] argues and compares benefits and limitations of single and multiple strategic alignment schemes. Mikko [56] studies IT boundary and suggest governance practice to improve alignment. Additionally, APO03 relates to architecture decisions. There are a large number of literatures in this area. For example, Smith and McKeen [57] presents a success case that alter enterprise architecture in financial industry. Mangan and Kelly [58] presents another architecture implementation in a financial firm that induces issues among stakeholders. Schmidt and Buxmann [59] studies success factor in IT architecture management.

APO01 and APO08 relate to ITG structures, relationships and roles. There are several literatures that highlight these issues. For instance, Andriole [43] points out issues of board ITG role and practice. Xue, et al. [60] studies about ITG decision process and archetypes. Li [45] studies issues of managerial entrenchment of ITG decisions. Tiwana and Kosynski [61] studies governance structure and IT architecture relationship. However, this process includes the
activity of defining governed IT processes which are not directly addressed by literatures.

There are researches that focus more on certain IT processes. For instance, APO10 relates to the IT outsource management, which is the most researched topic in this aspect. These studies include theory discussion [56, 62-66], contract analysis [63, 67, 68] and role [69, 70]. APO06 relates to investment governance, which also interests researchers [48, 71, 72], APO12 focuses on IT risks. There are few articles that study this topic [32, 62].

In addition, there are articles that focus on designing and integrating ITG into organization. ITG implementation researches help investigate and validate ITG theories in practices. Our study reveals 33 articles that focus on implementation. There are eight articles that study overall ITG implementation in organization. Case study is a primary tool to gather data [35, 49, 51, 73, 74]. There are other articles that study specific aspects of implementation, such as, structure [53, 54, 75, 76], processes [54] and mechanisms [33, 37]. Alternatively, there are articles that study implementation issue or certain achievement measures, such as, adoption of frameworks [48, 49], compliance [14], strategic alignment [55, 61, 73, 77, 78], value delivery [51], risk management [52] or performance management [79].

Many of literatures relate to both APO and EDM areas. Table IV summarizes literatures that relate to APO area.

**TABLE IV. APO ARTICLES SUMMARY**

<table>
<thead>
<tr>
<th>Related to Other Areas</th>
<th>EDM</th>
<th>APO</th>
<th>DSS</th>
<th>MEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>9</td>
<td>4</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Topics</td>
<td>Governance Practice, Governance Principle, Implementation, Human Aspect</td>
<td></td>
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</table>

3) **Build, Acquire and Implement (BAI)**

On the contrary, there are a small number of articles that address issues related to BAI processes. These researches relate to specific decision or governance practice on certain IT processes. For instance, BAI01 relates to IT project management. Gwillim, et al. [80] studies issue on post implementation review process, which is critical to IT project management. Ramon [81] presents a case with IT project management that relates to supplier. Viana and Hertogh [82] studies engagement between business and IT in managing IT projects. Tingling and Parent [83] studies about how firm select or choose technology.

BAI is a management area of COBIT; thus, the identified ITG articles will not address the issue in this area. Table V summarizes literatures that relate to BAI area.

**TABLE V. BAI ARTICLES SUMMARY**

<table>
<thead>
<tr>
<th>Related to Other Areas</th>
<th>EDM</th>
<th>APO</th>
<th>DSS</th>
<th>MEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>9</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Topics</td>
<td>Implementation</td>
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</tbody>
</table>

4) **Deliver, Service and Support (DSS)**

Similar to BAI, there are very few articles that related to DSS area. This area heavily focuses on IT management and service delivery. We found seven articles which, similar to BAI, relate to specific decision or governance practice on certain IT processes. For instance, Pollard and Cater-Steel [41] and Winniford, et al. [84] study about IT service management and delivery. Koningsnki and Tiwana [85] and Shi, et al. [86] study service delivery of inter-organizational system. These articles are not DSS exclusive since they relate to other COBIT area. Table VI summarizes literatures that relate to DSS area.

**TABLE VI. DSS ARTICLES SUMMARY**

<table>
<thead>
<tr>
<th>Related to Other Areas</th>
<th>EDM</th>
<th>APO</th>
<th>BAI</th>
<th>MEA</th>
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</thead>
<tbody>
<tr>
<td>Topics</td>
<td>Implementation</td>
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5) **Monitor, Evaluate and Assess (MEA)**

MEA area focuses on getting feedback to governance area. Similar to APO, COBIT 5 conceptualizes a direct link between MEA and governance area. Our review found 47 articles relate to this area.

These literatures focus on compliance and control. For instance, MEA03 focuses on compliance to outside regulatory frameworks. There are large numbers of literatures that interest on compliances and the regulatory framework itself. For instance, Markus, et al. [87] and Currie and Guah [88] study industry-wide standard creation and enforcement; Damianides [14] and Braganza and Hackney [50] study SOX adoptions and industry-wide standard creation and enforcement; Damianides [14] and Braganza and Hackney [50] study SOX adoptions and issues. MEA02 focuses on control effectiveness. Control is considered to be critical focus of governance practice and many articles show interests in the control effectiveness and control process (e.g. auditing). Example articles include; Gwillim, et al. [80] studies side effect and managerial involvement of post implementation evaluation; Viaene and Hertogh [82] demonstrates importance of empowerment in governance effectiveness; Merhout and Havelka [89] provides a confirmation to constructive audit concept. There are a small number of literatures that study IT performance measurement in our classification. For instance, Tiwana and Konsynski [90] which studies relationship between inter-organizational data exchange architecture and governance effectiveness.

Our classification confirms that MEA area also relates to other areas. Compliance and control are the primary concerns in our review. Table VII summarizes literatures that relate to MEA area.

**TABLE VII. MEA ARTICLES SUMMARY**

<table>
<thead>
<tr>
<th>Related to Other Areas</th>
<th>EDM</th>
<th>APO</th>
<th>BAI</th>
<th>DSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics</td>
<td>Compliance, Control</td>
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</table>
B. Research Concepts and Methodology Used

Around seventh-tenth of articles are empirical while the rest are conceptual papers. Many empirical articles adopt case study as the main methodology. There are a small number of articles that use survey to solicit data. Additionally, there are three articles that adopt mixed methods which use both quantitative and qualitative tools. Fig. 3 shows distribution of research methodology adopted by researchers.

![Methodology Used](image)

Our review observes that research concept may be classified into three groups based on research variables: organizational, larger than organization and within organization. Unsurprisingly, organizational level researches are the largest group with almost seventh-tenth of identified articles. These researches distribute among the five areas and have different focus from theoretical to practical emphasis. Examples of organizational variables includes: IT dependency [25] and strategic alignment [26]. Additionally, more than half of researches that focus on organizational level variables use case study methodology. Many of these are ITG implementation articles which use case study to demonstrate implementation procedure and effect on organizational variables [35, 51, 53, 73, 91, 92].

Researchers also adopt quantitative methodology to analyze organizational variables. There are 17 articles that use survey to gather data. The topics are mixed but the variable focus is at organizational level. For instance, Luftman and Kempaiah [55] analyzes factors that affect strategic alignment of firm. Tanriverdi [93] studies relationship between certain enterprise architecture setting of multi-business firms and their performance. These studies offer a complementary evidence to confirm and explain ITG concepts. Overall, these articles reflect the interest of researchers on ITG on organizational variables.

In contrast, there are much fewer articles that discuss variables beyond organization. For instance, Markus, et al. [87] and Currie and Guah [88] studies and reports an industry-wide IT collaboration and governance. Both researches are conducted in different countries and industries. Campbell, McDonald, and Sethibe [39] analyzes difference between public and private sector from ITG lens. Tanriverdi and Uysal [94] and Chin, Brown and Qing [95] study the governance and synthesis of organizational IT in the case of merger and acquisition. These studies emphasize on governance between different organizations or external influence (e.g. industry standard or regulation). This area demonstrates importance of ITG concept that differs from typical single organization focus.

Last, there are few articles that focus on variables within organizations. These researches conceptualize variable in at group or individual levels. Researches utilize different conceptualizations of groups, such as, business unit, structural groups (e.g. board, executive, committees) and team/project members. The interested variables include inter-group relationship [58, 75], role and responsibility, ITG reaction or effect on group and individual [28, 33, 36, 37, 69, 81, 96], agency issues [45] and competency issues [44, 47, 97]. These researches focus on ITG implementation and effectiveness of ITG. However, these researches offer additional explanation about the mechanics of ITG, as opposed to researches with organizational focus which often treat ITG as a black box.

There is one research that uses decision as the level of analysis. Xue, et al. [60] adopts Weill [6] decision model and examine ITG decision process. This study offer a distinct perspective that explain how each decision type are made and by whom.

Overall, ITG researchers are still focus on organizational level variables. However, there are complimentary interests on different levels that are equally important. Researches with focus on variables beyond organization, such as, industry standard, regulation and other external influences offer a more complete view of inter-organizational ITG. Similarly, researches that analyze group and individual level variables provide significant contribution to explain the inner mechanics of ITG. These researches report and explain actions, perceptions, limitations and reactions of organizational actors. Nevertheless, this is an area with small number of researches. There are evidences that ITG scholars should study certain organizational groups, such as, board of directors [43, 44]. In sum, different levels of analysis represent complimentary knowledge rather than conflicting conceptualizations. There are a small number of researches with a focus on non-organizational level variables, thus ITG scholars can provide complimentary contribution with researches of this kind.

Additionally, almost all of research articles are conducted in developed countries. There are only three articles that conducted in developing countries. This may not surprising since it is common that developed countries to have regulations directly relates to ITG (e.g. SOX and alike) while developing countries do not.

V. DISCUSSION AND FUTURE RESEARCH DIRECTION

Our comparison between COBIT 5 governance and management areas and past literatures yield several interesting points. COBIT 5 shows both similar and different viewpoints to past ITG literatures. COBIT shows similarity in EDM areas; for instance, it recognizes the importance of setting up governance system (EDM01), it still focuses on delivery of business value (EDM02) and it concerns on risk and resource management (EDM03, EDM04). COBIT 5 clarifies the
governance focus by offering different set of processes (Principle 5). This is welcome since literatures shown an interest in ITG scope. In comparison to the previous COBIT, this new framework exhibits a clearer boundary of its governance concept. Thus, verification and elaboration of these concepts’ effectiveness can help us understand COBIT practices. Those studies can reduce confusion in framework adoption and provide significant implication to ITG communities. Additionally, it is interesting to understand how new concepts or principles should fit in existing ITG knowledge.

COBIT 5 management areas can be related to past literatures. It will provide great contribution to both academic and practical communities since they are the key to bridge between ITG theory and practice. Past literatures focus on APO and MEA areas since they are directly related to COBIT governance processes. Common topics include implementation, governance practice, human aspect, compliance and control. These researches can help us better understand ITG practice. For instance, literatures with focus on overall ITG implementation can effectively demonstrate holistic view of how well ITG concepts work to deliver business value. On the other hand, researches with focus on specific aspect of implementation can reveal interesting points of IT process governance. For example, IT outsourcing and inter-organizational system governance represent the ITG beyond organizational boundary [98]. These IT processes involve different parties that may have different success measures and can be seen as a different form of agency problem. COBIT 5 suggests practice for these special processes but research community has not provided much empirical evidences yet. Thus, COBIT 5 implementation researches can be valuable to both academic and practical communities.

However, our analysis on research conceptualization reveals one interesting research area; we found only a handful of researches that directly study how individual can influence ITG. Thus, there is a limited of theory and explanation on human behavior and limitation in ITG practice. Related concepts are diversified and exploratory; for instance, culture [77], power and politics [42], roles [43, 44, 47] and decision making [60]. It is arguable that individual contribution can be crucial to ITG effectiveness. Performance of ITG mechanisms and decisions are arguably depending on individuals’ competencies. Certain actors such as directors may affect ITG effectiveness more and should be focused by researchers [43]. There are arguably lots of assumptions taken in existing practice and there are empirical evidences that the best practice might not fit the real environment [43]. Thus, explorations in this area would greatly expand ITG body of knowledge.

In comparison to COBIT 5, its practical and implementation emphasis do help clarify stakeholder roles and responsibilities. However, there is limited number of empirical evidences to verify COBIT recommendation. For instance, EDM process detail implies that personnel must spend resources and time to do. COBIT RACI chart assumes certain organizational structures, such as, C-level executives. Those recommendations may not be directly applicable to organizations with different structures. Thus, a study on these concepts at operational level can greatly help both concept validation and understanding of key stakeholder roles in ITG.

In summary, COBIT 5 concepts exhibit both difference and similarity to the existing literatures. From academic lens, COBIT 5 attempts to clarify the line between governance and management and conceptualize ITG as EDM processes. COBIT 5 also show high degree of internal dependencies which possible to be simplified in practice. Past literatures interest in EDM, APO and MEA areas since they are directly related to ITG. Past literatures show interest in ITG implementation and show some similar interests to COBIT. Nonetheless, there’s no empirical evidence of COBIT 5 implementation. Past literatures interest in ITG decisions and also demonstrate that firms do not or impractical to separate ITG processes or as much as COBIT does. In other words, they may focus on single issue but relates to many processes. Last, COBIT 5 new governance scope may challenge existing ITG boundary conceptualization since there are researches that focus on local governance. Those IT processes may not include in COBIT 5 governance practice.

REFERENCES


