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COBIT® 5

A MANAGEMENT GUIDE

Pierre Bernard

COBIT® 5 – A Management Guide

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COBIT® 5

A Management Guide

Pierre Bernard



Colophon

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Preface

This Management Guide provides readers with two benefits. First, it is an easy accessible reference guide to IT governance for those who are not acquainted with this field. Second, it is a high-level introduction to ISACA's open standard COBIT 5.0 that will encourage further study. This guide follows the process structure of COBIT 5.0.

This guide is aimed at business and IT (service) managers, consultants, auditors and anyone interested in learning more about the possible application of IT governance standards in the IT management domain. In addition, it provides students in IT and Business Administration with a compact reference to COBIT 5.0.

Similar to the previous version of this management guide, based on COBIT 4.1, it aims at two important areas: Auditing and IT Service Management. It will offer the auditors a bridge to the service management business, and it offers the service management world a management instrument that enables them to put the pieces of the puzzle together, and get (and remain!) in control. However, compared to previous versions, COBIT 5 focuses less on auditing and revision. The influence of ITIL is strongly felt – which is not least because of service orientation – and the positioning of the service management processes within the COBIT 5 process domains can be clearly seen. Because governance and service management are ever-closer growing management disciplines, companies with IT organizations that have aligned their service management according to ITIL can enrich their management and governance with COBIT 5.

COBIT 5 has a closer alignment with ITIL than before, which confirms that IT service management and IT governance are developing in the same direction. This implies that for organizations that have organized their service management on ITIL principles, improving their IT governance based on COBIT is a logical next step.

Any comments and suggestions regarding the content of this management guide are welcomed by the COBIT 5 project team.

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CHAPTER 1

Introduction and executive summary

1.1 Introduction

Information is a key resource for all enterprises, and throughout the whole lifecycle of information there is a huge dependency on technology. Information and related information technologies are pervasive in enterprises and they need to be governed and managed in a holistic manner, taking in the full end-to-end business and IT functional areas of responsibility.

Today, more than ever, enterprises need to achieve increased:

- Value creation throughout the enterprise's IT
- Business user satisfaction with IT engagement and services
- Compliance with relevant laws, regulations and policies

COBIT 5 is a governance and management framework for information and related technology that starts from stakeholder needs with regard to information and technology. The framework is intended for all enterprises, including non-profit and public sector.

Several global business catastrophes over the last few decades such as the Asian financial crisis of 1997¹, the early 2000s recession (2001 to 2003 – the collapse

1 www.stocktradingtogo.com/2008/07/18/timeline-of-all-recessions-and-world-crises-since-great-depression/

of the Dot Com Bubble, September 11th attacks and accounting scandals)², the ENRON scandal³, and the banking collapses of 2008 to 2012⁴, have brought the term “governance” to the forefront of business thinking. On the positive side, some success stories have also demonstrated the importance of good governance. Both have established a clear and widely accepted need for more rigorous governance. Increasingly, legislation is being passed and regulations implemented to address this need, which has moved governance to the top of agendas at all levels of the enterprise.

The COBIT framework allows enterprises to achieve their governance and management objectives, i.e., to create optimal value from information and technology by maintaining a balance amongst realizing benefits, managing risk and balancing resources. Further benefits include but are not limited to:

- Maintain high-quality information to support business decisions
- Achieve strategic goals and realize business benefits through the effective and innovative use of IT
- Achieve operational excellence through reliable, efficient application of technology
- Maintain IT-related risk at an acceptable level
- Optimize the cost of IT services and technology
- Support compliance with relevant laws, regulations, contractual agreements and policies

1.2 What is governance of enterprise IT?

There are many sources competing to be the definitive authority on this topic. Here are a few examples. For the purpose of this publication ‘governance of enterprise IT’ is used as a short form for “*the governance of enterprise IT*”.

CIO Magazine⁵

Governance of enterprise IT is putting in place a structure aligning the IT strategy with the business strategy. This enables enterprises in staying the course in achieving their strategies and goals, as well as implementing proper means of measuring

2 www.stocktradingtogo.com/2008/07/18/timeline-of-all-recessions-and-world-crises-since-great-depression/

3 <http://www.oecd.org/daf/corporateaffairs/corporategovernanceprinciples/35639607.pdf>

4 news.bbc.co.uk

5 Based on the definition found at www.cio.com

the performance of the IT enterprise. Governance of enterprise IT takes into consideration the interests of all stakeholders and ensures that processes provide measurable results. A governance of enterprise IT framework should answer some key questions, such as:

- *What are the key metrics needed by the management team?*
- *How well is the IT enterprise functioning?*
- *What is the return on investment to the business of investing in IT?*

Enterprise for Economic Co-operation and Development (OECD)⁶

Governance of enterprise IT is the set of processes and procedures to direct and control an enterprise. The corporate governance structure specifies the distribution of rights and responsibilities among the different participants in the enterprise – such as the board, managers, shareholders and other stakeholders – and lays down the rules and procedures for decision-making.

BWISE⁷

Governance of enterprise IT is a subset of an enterprise's corporate governance strategy. Governance of enterprise IT focuses specifically on information technology systems, their performance, and risk management. The primary goals of governance of enterprise IT are to assure that the investments in IT generate business value, and to mitigate the risks that are associated with IT.

ISACA⁸

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

COBIT 5 provides an end-to-end business view of the governance of enterprise IT that reflects the central role of information and technology in creating value for enterprises. The principles, practices, analytical tools and models found in COBIT 5 embody thought leadership and guidance from business, IT and governance experts around the world.

6 Based on the definition found at www.oecd.org

7 Based on the definition found at www.bwise.com

8 Based on the definition found in the glossary at www.isaca.org

Compliance

Governance and compliance are not synonymous. Basically compliance can be summarized as *the state or fact of according with or meeting rules or standards*. Synonyms include: agreement, consent, accord, accordance, and conformity.

What are the major focus areas that make up governance of enterprise IT?

According to the IT Governance Institute⁹, there are five areas of focus:

1. Strategic alignment

This covers the alignment of the enterprise's and IT's perspective, position, plans, and patterns.

2. Value delivery

From a customer perspective, value is expressed in terms of the desired business outcomes, their preferences, and their perceptions in regards to the product or service.

3. Resource management

It is important to include the following elements as resources: funding, applications/software, infrastructure/hardware, information/data, and of course people. In order to properly manage their resources, enterprises must develop and maintain the following capabilities: management, enterprise, processes, knowledge, and people.

4. Risk management

A risk may be defined as the uncertainty of an outcome whether positive or negative. The management of the risk includes the identification of the tangible and intangible items to be protected, the various (real or potential) threats facing those items and the level of vulnerability of the items in regards to a specific threat. The enterprise must then decide an appropriate means of mitigating the risk; this may range from doing nothing to attempting to fully protect the item from the threat.

5. Performance measures

Before establishing any measure an enterprise needs to identify the reason for the measure. There are four basic reasons for measuring: they are to direct, to validate, to justify, and to intervene. The enterprise needs to identify many

⁹ Based on the definition found at <http://www.isaca.org/Pages/Glossary.aspx?tid=422&char=G>

other criteria for the measures. These criteria include, but are not limited to, compliance, performance, quality, and value. Furthermore, the measures can be quantitative (objective) or qualitative (subjective). All the measures must also adhere to the SMART principle where

S = Specific

M = Measurable

A = Achievable

R = Realistic

T = Timely or time bounded

Evidently, there is much more regarding the above. However, as this publication is only a management guide about governance of enterprise IT, the reader is invited to consult Appendix A for a list of websites and books for further details and explanations.

The topics of governance and compliance (sometimes known as “*transparency*”) are now common in various books, whitepapers, articles, conference presentations, and blogs. To make good governance happen and deliver the expected results, enterprises must address the challenge of participation. It’s all about the attitude, the behavior, and the culture of the enterprise¹⁰.

One of the primary behaviors that the management team of the IT enterprise needs to encourage is the broad on-going participation of all IT stakeholders to ensure that governance of enterprise IT makes a significant and visible contribution.

Corporate governance is critical for ensuring that key decisions are consistent with corporate vision, values, and strategy. The same can be said about governance of enterprise IT. However, this can only be accomplished if the IT enterprise derives its vision, values, and strategy from the corporate ones.

According to the CIO Magazine¹¹, the IT enterprise makes five types of business-related decisions

1. IT principles and policies to drive the role of IT in the enterprise
2. IT architecture based on existing and future technical choices and directions
3. IT infrastructure for the delivery of shared IT services

¹⁰ ABC of ICT

¹¹ www.cio.com

4. Business application requirements for each project
5. Prioritization of IT investments based on business priorities

Enterprises need to design, transition, and operate governance mechanisms to make and then implement each of the above types of decisions. There are many types of governance mechanisms and techniques:

- Mechanisms that facilitate decision making
- Processes that ensure alignment between technology and business goals
- Methods for communicating governance principles and decisions

In order to accomplish the above, the executive team (corporate and IT) should:

- Set the IT priorities
- Communicate priorities and progress clearly and regularly
- Monitor projects regularly

1.3 Overview of this publication

This publication provides an explanation of the objectives, scope and format of COBIT 5, and introduces the COBIT 5 architecture. It allows various stakeholders to understand how COBIT 5 meets the stakeholder needs for governance and management of enterprise IT and how it can be used, and it provides implementation guidance. Further sections of the document are:

1. Introduction and executive summary
2. The COBIT 5 principles
3. The goals cascade
4. Detailed description of the enabler models
5. The process model
6. Implementation guidance
7. The process capability model

1.4 What to use? Where to start?

There is an old adage that says that “*it doesn’t make sense to reinvent the wheel*”. There are many existing and well documented complementary frameworks and methodologies which can be used. All have been designed, implemented, and used by a worldwide community of enterprises and industry experts.

Table 1.1 Various frameworks

COBIT	The framework, from the Information Systems Audit and Control Association (ISACA), is probably the most popular. It is a set of guidelines and supporting toolset for governance of enterprise IT that is accepted worldwide. Auditors and enterprises use it as a mechanism to integrate technology in implementing controls and meet specific business objectives. COBIT is well suited to enterprises focused on risk management and mitigation.
ITIL	ITIL advocates that IT services must be aligned to the needs of the business and underpin the core business processes. It provides guidance to enterprises on how to use IT effectively and efficiently as a tool to facilitate business change, transformation, and growth. There are five core publications which provide a systematic and professional approach to the management of IT services, enabling enterprises to deliver appropriate services and continually ensure they are meeting business goals and delivering benefits.
COSO	This model for evaluating internal controls is from the Committee of Sponsoring Enterprises of the Treadway Commission. It includes guidelines on many functions, including human resource management, inbound and outbound logistics, external resources, information technology, risk, legal affairs, the enterprise, marketing and sales, operations, all financial functions, procurement and reporting. This is a more business-general framework that is less IT-specific than COBIT or ITIL.
CMMI	The Capability Maturity Model Integration method, created by a group from government, industry and Carnegie-Mellon's Software Engineering Institute, is a process improvement approach that contains 22 process areas. It is divided into appraisal, evaluation, and structure. CMMI is particularly well suited to enterprises that need help with application development, lifecycle issues, and improving the delivery of products throughout the lifecycle.

What can go wrong if it's not implemented effectively?

If the governance of enterprise IT framework isn't implemented properly, it can directly affect how IT is perceived by the business and other high-level stakeholders. Ineffective implementation of the governance of enterprise IT can exacerbate already on-going issues such as project overruns and poor value to cost measurements, not to mention stakeholder dissatisfaction.

Complying with governance of enterprise IT represents a myriad of challenges. Some of these challenges include, but are not limited to

- IT personnel not informed of the requirements of compliance
- Not having IT controls in place
- Missing a deadline or reporting a "material weakness" in your IT controls

1.5 Implementation tips

The following list represent “must-have” to ensure a (relatively) smooth implementation as well as the positive delivery of expected results. The following approach, often referred to as *Kotter’s¹² Eight-Steps to transformation* is widely known and well documented.

1. Create a sense of urgency
2. Form a guiding coalition
3. Create a vision
4. Communicate the vision
5. Empower others to act on the vision
6. Plan for and create quick wins
7. Consolidate improvements and produce more change
8. Institutionalize the change

1.6 Appendices

Appendices contain reference information, mappings and more detailed information on specific subjects:

Appendix A – References

Appendix B – Detailed mappings

Appendix C – Stakeholder needs and enterprise goals

Appendix D – COBIT 5 vs. COBIT 4.1

Appendix E – COBIT 5 and the IT Governance Institute’s (ITGI) five governance focus areas

Appendix F – Mapping between COBIT 5 and legacy ISACA frameworks

Appendix G – About ISACA

¹² Leading Change: Why Transformation Efforts Fail, Kotter John P, Harvard Business Review March-April 1995

CHAPTER 2

The COBIT 5 principles

The framework covers the whole enterprise providing a basis to integrate effectively other frameworks, standards, and practices used. The framework is made up of a single overarching one, allowing for a consistent and integrated source of guidance in a non-technical, technology-independent common language.

The framework is based on the following principles, see figure 2.1.

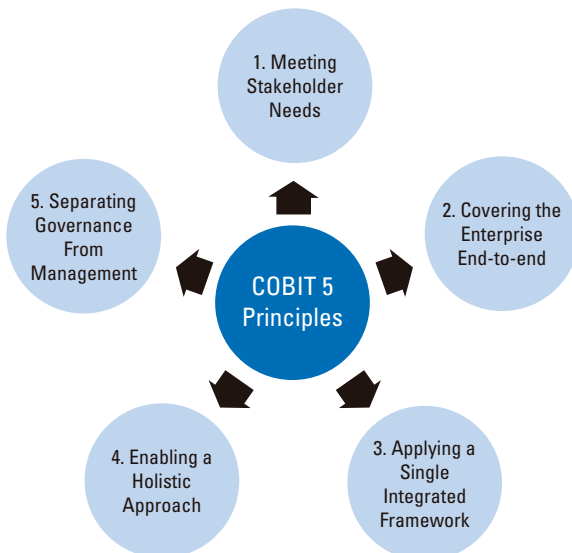


Figure 2.1 COBIT 5 principles

The framework integrates all knowledge previously dispersed over different ISACA frameworks¹³ such as COBIT, Val IT, Risk IT, and the Business Model for Information Security (BMIS) and the IT Assurance Framework (ITAF).

The benefit of the architecture within the framework is to support the goals, i.e., providing to all stakeholders the most complete and up-to-date guidance on governance and management of the enterprise's IT.

Figure 2.2 provides a graphical description of the COBIT 5 architecture that result from this principle.

2.1 Principle 1: Meeting Stakeholder Needs

COBIT 5 is an integrator framework because it:

- Brings together existing ISACA¹⁴ guidance on governance and management of the enterprise's IT
- Aligns with the latest versions of relevant standards and frameworks¹⁵
- Provides a simple architecture for structuring guidance materials and producing a consistent product set

2.2 Principle 2: Covering the enterprise end-to-end

Enterprises exist to create value for their stakeholders, so the governance objective for any enterprise – commercial or not – is value creation. Value creation is based on the customer's perceptions, preferences, and desired business outcomes. It means realizing benefits at an optimal resource cost while optimizing risk (see Figure 2.3). Enterprises have many stakeholders, and “creating value” means different things to each of them – sometimes conflicting. Governance is about negotiating and deciding the value interests amongst different stakeholders. By consequence, the governance system must consider all stakeholders when making assessments and decisions about benefit, resource, and risk. For each of these value creation components, the question can and should be asked: for who are the benefits, and risk, and which resources are required?

13 See www.isaca.org for more details on each of these frameworks

14 See Appendix G – About ISACA

15 Such as ITIL®, ISO/IEC 20000®, ISO/IEC 27000®, ISO/IEC 31000®, PMI's PMBOK® for example

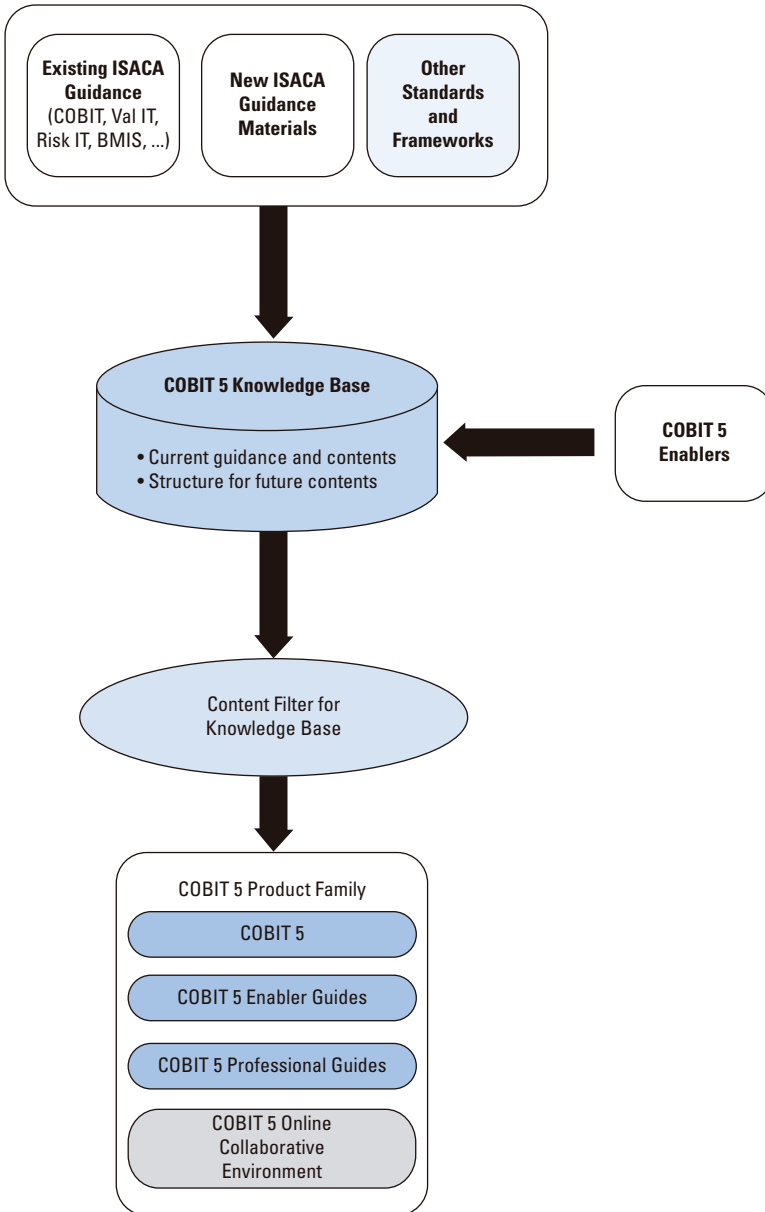


Figure 2.2 Architecture

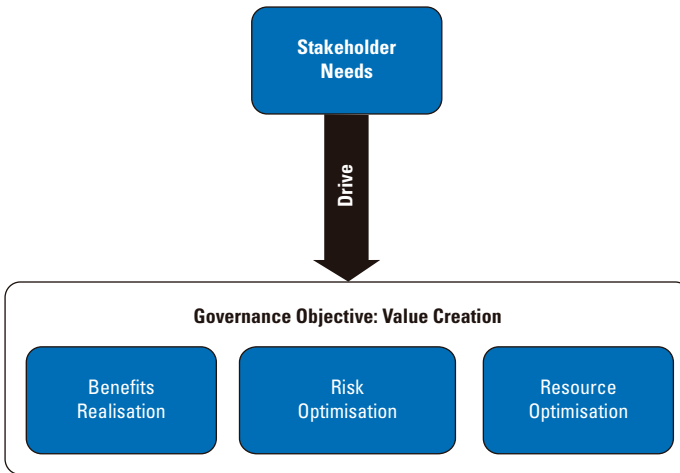


Figure 2.3 The governance objective: value creation

Source: Figure 3: The Governance Objective: Value Creation, COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012 © ISACA.

In addition to the governance objective, the other three main elements of the governance approach include the following.

Governance enablers

These are the organizational resources for governance, such as frameworks, principles, structure, processes, and practices, toward which (or through which) action is directed and objectives can be attained. Enablers also include the enterprise's resources (people, funding, applications, infrastructures, and information) and service capabilities (management, enterprise, process, knowledge, and people).

Governance scope

Governance can be applied to the whole enterprise, an entity, a tangible or intangible asset, anything that requires governance. It is possible to define different views of the enterprise to which governance is applied, and it is essential to define this scope of the governance system well.

Roles, activities and relationships

Lastly, we have the governance roles, activities, and relationships. It defines who is involved in governance, how they are involved, what they do, and how they interact, within the scope of any governance system. In the governance and management domains, there is a clear differentiation between governance and management

activities, interfaces and roles. Figure 2.4¹⁶ builds on the previous figure (see Figure 2.3), by including the interactions between the different roles.

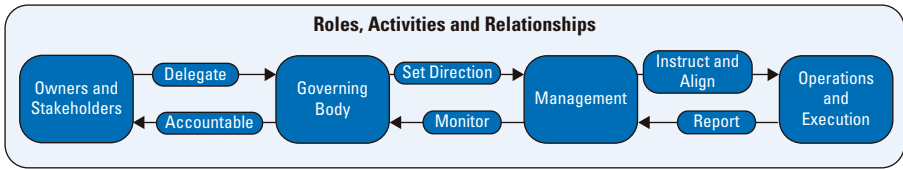


Figure 2.4 Governance roles, activities, and relationships

Source: Figure 9: Key Roles, Activities and Relationships, COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012 © ISACA.

Figure 2.5 (Governance in COBIT 5) represents the key components of a governance system.¹⁷

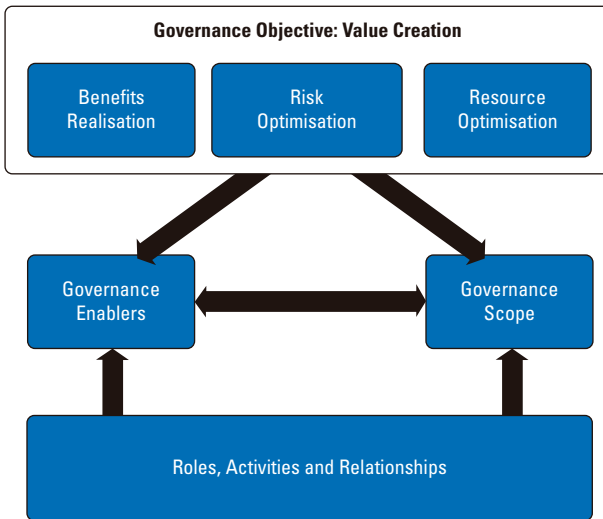


Figure 2.5 Governance in COBIT 5

Source: Figure 8: Governance and Management in COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012 © ISACA

¹⁶ COBIT 5: The Framework Exposure Draft (June 2011)

¹⁷ This governance system is an illustration of ISACA’s Taking Governance Forward (TGF) initiative; more information on TGF can be found on page www.takinggovernanceforward.org/Pages/default.aspx

2.3 Principle 3: Applying a Single, Integrated Framework

COBIT 5 addresses the governance and management of information and related technology from an enterprise-wide, end-to-end perspective, including the activities and responsibilities of both the IT function and non-IT business functions. The end-to-end aspect is further supported by the framework's coverage of all critical business elements, i.e. processes, organizational structures, principles and policies, culture, skills, and service capabilities. In addition, an information model provides a simple link between business information and the IT function, which further supports the business focus.

Every enterprise operates in a different context; this context is determined by external factors (market, industry, geopolitical, etc.) and internal factors (culture, enterprise, risk appetite, etc.), and requires that every enterprise builds their own, customized governance and management system. The structure of COBIT 5, the governance and management model, and the enabler models apply to all contexts and facilitate this customization. For example:

- The goals cascade is the mechanism to translate context specific business drivers and stakeholder needs into specific, actionable and customized IT related and enabler goals
- Quality goals associated with each enabler are to a large extent contextual

The framework achieves a business focus by identifying all stakeholders and their needs and determining how they link to governance and management decisions and activities. In this section, the typical internal and external stakeholders for information and related technology in the enterprise are described first, along with some of their typical issues and concerns.

Stakeholders and stakeholder needs

The needs of stakeholders are influenced by many drivers such as changes in strategy, changes in business and regulatory environment, and making use of new technologies. The needs of stakeholder materialize in a series of potential expectations, concerns, or requirements. These relate to one or more of the three generic governance objectives within the framework: benefits realization, risk balancing and cost optimization.

Stakeholders for information and related technology can be external and internal, and they can have many different and sometimes conflicting needs – as shown in Table 2.1.

Table 2.1 Stakeholder needs

Internal stakeholders	Internal stakeholder needs
Board, CEO, chief financial officer (CFO), chief information officer (CIO), business executives, business process owners, business managers, risk managers, security managers, service managers, HR managers, internal audit, privacy officers, IT users, IT managers, etc.	<ul style="list-style-type: none"> • How do I get value from IT? • How do I manage performance of IT? • How can I best exploit new technology for new strategic opportunities? • How do I know whether I'm compliant with all applicable regulations? • How do I best build and structure my IT department? • What are (control) requirements for Information? • Did I address all IT-related risks? • Am I running an efficient and resilient IT operation? • How do I control cost of IT? How do I use IT resources in the most effective and efficient manner? What are the most effective and efficient sourcing options? • Do I have enough people for IT? How do I develop and maintain their skills, and how do I manage their performance? • How do I get assurance over IT? • Is the information I am processing well secured? • How do I improve business agility through a more flexible IT environment? • Is it clear what IT is doing? • How often do IT projects fail to deliver what they promised? • How critical is IT to sustaining the enterprise?
External stakeholders	External stakeholder needs
Business partners, suppliers, shareholders, regulators/government, external users, customers, standardization enterprises, external auditors, consultants, etc.	<ul style="list-style-type: none"> • How do I know my business partner's operations are secure and reliable? • How do I know the enterprise is compliant with applicable rules and regulations? • How do I know the enterprise is maintaining an effective system of internal control?

2.4 Principle 4: Enabling a Holistic Approach

The purpose of an enabler is to implement an effective governance and management system for the enterprise's IT. An enabler is broadly defined as anything that can assist in achieving the governance objectives of the enterprise. This includes resources, such as funding, applications, infrastructure, information, and people. Enablers interact in a systemic way, meaning that a governance and management system cannot succeed unless all enablers are dealt with and the major interactions are understood. The framework lists seven categories of enablers:

- Principles, policies, and frameworks
- Processes
- Organizational structures
- Culture, ethics, and behavior
- Information
- Services, infrastructure and applications
- People, skills, and competencies

Enablers

These are the tangible and intangible elements that make something work – in this case, governance, and management of the enterprise over IT. Enablers are driven by the goals cascade described later in this book: the higher-level IT-related goals define what the different enablers should achieve.

Systemic governance

When dealing with governance of enterprise IT, good decisions, and enterprise should take into account the systemic nature of governance arrangements. All interrelated enablers are analyzed and addressed to meet the needs of the various stakeholders.

Figure 2.6 shows the seven categories of enablers and the fact that they are all interconnected. This interconnection represents the mind-set an enterprise should adopt for enterprise governance, which includes governance of enterprise IT. In order to achieve its main objective an enterprise must always consider an interconnected set of enablers. An enabler:

- Needs the input of other enablers to be fully effective (e.g., processes need information, organizational structures need people, people need skills and behavior, and *vice versa*)
- Delivers output to the benefit of other enablers, e.g., processes deliver information, skills, and behavior make processes efficient

The generic enabler model

All enablers have certain common elements. Because a governance system is a complex interaction amongst all enablers, having a simple, structured, and uniform enabler model can facilitate both adoption and successful execution. This model is a key component of the framework as it represents the basic structure for all seven categories of enablers. The generic enabler model identifies a number of common components:

- Stakeholders

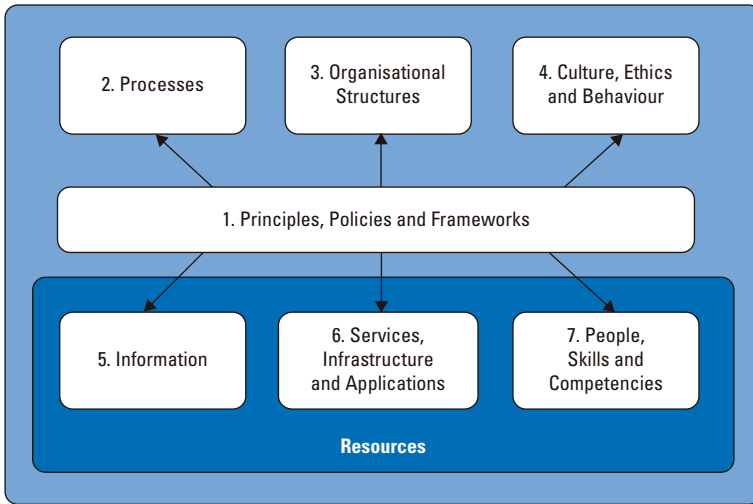


Figure 2.6 Enablers: systemic model with interacting enablers

Source: Figure 12: COBIT 5 Enterprise Enablers in COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012 © ISACA.

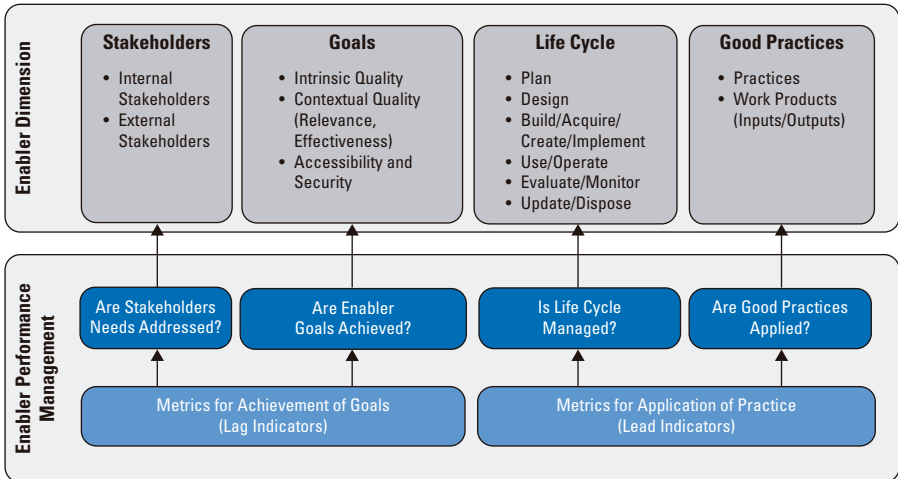


Figure 2.7 Generic enabler model

Source: Figure 13: COBIT 5 Enablers: Generic, COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012 © ISACA.

- Goals and metrics
- Life cycle
- Good practice
- Attributes

Figure 2.7 shows the overall generic structure of the COBIT 5 enablers.

The capability attribute for enablers

The model makes a distinction between:

- The basic capability level (Level 1-Performed), which indicates that an enabler is generally achieving its stated goals, and that enabler good practices are to a large extent applied. These two criteria – achieving goals and applying good practice – are the attribute of the performed level
- More advanced capability levels, indicating increasing levels of sophistication in the enabler, providing greater efficiency, formalization, control, optimization etc. These advanced capability levels are expressed using a scale from 2 to 5¹⁸, and for each of these levels a number of attributes will need to be achieved. These attributes are different between enablers and need to be defined per enabler.

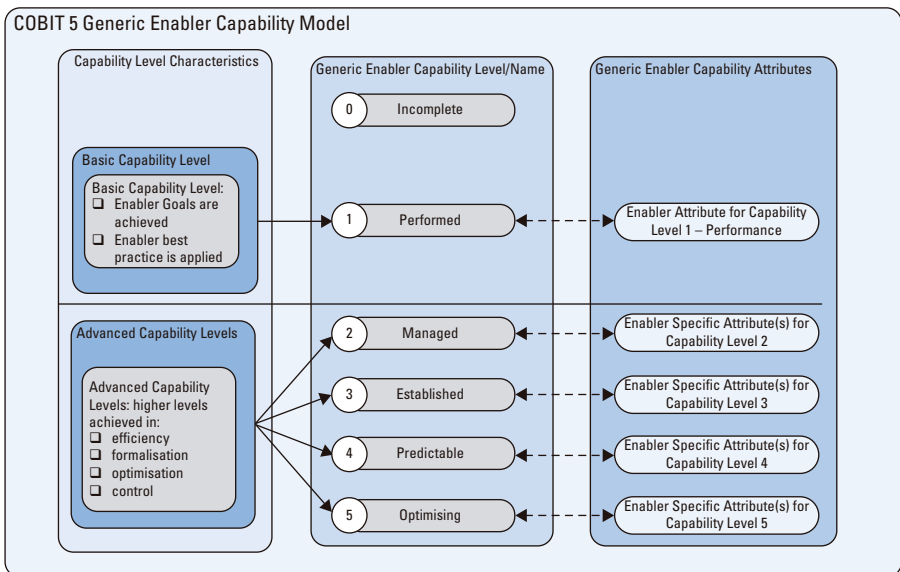


Figure 2.8 Generic enabler capability model

¹⁸ This scale, with the names of the different levels, is taken from ISO/IEC 15504

The generic capability attribute model is based on the principles of ISO/IEC 15504, which is a process capability assessment model, see figure 2.8.

2.5 Principle 5: Separating Governance from Management

Governance and management are very different types of activities that require different organizational structures, and serve different purposes. In every enterprise, multiple stakeholders have different and sometimes conflicting perceptions of benefits, risk, and resources. This creates a need for clarity on what should be done and how it should be done to meet the stakeholder objectives.

In summary, the disciplines of governance and management include different types of activities, require different organizational structures, and serve different purposes.

The framework makes a clear distinction between governance and management. As this distinction is fundamental to the framework, the following sections explain the framework's view of governance and management.

Governance system

A governance system refers to all the methods and techniques that enable multiple stakeholders in an enterprise to have an organized say in evaluating conditions and options; setting direction; and monitoring compliance, performance, and progress against plans, to satisfy specific enterprise objectives. Methods and techniques include frameworks, principles, policies, sponsorship, structures and decision tools, roles and responsibilities, processes and practices, to set direction and monitor compliance and performance aligned with the overall objectives. In most enterprises, this is the responsibility of the board of directors under the leadership of the chief executive officer (CEO) and chairperson.

Management

Management entails the considered use of means (resources, people, processes, practices, etc.) to achieve an identified end. It is through management that the governance body achieves a result or objective. Management is responsible for the execution of the direction set by the guiding body or unit. Management is about planning, building, organizing and controlling operational activities to align with the direction set by the governance body.

Interactions between governance and management

The above definitions of governance and management make it clear they are different types of activities, with different responsibilities. Given the role of governance which is to evaluate, direct, and monitor, a set of interactions is required between governance and management to result in an efficient and effective governance system. These interactions, using the enabler structure, include those shown in Table 2.2.

Table 2.2 Governance and management interactions

Enabler	Governance-Management Interaction
Process	In the illustrative COBIT 5 process model (COBIT 5: Enabling Processes), a distinction is made between governance and management processes, including specific sets of practices and activities for each. The process model also includes RACI charts, describing the responsibilities of different organisational structures and roles within the enterprise.
Information	The process model describes inputs to and outputs from the different process practices to other processes, including information exchanged between governance and management processes. Information used for evaluating, directing, and monitoring enterprise IT is exchanged between governance and management as described in the process model inputs and outputs.
Organizational structures	A number of organisational structures are defined in each enterprise; structures can sit in the governance space or the management space, depending on their composition and scope of decisions. Because governance is about setting the direction, interaction takes place between the decisions taken by the governance structures, e.g.: deciding about the investment portfolio and setting risk appetite and the decisions and operations implementing the former.
Principles, policies and framework	Principles, policies and frameworks are the vehicle by which governance decisions are institutionalised within the enterprise, and for that reason are an interaction between governance decisions (direction setting) and management (execution of decisions).
Culture, ethics & behavior	Behavior is also a key enabler of good governance and management of the enterprise. It is set at the top – leading by example – and is therefore an important interaction between governance and management.
People, skills, & competencies	Governance and management activities require different skill sets, but an essential skill for both governance body members and management is to understand both tasks and how they are different.
Services, infrastructure and applications	Services are required, supported by applications and infrastructure to provide the governance body with adequate information and to support the governance activities of evaluating, setting direction, and monitoring.

CHAPTER 3

The goals cascade

Introduction

The *goals cascade* translates stakeholder needs into governance objective and enterprise goals, and then further down to IT-related goals, processes, and process goals. This cascade is shown in Figure 3.1.

The cascade applies to every enterprise – for-profit, non-profit, government departments and agencies, etc. The goals cascade is the mechanism that translates stakeholder concerns into tangible goals that can be managed in a more consistent manner. This cascade can be described systematically as follows.

Step #1 Stakeholder needs to governance objectives

Stakeholder needs, which are influenced by a number of drivers, can be related to one or more of the governance objectives of benefits delivery, risk balancing, and cost optimization.

Step #2 Governance objectives to enterprise goals

Overall governance objectives for the enterprise translate into, and map onto a set of generic enterprise goals; these enterprise goals have been developed using the Balanced Scorecard (BSC)¹⁹ dimensions and they represent a list of commonly used goals an enterprise has defined for

19 Kaplan, Robert S.; David P. Norton; The Balanced Scorecard: Translating Strategy into Action; Harvard University Press, USA, 1996

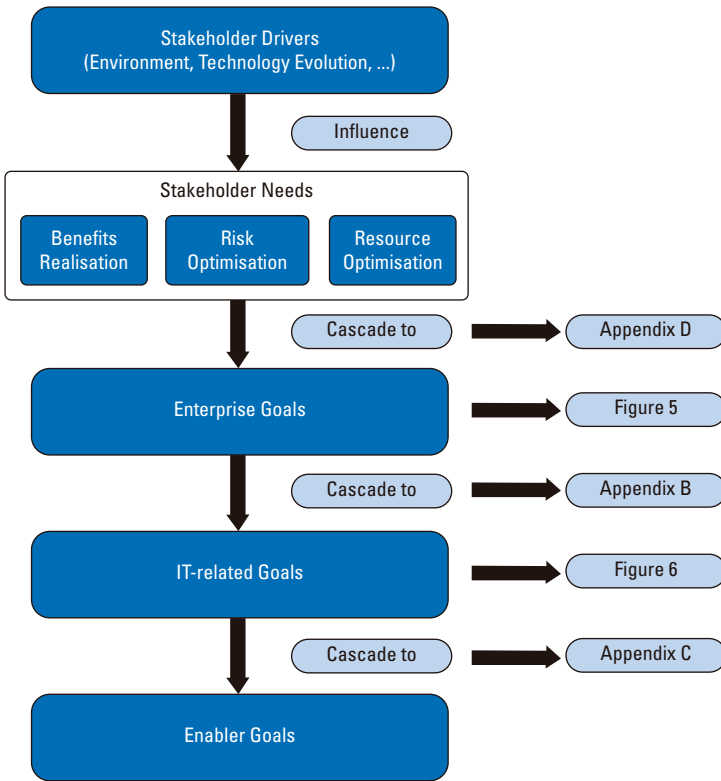


Figure 3.1 Goals cascade overview

Source: Figure 4: COBIT 5 Goals Cascade Overview, COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012 © ISACA.

itself. Although this list is not exhaustive, most enterprise-specific goals can be easily mapped onto one or more of the generic enterprise goals. The framework defines 17 generic goals (as shown in Table 3.1), which list the enterprise goals, and how they relate to the governance objectives.

The framework uses two types of relationships: primary and secondary. A relationship deemed primary is a strong and direct one. A relationship deemed secondary is not as strong and may be indirect. In the mapping table below, a “P” stands for primary relationship, and an “S” for secondary relationship.

Table 3.1 Enterprise goals mapped to governance objectives

Source Figure 22: COBIT 5, A Business Framework for the Governance and Management of Enterprise IT, 2012

© ISACA.

BSC Dimension	Enterprise goals	Governance objectives		
		Benefits realization	Risk management	Resource optimization
Financial	1. Stakeholder value of business investments	P		
	2. Portfolio of competitive products, and services	P	P	S
	3. Managed business risks (safeguarding of assets)		P	S
	4. Compliance with external laws, and regulations		P	
	5. Financial transparency	P	S	S
Customer	6. Customer-oriented service culture	P		S
	7. Business service continuity and availability		P	
	8. Agile responses to a changing business environment	P		S
	9. Information-based strategic decision making	P	P	P
	10. Optimization of service delivery costs	P		P
Internal	11. Optimization of business process functionality	P		P
	12. Optimization of business process costs	P		P
	13. Managed business change programs	P	P	S
	14. Operational, and staff productivity	P		P
	15. Compliance with internal policies		P	
Learning and growth	16. Skilled, and motivated people	S	P	P
	17. Product and business innovation culture	P		

Step #3 Enterprise goals to IT-related goals

Realizing enterprise goals requires a number of IT-related outcomes; these IT-related outcomes are represented by the IT-related goals, which are also a set of generic goals (related to IT) for business departments, and for IT. The framework defines 17 IT-related goals as listed in Table 3.2.

Table 3.2 IT-related goals

Source Figure 22: COBIT 5, A Business Framework for the Governance and Management of Enterprise IT, 2012
© ISACA.

IT-related goals		
Financial	1.	Alignment of it, and business strategy
	2.	IT compliance, and support for business compliance with external laws, and regulations
	3.	Commitment of executive management for making it-related decisions
	4.	Managed it-related business risks
	5.	Realized benefits from it-enabled investments, and services portfolio
	6.	Transparency of IT costs, benefits, and risks
Customer	7.	Delivery of IT services in line with business requirements
	8.	Adequate usage of applications, information, and technology solutions
Internal	9.	IT agility
	10.	Security of information, and processing infrastructure, and applications
	11.	Optimization of IT assets, resources, and capabilities
	12.	Enablement and support of business processes by integrating applications, and technology into business processes
	13.	Delivery of programs on time, on budget, and meeting requirements, and quality standards
	14.	Availability of reliable and useful information
	15.	IT compliance with internal policies
Learning and growth	16.	Competent and motivated IT personnel
	17.	Knowledge, expertise, and initiatives for business innovation

Step #4 IT-related goals to enabler goals

IT-related goals require the successful application and use of a number of enablers to be achieved. Enablers include processes, organizational structures, and information. For each enabler there is a set of goals defined in support of the IT-related goals.

3.1 Using the goals cascade

Benefits of the goals cascade

The goals cascade is important because it allows the definition of priorities for implementation, improvement, and assurance of the enterprise's governance of IT, based on (strategic) objectives of the enterprise²⁰. In practice, the goals cascade:

²⁰ Source: COBIT 5 Enabling Processes, page 15

- Defines relevant, and tangible goals, and objectives at various levels of responsibility
- Filters the knowledge base of the framework based on enterprise goals, to extract relevant guidance for inclusion in specific implementation, improvement, or assurance projects
- Clearly identifies, and communicates how (sometimes very operational) enablers are important to achieve enterprise goals

The goals cascade is based on research performed by the University of Antwerp Management School (UAMS) IT Alignment, and Governance Institute in Belgium.²⁰

Using the goals cascade carefully²¹

The goals cascade provides mapping tables between enterprise goals and IT-related goals and between IT-related goals and the framework processes; but it does not contain the ultimate and most complete answer. Users of the framework should not attempt to use it in a purely literal way, but rather as a guideline. There are various reasons for this, including:

- Enterprises have different priorities and goals that usually change over time
- No distinction is made allowing for the enterprise size and industry
- They represent a sort of common denominator of how, in general, the different levels of goals are inter-related
- Because they use two levels of importance or relevancy, the mapping indicators seem to suggest these are “discrete” levels. In reality, the mapping is closer to a continuum of various degrees of relevancy

When using the goals cascade an enterprise should first customize the mapping, taking into account its specific situation:

- Strategic priorities, translated into a specific “weight” or importance for each of the enterprise goals
- A validation of the mappings of the goals cascade, taking into account the specific environment, industry, etc.

²¹ Source: COBIT 5 Enabling Processes, page 15

²² IT-related outcomes are obviously not the only intermediate benefit required to achieve enterprise goals. All other functional areas in an enterprise, such as finance, and marketing, also contribute to the achievement of enterprise goals, but within the context of COBIT 5 only IT-related activities and goals are considered.

Table 3.3 Enterprise goal sample metrics

Source Figure 22: COBIT 5, A Business Framework for the Governance and Management of Enterprise IT, 2012

© ISACA.

Bsc Dimensions	Enterprise goals	Metrics
Financial	1. Compliance with external laws, and regulations	<ul style="list-style-type: none"> - Cost of regulatory non-compliance, including settlements, and fines - Number of regulatory non-compliance issues causing public comment or negative publicity - Number of regulatory non-compliance issues relating to contractual agreements with business partners
	2. Managed business risks (safeguarding of assets)	<ul style="list-style-type: none"> - Percent of critical business objectives, and services covered by risk assessment - Ratio of significant incidents that were not identified in risk assessments vs. total incidents - Update frequency of risk profile
	3. Portfolio of competitive products, and services	<ul style="list-style-type: none"> - Percent of products, and services that meet or exceed targets in revenues, and/or market share - Ratio of products, and services per lifecycle phase - Percent of products, and services that meet or exceed customer satisfaction targets - Percent of products, and services that provide competitive advantage
	4. Stakeholder value of business investments	<ul style="list-style-type: none"> - Percent of investments where value delivered meets stakeholder expectations - Percent of products, and services where expected benefits realized - Percent of investments where claimed benefits are met or exceeded
	5. Financial transparency	<ul style="list-style-type: none"> - Percent of investment business cases with clearly defined, and approved expected costs, and benefits - Percent of products, and services with defined, and approved operational costs, and expected benefits - Satisfaction survey of key stakeholders regarding the transparency, understanding, and accuracy of enterprise financial information - Percent of service cost that can be allocated to users
Customer	6. Customer-oriented service culture	<ul style="list-style-type: none"> - Number of customer service disruptions due to it service-related incidents (reliability) - Percent of business stakeholders satisfied that customer service delivery meets agreed-upon levels - Number of customer complaints - Trend of customer satisfaction survey results
	7. Business service continuity and availability	<ul style="list-style-type: none"> - Number of customer service interruptions causing significant incidents - Business cost of incidents - Number of business processing hours lost due to unplanned service interruptions - Percent of complaints as a function of committed service availability targets

Bsc Dimensions	Enterprise goals	Metrics
	8. Agile responses to a changing business environment	<ul style="list-style-type: none"> - Level of board satisfaction with enterprise responsiveness to new requirements - Number of critical products, and services supported by up-to-date business processes - Average time to turn strategic enterprise objectives into an agreed and approved initiative
	9. Information-based strategic decision making	<ul style="list-style-type: none"> - Degree of board, and executive management satisfaction with decision making - Number of incidents caused by incorrect business decisions based on inaccurate information - Time to provide supporting information to enable effective business decisions
	10. Optimization of service delivery costs	<ul style="list-style-type: none"> - Frequency of service delivery cost optimization assessments - Trend of cost assessment vs. service level results - Satisfaction levels of board and executive management with service delivery costs internal
Internal	11. Optimization of business process functionality	<ul style="list-style-type: none"> - Frequency of business process capability maturity assessments - Trend of assessment results - Satisfaction levels of board, and executives with business process capabilities
	12. Optimization of business process costs	<ul style="list-style-type: none"> - Frequency of business process cost optimization assessments - Trend of cost assessment vs. service level results - Satisfaction levels of board and executive management with business processing costs
	13. Managed business change programs	<ul style="list-style-type: none"> - Number of programs on time, and within budget - Percent of stakeholders satisfied with program delivery - Level of awareness of business change induced by it-enabled business initiatives
	14. Operational and staff productivity	<ul style="list-style-type: none"> - Number of programs/projects on time, and within budget - Cost and staffing levels compared to benchmarks
	15. Compliance with internal policies	<ul style="list-style-type: none"> - Number of incidents related to non-compliance to policy - Percent of stakeholders who understand policies - Percent of policies supported by effective standards, and working practices - Learning and growth
Learning and growth	16. Skilled, and motivated people	<ul style="list-style-type: none"> - Level of stakeholder satisfaction with staff expertise, and skills - Percent of staff whose skills are insufficient for the competency required for their role - Percent of satisfied staff
	17. Product and business innovation culture	<ul style="list-style-type: none"> - Level of awareness, and understanding of business innovation opportunities - Stakeholder satisfaction with levels of product, and innovation expertise, and ideas - Number of approved product, and service initiatives resulting from innovative ideas

Metrics

The following section contains the enterprise goals, and IT-related goals, with sample metrics that can be used to measure the achievement of each goal. These metrics are samples, and every enterprise should carefully review the list, decide on relevant and achievable metrics for its own environment, and design its own scorecard system.

3.2 Enterprise goal metrics

Table 3.3 contains all enterprise goals as identified in the framework publication, with sample metrics for each.

3.3 IT-related goal metrics

Table 3.4 contains all IT-related goals as defined in the goals cascade, and includes sample metrics for each goal.

Table 3.4 IT-related goal sample metrics

Source: EDM01 Ensure Governance Framework Setting and Maintenance, EDM02 Ensure Benefits Delivery [– etc.], COBIT 5: Enabling Processes, 2012 © ISACA.

BSC Dimensions	Enterprise goals	Metrics
Financial	1. Alignment of IT, and business strategy	<ul style="list-style-type: none"> - Percent of enterprise strategic goals, and requirements supported by IT strategic goals - Stakeholder satisfaction with scope of the planned portfolio of programs, and services - Percent of IT value drivers mapped to business value drivers
	2. IT compliance, and support for business compliance with external laws, and regulations	<ul style="list-style-type: none"> - Cost of IT non-compliance, including settlements, and fines - Number of IT-related non-compliance issues reported to the board or causing public comment or embarrassment - Number of non-compliance issues relating to contractual agreements with IT service providers - Coverage of compliance assessments
	3. Commitment of executive management for making IT-related decisions	<ul style="list-style-type: none"> - Percent of executive management roles with clearly defined accountabilities for IT decisions - Number of times IT is on the board agenda in a proactive manner - Frequency of IT strategy (executive) committee meetings - Rate of execution of executive IT-related decisions

BSC Dimensions	Enterprise goals	Metrics
	4. Managed IT-related business risks	<ul style="list-style-type: none"> - Percent of critical business processes, IT services, and IT-enabled business programs covered by risk assessment - Number of significant IT-related incidents that were not identified in risk assessment - Percent of enterprise risk assessments including IT-related risks - Update frequency of risk profile
	5. Realized benefits from IT-enabled investments, and services portfolio	<ul style="list-style-type: none"> - Percent of IT-enabled investments where benefit realization monitored through full economic life cycle - Percent of IT services where expected benefits realized - Percent of IT-enabled investments where claimed benefits met or exceeded
Customer	6. Transparency of IT costs, benefits, and risk	<ul style="list-style-type: none"> - Percent of investment business cases with clearly defined, and approved expected IT-related costs, and benefits - Percent of IT services with clearly defined, and approved operational costs, and expected benefits - Satisfaction survey of key stakeholders regarding the transparency, understanding, and accuracy of IT financial information
	7. Delivery of IT services in line with business requirements	<ul style="list-style-type: none"> - Number of business disruptions due to IT service incidents - Percent of business stakeholders satisfied that IT service delivery meets agreed-upon service levels - Percent of users satisfied with quality of IT service delivery - Adequate usage of applications, information, and technology solutions
	8. Percent of business process owners satisfied with supporting IT products, and services	<ul style="list-style-type: none"> - Level of business user understanding of how technology solutions support their processes - Satisfaction level of business users with training, and user manuals
	9. IT agility	<ul style="list-style-type: none"> - Level of satisfaction of business executives with IT's responsiveness to new requirements - Number of critical business processes supported by up-to-date infrastructure, and applications - Average time to turn strategic IT objectives into an agreed and approved initiative
	10. Security of information, and processing infrastructure, and applications	<ul style="list-style-type: none"> - Number of security incidents causing business disruption or public embarrassment - Number of IT services with outstanding security requirements - Time to grant, change, and remove access privileges, compared to agreed service levels - Frequency of security assessment against latest standards, and guidelines

BSC Dimensions	Enterprise goals	Metrics
Internal	11. Optimization of IT assets, resources, and capabilities	<ul style="list-style-type: none"> - Frequency of capability maturity, and cost optimization assessments - Trend of assessment results - Satisfaction levels of business and IT executives with IT-related costs, and capabilities
	12. Enablement, and support of business processes by integrating applications, and technology into business processes	<ul style="list-style-type: none"> - Number of business processing incidents caused by technology integration errors - Number of business process changes that need to be delayed or reworked because of technology integration issues - Number of IT-enabled business programs delayed or incurring additional cost due to technology integration issues - Number of applications or critical infrastructures operating in silos, and not integrated
	13. Delivery of programs on time, on budget, and meeting requirements, and quality standards	<ul style="list-style-type: none"> - Number of programs/projects on time, and within budget - Percent of stakeholders satisfied with program/project quality - Number of programs needing significant rework due to quality defects - Cost of application maintenance vs. overall IT cost
	14. Availability of reliable and useful information	<ul style="list-style-type: none"> - Level of business user satisfaction with quality of management information - Number of business process incidents caused by non-availability of information - Ratio and extent of erroneous business decisions where erroneous or unavailable information was key factor
	15. IT compliance with internal policies	<ul style="list-style-type: none"> - Number of incidents related to non-compliance to policy - Percent of stakeholders who understand policies - Percent of policies supported by effective standards, and working practices - Frequency of policies review, and update - Learning and Growth
Learning and growth	16. Competent and motivated IT personnel	<ul style="list-style-type: none"> - Percent of staff whose IT-related skills are sufficient for the competency required for their role - Percent of staff satisfied with their IT-related roles - Number of learning/training hours per staff
	17. Knowledge, expertise, and initiatives for business innovation	<ul style="list-style-type: none"> - Level of business executive awareness, and understanding of IT innovation possibilities - Stakeholder satisfaction with levels of IT innovation expertise, and ideas - Number of approved initiatives resulting from innovative IT ideas

3.4 Drivers and benefits

Drivers

The major drivers for the development of the framework include:

- A need to link together and reinforce all major ISACA research, frameworks and guidance, with a primary focus on COBIT, Val IT and Risk IT, but also considering, amongst others, BMIS, ITAF, Board Briefing on IT Governance, and Taking Governance Forward
- A need to connect to, and (where relevant) align with, other major frameworks and standards in the marketplace, such as ITIL®, The Open Group Architecture Forum (TOGAF®), Project Management Body of Knowledge (PMBOK®), PRINCE2® and the International Organization for Standardization (ISO®) standards. This will help stakeholders understand how various frameworks, best practices and standards are positioned relative to each other and how they can be used together and could augment each other.
- A need to provide further guidance in areas with high interest, such as enterprise architecture, asset and service management, and the management of IT innovation and emerging technologies
- A recognition that there are many current and potential users who wish to focus on specific topics, who find it difficult to navigate current material and identify content that will satisfy their requirements. There is also a general need to improve ease of use and ease of navigation and to bring consistency in concepts, terminology, and the level of detail provided by ISACA.
- A need to ensure that the scope covers the full end-to-end business and IT functional responsibilities, and a need to cover all aspects that lead to effective governance and management of enterprise IT, such as organizational structures, policies, culture, etc., over and above processes. This is especially important given the increasing pervasiveness of IT and it helps increase transparency.
- A need to for the enterprise to achieve increased:
 - Value creation through enterprise IT
 - Business user satisfaction with IT engagement and services
 - Compliance with relevant laws, regulations, and policies

Benefits

COBIT 5 brings a substantial number of benefits to enterprises, improving on guidance previously available from ISACA. Table 3.5 summarizes the business benefits, the impacts that will bring about the benefits, and the fundamental capabilities delivering the benefits, and points to more information in the framework.

Table 3.5 Benefits
 Source COBIT 5 Business Framework COBIT 5: Enabling Processes, 2012 © ISACA.

Benefits	Impacts that will bring about these benefits	New capabilities delivering this benefit	More information on the changes
Enterprise wide benefits: <ul style="list-style-type: none"> • Increased value creation through enterprise IT • Increased business user satisfaction with IT engagement and services. IT seen as a fundamental enabler • Increased compliance with relevant laws, regulations and policies 	Key business impacts of COBIT 5 include: <ul style="list-style-type: none"> • Increased business focus on organizational governance and management of IT. This has become a part of the enterprise's good practices • Increased transparency in decision making for the organizational governance of IT 	COBIT 5 provides new capabilities for effective organizational governance and management of IT: <ul style="list-style-type: none"> • The starting point of governance and management activities is the stakeholder needs related to enterprise IT <ul style="list-style-type: none"> • Creates a more holistic, integrated, and complete view of organizational governance and management of IT that: <ul style="list-style-type: none"> ○ Is consistent ○ Provides an end-to-end view on all IT-related matters ○ Provides a systemic view • Creates a common language between IT and business for the organizational governance and management of IT • Is consistent with generally accepted corporate governance standards, and thus helps to meet regulatory requirements • Creates a clear distinction between governance and management of organizational governance of IT 	Section 3 provides more information on stakeholders, their typical needs and how these can be linked to practical enabler goals in COBIT 5. This is described by means of the COBIT 5 goals cascade. All good-practice advice contained in COBIT 5 is consolidated into a knowledge base, combining the strengths and experiences of the guidance, research, and frameworks of COBIT, Val IT, Risk IT, BMIS, ITAF, and the Board Briefing. COBIT 5 is relevant to and aligned with the most important standards and frameworks, e.g., ISO/IEC 38500 and other recent global governmental and market-driven enterprise and governance of enterprise IT initiatives. In addition, the compliance requirement is covered throughout COBIT 5, from being recognized as one of the enterprise goals to being embedded in processes and practices and other enablers. In COBIT 5: Process Reference Guide, compliance is embedded in the processes and practices. Introduces consistency, linkages and views with other leading frameworks and standards, e.g., generally accepted corporate governance, and standards, regulatory and compliance requirements.
IT function has become more business-focused	Key IT impacts of COBIT 5 include: <ul style="list-style-type: none"> • Increased agility of IT to respond to business needs • Increased alignment of IT tasks/activities with business need • Increased optimization of IT assets and resources • Optimized IT-related business risk • Optimized cost performance of IT 	(This cell is merged with the previous row's content)	(This cell is merged with the previous row's content)

Benefits	Impacts that will bring about these benefits	New capabilities delivering this benefit	More information on the changes
		<ul style="list-style-type: none"> Increases the content (depth and breadth) and connection to relevant contemporary governance developments Creates an integrator framework and structure for enablers (including processes) that are uniform across the enterprise for both IT and business to use COBIT 5 includes an information model (IM). Information is a crucial enabler and fundamental resource for the whole enterprise. Information is stored and processed by IT, but is generated, used and creates value by its business use. By providing a unique model – the IM – COBIT 5 connects the business areas with IT in the most efficient and effective way. 	<p>Introduces further guidance in high-interest areas for organizational governance and management of IT, e.g., enterprise architecture, emerging technologies (e.g., cloud), and innovation.</p> <p>In Section 4 and Appendix H, COBIT 5 introduces a set of principles and enablers for the organizational governance and management of IT.</p> <p>Enablers include processes; information; people and skills; organizational structures; culture, ethics and behavior; principles; and policies. The simple models included with COBIT for governance enablers (policies, structures, processes, etc.) are not specific for IT. They can be used to govern and manage business areas as well, thus providing a uniform way of dealing with all processes in the enterprise.</p> <p>COBIT 5 has integrated – in its enabler model – all IT-related activities an enterprise should undertake, including core IT processes and activities, but also all activities required from business stakeholders. Section 5 describes the overall enabler model.</p>

