Answering Key Global IT Management Concerns Through IT Governance and Management Processes: A COBIT 5 View

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Abstract

Drawing on the COBIT 5 framework, this research presents the results of an analysis into which governance and management of IT processes are leveraged in practice for answering two key global IT management concerns: alignment and security. For practice, this research specifically sheds light on which governance and management of IT processes appear to be most important for explaining the achievement of alignment and security. Practitioners can therefore use these results as a benchmark to answer these concerns.

1. Introduction

Following a growing dependency on IT, an increased focus on the business value and risks of digital assets lead to an increased interest in the governance and management of these assets [1]. Over time, scholars have provided insights in how the governance and management of IT can be implemented in an organization. The contemporary view is that this can be achieved by implementing a holistic set of structures, processes, and relational mechanisms [2]–[5]. The leading practitioner good-practices framework for the governance and management of IT, COBIT 5, builds on these ideas by specifying a holistic set of seven enablers that should be considered when implementing the governance and management of IT [6]. One of these enablers in particular, the process enabler, is generally considered to be very effective, as well as being the most difficult for organizations to implement [2]. Recognizing this, ISACA started with fully developing the process enabler before introducing the COBIT 5 product suite, while some other enablers are currently still in the development phase.

An issue that is particularly interesting for practitioners is the ability to identify important governance and management of IT processes that help explain the achievement of desirable IT governance and management outcomes. Drawing on the process enabler of the COBIT 5 framework, this research presents the results of such an inquiry for two desirable IT governance outcomes that are considered to be very important in practice: i.e. alignment and security. Indeed, these were the top 2 global IT management concerns for 2015 as identified by CIONET [7]. This research applies a penalized regression approach (i.e. lasso estimation) to achieve its objectives. The goal of applying this technique is to identify those governance and management of IT processes that appear to be most important in practice for explaining the achievement of alignment and security. In summary, this research is guided by the following research question: *"Which governance and management of IT processes appear to be most important in practice for explaining the achievement of alignment and security objectives?"*

The remainder of this paper is structured as follows. The second section contains the theoretical background to this research. First, IT governance and the COBIT 5 framework are presented. After that, the two key global IT management concerns (i.e. alignment and security) are briefly introduced. This section then ends with introducing the underlying conceptual model that drives this research. The third section presents the research methodology. More specifically, the sample is introduced (by means of descriptive statistics), as well as the statistical approach that is leveraged to meet the research objectives. Section 4 presents the main results and a

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discussion. The fifth section contains some concluding remarks and the limitations and opportunities for future research. Finally, the sixth section discusses the research implications.

2. Theoretical background

2.1. IT governance and the COBIT 5 framework

Enterprise governance of IT (EGIT), or mainly referred to as 'IT governance' is an integral part of corporate governance. Its focus is on governing IT-related assets [3]. It can be implemented by establishing structures, processes, and relational mechanisms to govern IT assets, thereby achieving strong business/IT alignment, and ultimately improving the return on IT-enabled investments [1]. Consistent with this scope, De Haes & Van Grembergen [8, p. 3] define enterprise governance of IT as *"an integral part of corporate governance [that] 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.*"

Guidelines on how IT governance can be implemented have emerged from academia (e.g. [2]–[5], [9], [10]). It is always acknowledged that successful implementation of IT governance is complex and warrants robust guidelines that can help firms in this task. To this extent, literature has also shown a significant role of best practice-based IT governance frameworks and standards in implementing effective IT governance practices [11]. In the practitioner area, the most extensive framework that can be used as a toolkit for enterprise governance and management of IT is Control Objectives in Information and Related Technologies (COBIT), developed by ISACA [6]. This framework is currently in its fifth edition and is centered around seven enablers for the governance and management of IT, which are interconnected, and should all be considered when implementing IT governance. Enablers in COBIT 5 are defined as: *"[…] factors that, individually and collectively, influence whether something will work – in this case, governance and management of enterprise IT"* [6, p. 27]. The following seven enablers are part of COBIT 5: Principles, policies and frameworks (e.g. acceptable use policies); processes (e.g. portfolio management); organizational structures (e.g. IT steering committees); culture, ethics and behavior (e.g. tone at the top); information (e.g. quality of the IT strategy document); services, infrastructure and applications (e.g. tools to support the project management process); and people, skills and competencies (e.g. skill set of the CIO)[1].

This research focuses on the process enabler for two reasons. First, there are currently only two enabler guides fully developed as part of the COBIT 5 product suite: the process enabler and the information enabler. Therefore, these are the only two candidates to operationalize our research. Second, prior academic research indicates that processes are very effective IT governance mechanisms, as well as perceived to be the most difficult to implement [2]. It can therefore be argued that it is of particular importance for practice to understand which governance and management of IT processes prove to be important in achieving certain desirable IT governance outcomes.

COBIT 5 does provide such guidance under the form of a 'processes to IT-related goals mapping table'. This table is proposed to be generic and was originally constructed based on the results of a survey targeted at 142 experts, of which 52 responses were deemed useful. The experts were asked to rate the perceived impact of the processes for each of the IT-related goals. As these experts were asked for their opinion on "how it should be", empirical research about which processes are most important in achieving a certain IT-related goal, using data from real organizations, can provide an interesting benchmark for organizational decision-makers in the realm of the governance and management of IT.

In the process enabler, COBIT identifies 37 processes spread over one governance and four management domains. The governance domain covers processes that are the board's responsibilities in IT (e.g. risk appetite). In the management area, four domains of processes are defined: Align, Plan, Organize (APO), Build, Acquire and Implement (BAI), Deliver, Service and Support (DSS) and Monitor, Evaluate and Assess (MEA).

2.2. Key global IT management concerns

2.2.1. Business/IT alignment

[1] For a detailed discussion on each of the enablers, the reader is referred to the COBIT 5 framework.

Business/IT alignment was the #1 global IT management concern for 2015. Even more so, it has been a top 3 IT management concern since 2004 [7]. The alignment between business and IT was first clearly described by Henderson and Venkatraman [12], by means of their Strategic Alignment Model (SAM) (Figure 1). These authors positioned the concept as the fit and integration among four components: business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes.

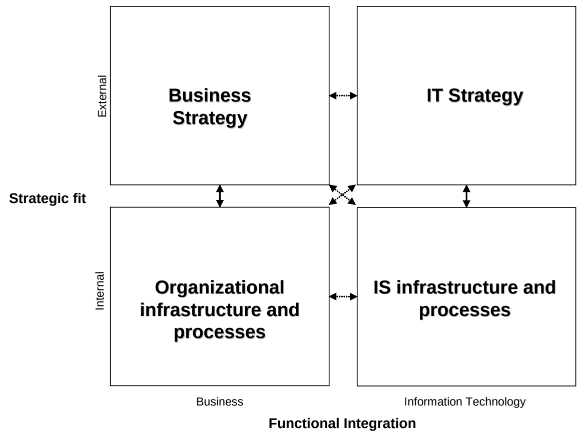

Figure 1. Strategic Alignment Model [12]

The SAM is based on two building blocks: 'strategic fit' and 'functional integration'. For IT, *strategic fit* is the vertical integration between IT strategy (external domain) and IT infrastructure and processes (internal domain). Strategic fit is of course equally relevant in the business domain. Two types of *functional integration* exist: strategic and operational integration. Strategic integration is the horizontal link between business strategy and IT strategy, reflecting the external components which are important for many companies as IT emerged as a source of strategic advantage. Operational integration covers the internal domain and deals with the link between organizational infrastructure and processes and IT infrastructure and processes.

2.2.2. Information security

Security was the #2 global IT management concern for 2015. It made a quick rise, but has been a top 10 global IT management concern every year since 2004 [7]. The rise of security as a top IT management concern should be no surprise, as more and more (sensitive) data is stored in the contemporary business environment than ever before. Additionally, emerging technologies like cloud computing are finding their way to common business practice, but are nevertheless raising security awareness, certainly in the context of existing and new privacy-related laws and regulations (Sarbanes-Oxley Act and general data protection regulation in Europe).

The "CIA triangle" may very well be one of the most well-known concepts in the realm of information security [13]. This concepts refers to the three general security objectives: confidentiality, integrity, and availability [14]. In line with this, ISO/IEC formally defines information security as *"the preservation of the confidentiality, integrity, and availability of information"* in the context of their standard for information security management [15, p. 1].

2.3. Conceptual model

The aim of this paper at the conceptual level is to identify those governance and management of IT processes that appear to be most important in practice for explaining the achievement of two specifically selected key IT management concerns: alignment and security. Both the independent and the dependent constructs are operationalized through COBIT 5 (i.e. the governance and management of IT processes from the COBIT 5 process enabler as independent variables, and the two COBIT 5 IT-related goals that best map to these important concerns of alignment and security as dependent variables). The conceptual model and operationalization driving this research is presented visually in Figure 2.

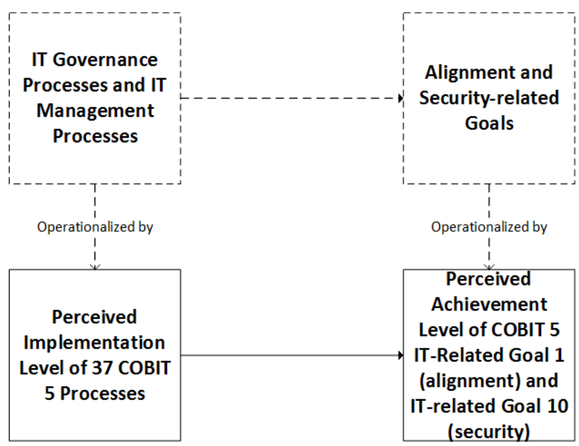

Figure 2. Conceptual model and operationalization

The 37 COBIT 5 governance and management of IT processes that will serve as candidate independent variables are measured on a 5-point ordinal scale ranging from "not implemented" to "fully implemented". The 2 IT-related goals that best map to the two key global IT management concerns of alignment and security, which will be used as dependent variables in this research, are measured on a 5-point ordinal scale ranging from "not achieved" to "fully achieved". Both scales are constructed to be equidistant.

3. Research methodology

3.1. Sample

The dataset for this research project was collected through an online survey between 24th of July and 1st of September, 2014. Business, IT, and audit representatives were solicited through local ISACA chapters. All descriptions provided in the survey were based on COBIT 5, but expressed in a way that prior knowledge of COBIT 5 was not required. The online survey captured, among other things, the respondents' perceived assessment of the implementation status of the 37 COBIT 5 processes and their perceived achievement of the COBIT 5 IT-related goals. In total 896 respondents completed the survey, of which 881 were accepted as complete responses for the final analysis.

Over the following tables, we present some sample demographics. Table 1 presents the distribution of the industry IT strategic role in the sample, a classification which is based on Chatterjee et al. [16], who proposed that industries can be classified in three groups according to the strategic role that IT plays for the industries within a group. Automate industries replace human labor by automating business processes (e.g. metal manufacturing), informate industries provide data/information to empower management and employees (e.g. food services), and transform industries fundamentally alter traditional ways of doing business by redefining business processes and relationships (e.g. airlines). Table 2 presents the distribution of firm size in the sample. Table 3 shows the distribution of geographical location of the firms in the sample. Finally, Table 4 shows the distribution of respondent functional role in the sample. In summary, the sample provides a good balance in terms of firm size, geographic location of the firm, and firm IT strategic role. Business respondents are however somewhat under-represented compared to the other two respondent functional roles.

Table 1. Demographics: Organization IT strategic role (N=881)

	Frequency	Percent
Automate	165	18.7
Informate	374	42.5
Transform	342	38.8

Table 2. Demographics: Firm size (N=881)

	Frequency	Percent
Fewer than 50 employees	44	5.0
50-149 employees	32	3.6
150-499 employees	127	14.4
500-1,499 employees	146	16.6
1,500-4,999 employees	174	19.8
5,000-9,999 employees	108	12.3
10,000-14,999 employees	55	6.2
15,000 or more employees	195	22.1

Table 3. Demographics: Region of the organization (N=881)

	Frequency	Percent
Africa	81	9.2
Asia	179	20.3
Caribbean	3	0.3
Central America	6	0.7
Europe	209	23.7
Middle East	50	5.7
North America	274	31.1
Oceania	27	3.1
South America	52	5.9

Table 4. Demographics: Respondent functional role (N=867)

	Frequency	Percent
Business	59	6.7
IT	394	44.7
Audit, risk, and compliance	414	47.0

Table 5 presents descriptive statistics for the 37 COBIT 5 processes, which will be used as the set of candidate independent variables in this research. Table 6 contains the same information, but this time for the two COBIT 5 IT-related goals that are used to operationalize the two global IT management concerns in this research, i.e. alignment and security.

Table 5. Descriptives for the 37 COBIT 5 processes (independents)

	N	Mean	Std. Deviation
EDM01	866	3.10	1.184
EDM02	857	3.03	1.113

EDM03	866	3.13	1.155
EDM04	863	3.15	1.063
EDM05	858	3.19	1.145
APO01	859	3.38	1.070
APO02	865	3.50	1.052
APO03	858	3.32	1.113
APO04	854	2.93	1.145
APO05	848	3.27	1.085
APO06	859	3.86	1.001
APO07	860	3.64	1.011
APO08	858	3.41	1.063
APO09	860	3.49	1.105
APO10	856	3.61	1.027
APO11	859	3.33	1.073
APO12	867	3.39	1.074
APO13	869	3.78	1.012
BAI01	863	3.60	0.997
BAI02	860	3.38	1.070
BAI03	854	3.39	1.037
BAI04	860	3.51	1.031
BAI05	850	3.17	1.128
BAI06	862	3.48	1.045
BAI07	857	3.34	1.070
BAI08	860	3.04	1.105
BAI09	864	3.50	1.055
BAI10	858	3.40	1.083
DSS01	864	3.78	0.955
DSS02	863	3.84	0.973
DSS03	861	3.61	1.011
DSS04	859	3.59	1.051
DSS05	860	3.70	1.019
DSS06	855	3.34	1.071
MEA01	859	3.26	1.108
MEA02	857	3.38	1.142
MEA03	855	3.49	1.111

Table 6. Descriptives for the two COBIT 5 IT-related goals (dependents)

	N	Mean	Std. Deviation
IT-related goal 01 (alignment)	868	3.42	1.006
IT-related goal 10 (security)	872	3.66	1.000

3.2. Statistical approach

Multiple regression is a very popular first-generation technique when the purpose is to examine the effect of independent variables on a dependent variable. The traditional ordinary least squares (OLS) approach to regression dates back to the late 1800's. With advancement in computing technology came advances in regression techniques. For instance, as modern data analysis often deals with high-dimensional data (i.e. a lot of independent variables), statisticians went on a quest for regression techniques that are better equipped to handling such data. This then resulted in a number of more modern regression techniques.

Often, researchers are interested in selecting a set of useful independent variables from a larger pool of candidates. When all independent variables are on the same scale (by default or after standardization), the relative importance of each variable can also be assessed. In our dataset, the pool of candidate independent variables (i.e. the 37 COBIT 5 governance and management of IT processes) are on the same scale (i.e. 5-point ordinal scale from "not implemented to "fully implemented", constructed to be equidistant). Popular so-called "variable selection" approaches for traditional OLS-based multiple regression include stepwise regression and all subsets regression. The latter technique is often considered to be the better choice of the two, as it ensures that every possible model is evaluated. This can however become a problem in terms of computing time when dealing with high-dimensional data. These traditional variable selection methods either include or exclude a predictor from the model. Furthermore, these methods are based on a certain criterion (e.g. adjusted R^2, BIC, or Mallow's C_p) that allows to compare global model fit between different models (i.e. containing a different set of independent variables) on the same data, but during the actual regression estimation itself, there is no way to perform variable selection in traditional OLS-based regression.

Penalized estimation methods are a set of modern regression techniques that result in shrinkage effects on all or some of the predictors. These methods were initially developed to deal with high-dimensional data (where there is a realistic chance of multicollinearity problems among possible independent variables). Nevertheless, in absence of multicollinearity problems, these techniques are also sometimes applied to reduce the mean squared error (MSE), i.e. to increase predictive performance of the model. Two popular techniques in this area are (1) ridge regression, initially described by Hoerl & Kennard [17], and (2) lasso estimation as developed by Tibshirani [18]. In fact, it can be proven that ridge and lasso are both of the same family of techniques (i.e. penalized estimation methods). The main difference lies in the fact that ridge regression only performs shrinkage towards zero, while lasso is able to set some coefficients exactly to zero. Therefore, the lasso method performs model estimation and variable selection simultaneously. For this reason, the lasso estimation method better suits our research objective. Penalized estimation techniques, like ridge and lasso, include a shrinkage parameter, λ, that produces coefficients that are very close to the OLS coefficients when it is zero, while shrinkage increases with λ. With penalized estimation methods, cross-validation may be used to determine a data-driven value for the shrinkage parameter λ. In this research, we will use this approach, specifically 10-fold cross validation.

For this research, the statistical software RStudio (version 1.0.136) based on the R environment (R version 3.3.1) is used. Penalized estimation by means of lasso is applied using the *glmnet* function from the *glmnet* package. Additionally, the function *cv.glmnet* from the same package is used to determine a data-driven value of the shrinkage parameter λ.

4. Results

4.1. Business/IT alignment

To operationalize the alignment concern, we use COBIT 5's IT-related goal 1, "alignment of IT and business strategy" as the dependent variable. The full pool of 37 COBIT 5 governance and management of IT processes is used as candidate independent variables, as input to model estimation using the lasso estimator. As previously discussed, 10-fold cross-validation is used to determine a data-driven value for the shrinkage parameter. The coefficients of the final model are displayed in Table 7, ordered from highest to lowest (this can be seen as relative importance). Processes that are not included in this table have their coefficients put to zero during lasso estimation (and are therefore considered to be unimportant in explaining this IT-related goal). We can also see that all coefficients are positive, meaning that they all have a positive contribution to the achievement level of the business/IT alignment goal.

Table 7. Coefficients for alignment goal

APO02	0.1805817988
DSS04	0.0885481268
BAI03	0.0851535500
EDM02	0.0841813088
EDM03	0.0578147244
EDM05	0.0556797685
MEA02	0.0518988277
APO04	0.0516067420
APO08	0.0511915728
DSS02	0.0470982856
APO13	0.0274281585
BAI02	0.0217119089
EDM01	0.0146373099
APO01	0.0060540300
MEA03	0.0005888107

4.2. Information security

To operationalize the security concern, we use COBIT 5's IT-related goal 10, "security of information, processing infrastructure, and applications" as the dependent variable. Similarly, the full pool of 37 COBIT 5 processes is used here as well as input to the model estimation, and 10-fold cross-validation is used to determine a data-driven value for the shrinkage parameter that will be used during lasso estimation. The coefficients of the final model for this goal are displayed in Table 8, ordered from highest to lowest (this can be seen as relative importance). Processes that are not included in this table have their coefficients put to zero during lasso estimation (and are therefore considered to be unimportant in explaining this IT-related goal). Here too we see that all coefficients are positive, meaning that they all have a positive contribution to the achievement level of the information security goal.

Table 8. Coefficients for security goal

APO13	0.311637725
DSS05	0.229810513
MEA03	0.093197552
DSS01	0.084752737
BAI03	0.048694377
BAI09	0.034480824
BAI06	0.029030067
APO07	0.015418160
EDM02	0.007044095
DSS04	0.004335104

4.3. Discussion

For the business/IT alignment concern, we found that 15 out of 37 processes remained in the final model, i.e. 22 processes had their coefficients being set to zero during lasso estimation and were therefore deemed unimportant in explaining the achievement of the business/IT alignment goal. To explain the processes that remained in the final model, we mapped them to the dimensions of the SAM (Figure 3). For instance, the process with the greatest relative importance is APO02 "manage strategy". COBIT 5 states that the purpose of this process is to *"align strategic IT plans with business objectives […]"* [19, p. 57]. Using the SAM, this process therefore clearly works on the horizontal link between business strategy and IT strategy (i.e. functional integration, strategic). As a second example, DSS04 “manage continuity” is about aligning business and IT operations in such a way that ultimately the continuity of critical business operations is ensured (e.g. through the availability of information, which directly links to the next issue of information security). This process can therefore be mapped to the operational functional integration dimension of the SAM.

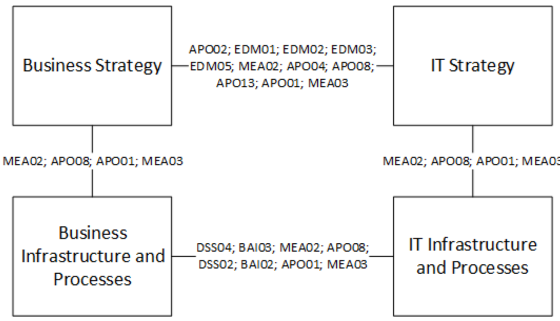

Figure 3. Map processes for alignment goal to SAM

For the information security concern, only 10 out of 37 processes were kept in the final model, meaning that 27 processes were deemed unimportant in explaining the achievement of the information security goal. To explain the processes that remained in the final model, we mapped them to the CIA triangle (Table 9). For instance, the process with the greatest relative importance in achieving the information security goal is APO13 “manage security”. COBIT 5 describes this process as one that defines, operates, and monitors a system for information security management. In the process description, the reader is also directly referred to ISO/IEC 27002, the standard for information security management, for further guidance. It is clear that this generic process therefore influences all three facets of the CIA triangle.

The process with the second greatest relative importance in achieving the information security goal is DSS05 “manage security services”, a process that can be seen as the operational counterpart of APO13. Therefore, DSS05 also influences all three facets of the CIA triangle.

Table 9. Map processes for security goal to CIA triangle

	C	I	A
APO13	X	X	X
DSS05	X	X	X
MEA03	X	X	X
DSS01			X
BAI03	X	X	X
BAI09			X
BAI06	X	X	X
APO07			X
EDM02	X	X	X
DSS04			X

Finally, we can compare the conceptual mapping provided in COBIT 5 with our empirical results. As previously discussed, COBIT 5 provides guidance in the form of a mapping table between processes and IT-related goals. Using this mapping table, practitioners can see which governance and management of IT processes contribute to the achievement of a certain IT-related goal, and the strength of this relationship (‘P’ stands for primary contribution, while ‘S’ stands for secondary contribution). Comparing COBIT 5’s conceptual mapping with our empirical results enables us to check if the conceptual description of which processes contribute to the achievement of a certain IT-related goal appear to reflect the reality of practice (Table 10).

Upon studying this table, there appear to be some differences between the conceptual mapping as provided in COBIT 5 and our empirical results. It can for instance be seen that, for the business/IT alignment concern, the conceptual mapping prescribed 12 processes that cannot be confirmed by our empirical results. When only looking at the primary links as put forward by COBIT 5, 4 out of 10 links cannot be empirically confirmed. Our empirical results also identify 4 important processes that are not identified in COBIT 5’s conceptual mapping. A similar observation exists for the information security concern, where 2 out of 5 primary links as conceptually mapped by COBIT 5 are not empirically confirmed in this study. Here too, 2 processes are empirically identified that were not conceptually mapped in COBIT 5.

It should be noted however, that COBIT 5 warns about mechanistically using the goals cascade, stating that it *“does not contain the universal truth”* [19, p. 16]. It is specifically acknowledged in COBIT 5 that the goals cascade in its current form does not account for different contexts, rather, it presents a sort of common denominator. Additionally, COBIT acknowledges that is only uses two levels of importance (viz. primary and secondary), while in reality this will be more of a continuum. While this research in its current form also does not distinguish between different contexts or contingencies, it does present the relative importance more on a continuum than the COBIT conceptual mapping does.

Table 10. Compare COBIT 5 conceptual mapping and empirical results

	Business/IT alignment		Information security	
	COBIT mapping	Empirical	COBIT mapping	Empirical
EDM01	P	X	S	
EDM02	P	X		X
EDM03	S	X	P	
EDM04	S			
EDM05	S	X		
APO01	P	X	S	
APO02	P	X		
APO03	P		S	
APO04	S	X		
APO05	P			
APO06	S			
APO07	P		S	X
APO08	P	X		
APO09	S		S	
APO10			S	
APO11	S			
APO12			P	
APO13		X	P	X
BAI01	P			
BAI02	P	X	S	
BAI03	S	X		X
BAI04				
BAI05	S			
BAI06			P	X
BAI07				
BAI08	S		S	
BAI09			S	X
BAI10			S	
DSS01			S	X
DSS02		X	S	
DSS03				
DSS04	S	X	S	X
DSS05	S		P	X
DSS06			S	
MEA01	S		S	
MEA02		X	S	
MEA03		X	S	X

5. Conclusions, limitations, and opportunities for future research

The objective of this research was to identify those governance and management of IT processes that appear to be most important in practice for explaining the achievement of two key global IT management objectives: business/IT alignment and information security. Using data from practice while drawing on the COBIT 5 framework, we were able to empirically identify those processes that best explain the achievement of each of these two objectives.

For the business/IT alignment goal, the process with the greatest contribution to its achievement appears to be APO02, “manage strategy”. Unsurprisingly, the purpose of this process is to align strategic IT plans with the business objectives. Other processes with relatively high importance for explaining the achievement of the business/IT alignment goal are DSS04, BAI03, and EDM02. In total, 15 out of 37 processes were kept in the model during lasso estimation, meaning that the other 22 processes are considered to be unimportant when it comes to explaining the achievement of the business/IT alignment goal. The processes that were kept in the model were then mapped to the dimensions of the SAM. This mapping revealed that most processes to achieve this goal are working on the external functional integration dimension, which can be seen as strategic alignment. A lot of the other processes are working on the internal functional integration. Only a minority of processes are working on the business and IT strategic fit dimensions. Nevertheless, all dimensions of the SAM can be accounted for.

For the information security goal, two processes appear to have relatively very high contributions to its achievement. These processes are APO13, “manage security”, and its operational counterpart DSS05 “manage security services”. Both processes indeed are the main security-related processes of the COBIT 5 process enabler. In total, 10 out of 37 processes were kept in the model during lasso estimation, meaning that the other 27 processes were deemed unimportant when it comes to explaining the achievement of the information security goal. The processes that were kept in the model were then mapped to the CIA triangle of information security. The three processes with the highest relative importance are working on all three of the facets (i.e. confidentiality, integrity, and availability).

A first clear limitation of this research is that it is essentially limited to describing the relationships between the implementation level of processes and the achievement of goals (i.e. *what*). Therefore, further research is needed, especially on why these processes are important for explaining these goals. In-depth case study research might therefore provide very interesting additional insights. A second limitation is that this sample is not entirely balanced in terms of firm sizes, geographic region, and respondent functional role. For the respondent functional role, especially the business respondents are under-represented in the sample. A small imbalance can also be observed in the frequency distribution of industry IT strategic role. Nevertheless, our sample is sufficiently large (N= 881) so that this issue is by no means problematic. A third limitation is the generic approach that was used in this paper. It could make sense to split the sample in subgroups (for instance using the IT strategic role that was described in Table 1). This way, it could be investigated whether organizations with a different IT strategic dependency leverage other processes for achieving certain objectives. Finally, the fact that only the top two global IT management concerns were used in the realm of this conference paper directly leads to the opportunity of further research into other IT management concerns or IT-related goals.

6. Implications

For practice, this research shed light on which governance and management of IT processes appear to be most important for explaining the achievement of alignment and security, two key global IT management concerns in 2015. Practitioners can therefore use these results as a benchmark for their organizations if they are concerned with alignment and security.

From an academic point of view, this study empirically approached the effect of certain governance and management of IT processes on the achievement of certain IT-related goals. It can also be seen as a call for further research into validating industry best-practices like the COBIT 5 framework. The method that was used in this paper can furthermore provide scholars with a rigorous way of combining model estimation and variable selection simultaneously, which can be especially useful for research projects in MIS with similar objectives as the one in this paper.

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