

# 2018 Generali Regional Meeting

## Americas Region – São Paulo

**COBIT5** A Business Framework for the Governance and  
Management of Enterprise IT

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## Overview

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**ISACA<sup>1</sup>:** As an independent, nonprofit, global association, ISACA engages in the development, adoption and use of globally accepted, industry-leading knowledge and practices for information systems. Previously known as the Information Systems Audit and Control Association, ISACA now goes by its acronym only, to reflect the broad range of IT governance professionals it serves.

**COBIT5<sup>2</sup>:** is a leading-edge business optimization and growth roadmap that leverages proven practices, global thought leadership and ground-breaking tools to inspire IT innovation and fuel business success. It builds and expands on COBIT 4.1 by integrating other major frameworks, standards and resources, including ISACA's Val IT and Risk IT, Information Technology Infrastructure Library (ITIL®) and related standards from the International Organization for Standardization (ISO).

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<sup>1</sup> <https://www.isaca.org/about-isaca/Pages/default.aspx>

<sup>2</sup> <https://cobitonline.isaca.org/about>

# Evolution

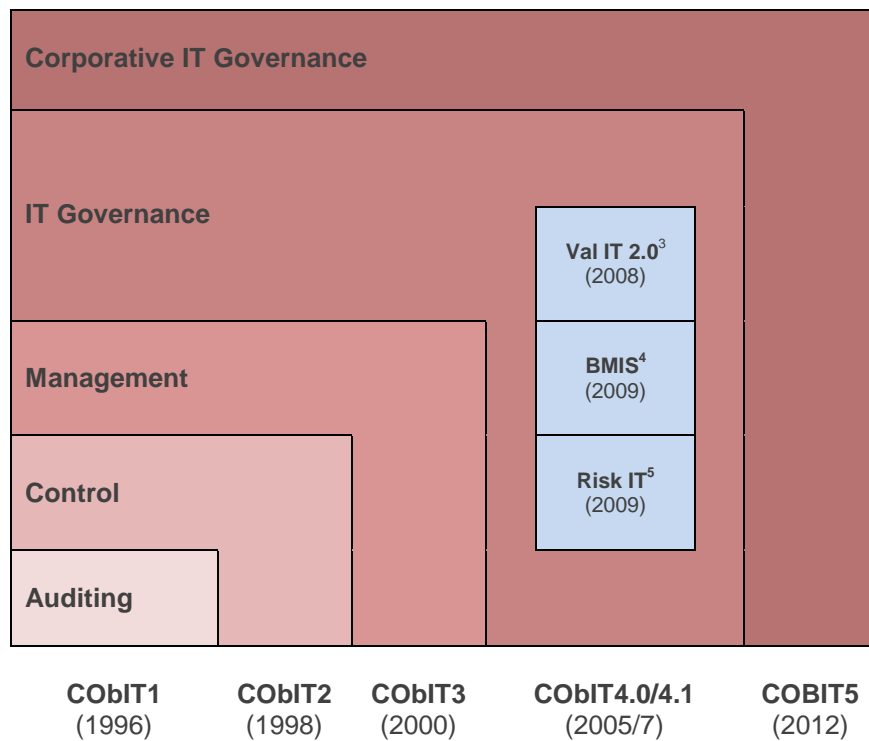


Table 1: COBIT Evolution

<sup>3</sup> <http://www.isaca.org/About-ISACA/IT-Governance-Institute/Pages/default.aspx>

<sup>4</sup> <https://www.isaca.org/KNOWLEDGE-CENTER/BMIS/Pages/Business-Model-for-Information-Security.aspx>

<sup>5</sup> <http://www.isaca.org/knowledge-center/risk-it-it-risk-management/pages/default.aspx>

## Product Family

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The COBIT 5 framework is built on five basic principles, and includes extensive guidance on enablers for governance and management of enterprise IT. The COBIT 5 product family includes the following products:

- **COBIT 5 (the framework<sup>6</sup>)**
- **COBIT 5 enabler guides**, in which governance and management enablers are discussed in detail. These include:
  - + Enabling Processes
  - + Enabling Information (in development)
  - + Other enabler guides
- **COBIT 5 professional guides**, which include:
  - + Implementation
  - + for Information Security (in development)
  - + for Assurance (in development)
  - + for Risk (in development)
  - + Other professional guides
- A collaborative online environment, which will be available to support the use of COBIT 5

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<sup>6</sup> <https://www.isaca.org/COBIT/Pages/COBIT-5-Framework-product-page.aspx>

# Principles

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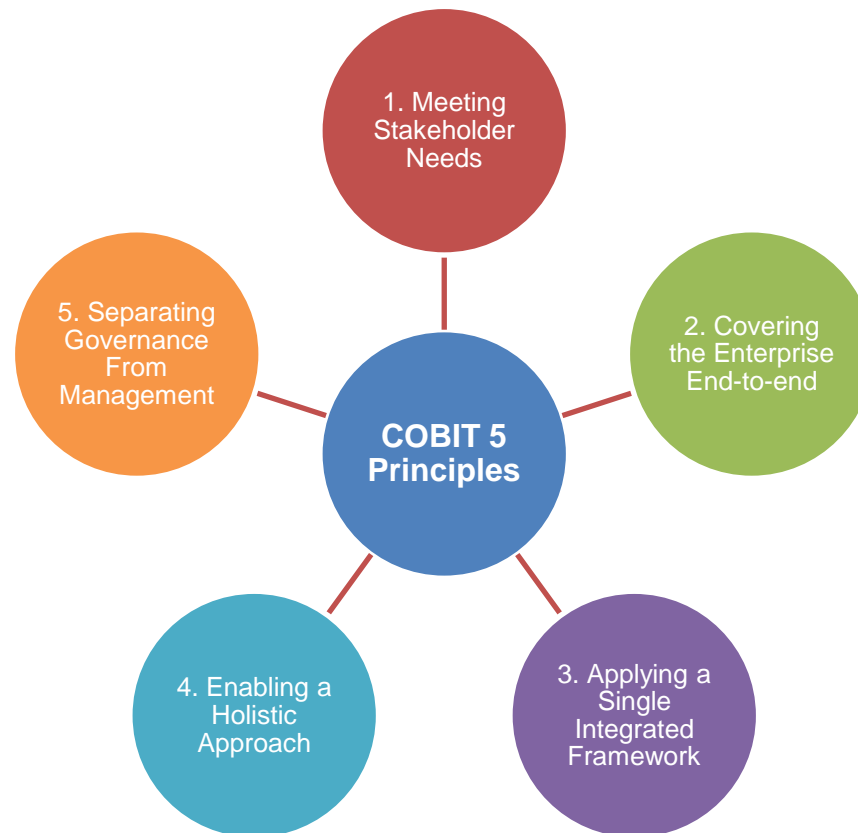


Figure 1: COBIT 5 Principles

## Principle 1: Meeting Stakeholder Needs

Enterprises exist to create value for their stakeholders by maintaining a balance between the realization of benefits and the optimization of risk and use of resources. COBIT5 provides all of the required processes and other enablers to support business value creation through the use of IT. Because every enterprise has different objectives, an enterprise can customize COBIT5 to suit its own context through the goals cascade, translating high-level enterprise goals into manageable, specific, IT-related goals and mapping these to specific processes and practices.



Figure 2: The Governance Objective: Value Creation



## Principle 1 (Cont.): Goals Cascade

The COBIT5 goals cascade is the mechanism to translate stakeholder needs into specific, actionable and customized enterprise goals, IT-related goals and enabler goals. This translation allows setting specific goals at every level and in every area of the enterprise in support of the overall goals and stakeholder requirements, and thus effectively supports alignment between enterprise needs and IT solutions and services.

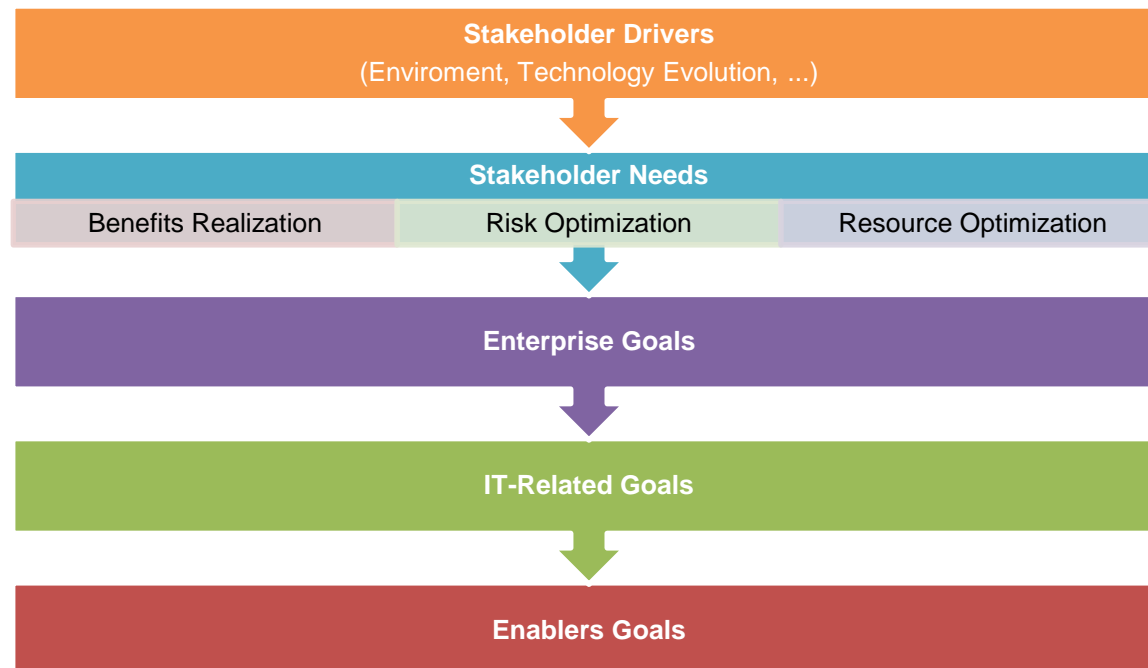


Figure 3: COBIT 5 Goals Cascade Overview

## Principle 1 (Cont.): Goals Cascade - Steps

**Step 1 - Stakeholder Drivers Influence Stakeholder Needs:** Stakeholder needs are influenced by a number of drivers, e.g., strategy changes, a changing business and regulatory environment, new technologies, etc.

**Step 2 - Stakeholder Needs Cascade to Enterprise Goals:** Stakeholder needs can be related to a set of generic enterprise goals. These enterprise goals have been developed using the balanced scorecard (BSC<sup>7</sup>) dimensions, and they represent a list of commonly used goals that an enterprise may define for itself. Although this list is not exhaustive, most enterprise-specific goals can be mapped easily onto one or more of the generic enterprise goals<sup>8</sup>.

BSC Dimension	Enterprise Goal	Relation to Governance Objectives <sup>9</sup>		
		Benefits Realization	Risk Optimization	Resource Optimization
Financial	1. Stakeholder value of business investments	P		S
	2. Portfolio of competitive products and services	P	P	S
	3. Managed business risk (safeguarding of assets)		P	S
	4. Compliance with external laws and regulations		P	

<sup>7</sup> Kaplan, Robert S.; David P. Norton; “*The Balanced Scorecard: Translating Strategy Into Action*”, Harvard University Press, USA, 1996.

<sup>8</sup> See Appendix “D”.

<sup>9</sup> ‘P’ stands for primary relationship and ‘S’ for secondary relationship, i.e., a less strong relationship.

Customer	5. Financial transparency	P	S	S
	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
Internal	10. Optimization of service delivery costs	P		P
	11. Optimization of business process functionality	P		P
	12. Optimization of business process costs	P		P
	13. Managed business change programmes	P	P	S
	14. Operational and staff productivity	P		P
Learning and Growth	15. Compliance with internal policies		P	
	16. Skilled and motivated people	S	P	P
	17. Product and business innovation culture	P		

Figure 4: COBIT 5 Enterprise Goals

**Step 3 - Enterprise Goals Cascade to IT-related Goals:** Achievement of enterprise goals requires a number of IT-related outcomes, which are represented by the IT-related goals. IT-related stands for information and related technology, and the IT-related goals are structured along the dimensions of the IT balanced scorecard (IT BSC). COBIT5 defines 17 IT-related goals, listed in figure 6. The mapping table between IT-related goals and enterprise goals is included in appendix B, and it shows how each enterprise goal is supported by a number of IT-related goals.

IT BSC Dimension	Information and Related Technology Goal
Financial	01 Alignment of IT and business strategy
	02 IT compliance and support for business compliance with external laws and regulations
	03 Commitment of executive management for making IT-related decisions
	04 Managed IT-related business risk
	05 Realized benefits from IT-enabled investments and services portfolio
	06 Transparency of IT costs, benefits and risk
Customer	07 Delivery of IT services in line with business requirements
	08 Adequate use of applications, information and technology solutions
Internal	09 IT agility
	10 Security of information, 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 programmes delivering benefits, on time, on budget, and meeting requirements and quality standards
	14 Availability of reliable and useful information for decision making
	15 IT compliance with internal policies
Learning and Growth	16 Competent and motivated business and IT personnel
	17 Knowledge, expertise and initiatives for business innovation

Figure 5: IT-related Goals

**Step 4 - IT-related Goals Cascade to Enabler Goals:** Achieving IT-related goals require the successful application and use of a number of enablers. Enablers

include processes<sup>10</sup>, organizational structures and information, and for each enabler a set of specific relevant goals can be defined in support of the IT-related goals.

**Using the COBIT 5 Goals Cascade Carefully:** The goals cascade—with its mapping tables between enterprise goals and IT-related goals and between IT-related goals and COBIT 5 enablers (including processes)—does not contain the universal truth, and users should not attempt to use it in a purely mechanistic way, but rather as a guideline. There are various reasons for this, including:

- Every enterprise has different priorities in its goals, and priorities may change over time.
- The mapping tables do not distinguish between size and/or industry of the enterprise. They represent a sort of common denominator of how, in general, the different levels of goals are interrelated.
- The indicators used in the mapping use two levels of importance or relevance, suggesting that there are ‘discrete’ levels of relevance, whereas, in reality, the mapping will be close to a continuum of various degrees of correspondence.

<sup>10</sup> Processes are one of the enablers, and appendix “C” contains a mapping between IT-related goals and the relevant COBIT 5 processes, which then contain related process goals.

## Principle 2: Covering the Enterprise End-To-End

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COBIT 5 addresses the governance and management of information and related technology from an enterprise wide, end-to-end perspective.

This means that COBIT 5:

- Integrates governance of enterprise IT into enterprise governance. That is, the governance system for enterprise IT proposed by COBIT 5 integrates seamlessly in any governance system. COBIT 5 aligns with the latest views on governance.
- Covers all functions and processes required to govern and manage enterprise information and related technologies wherever that information may be processed. Given this extended enterprise scope, COBIT 5 addresses all the relevant internal and external IT services, as well as internal and external business processes.

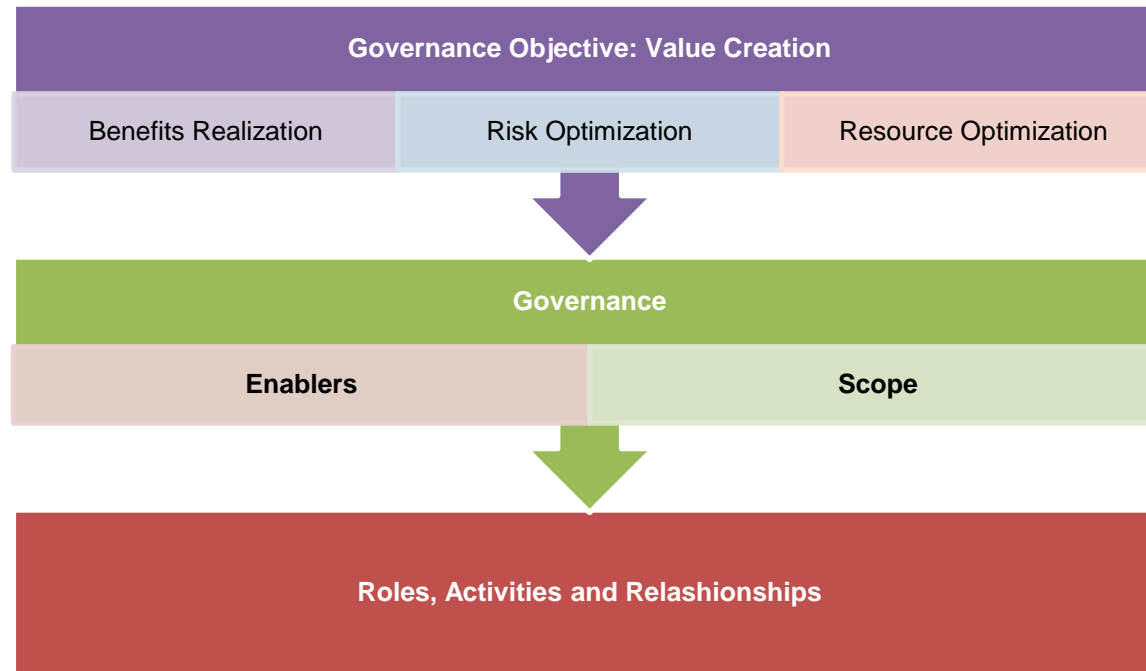


Figure 6: Governance and Management in COBIT 5

**Governance Enablers:** are the organizational resources for governance, such as frameworks, principles, structures, processes and practices, through or towards which action is directed and objectives can be attained. Enablers also include the enterprise's resources—e.g., service capabilities (IT infrastructure, applications, etc.), people and information. A lack of resources or enablers may affect the ability of the enterprise to create value. Given the importance of governance enablers, COBIT 5 includes a single way of looking at and dealing with enablers ([Principle 4](#)).

**Governance Scope:** Governance can be applied to the entire enterprise, an entity, a tangible or intangible asset, etc. That is, 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. The scope of COBIT 5 is the enterprise—but in essence COBIT 5 can deal with any of the different views.

**Roles, Activities and Relationships:** A last element is 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 COBIT 5, clear differentiation is made between governance and management activities in the governance and management domains, as well as the interfacing between them and the role players that are involved.



## Principle 3: Applying a Single Integrated Framework

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COBIT 5 is a single and integrated framework because:

- It aligns with other latest relevant standards and frameworks, and thus allows the enterprise to use COBIT 5 as the overarching governance and management framework integrator.
- It is complete in enterprise coverage, providing a basis to integrate effectively other frameworks, standards and practices used. A single overarching framework serves as a consistent and integrated source of guidance in a nontechnical, technology-agnostic common language.
- It provides a simple architecture for structuring guidance materials and producing a consistent product set.
- It integrates all knowledge previously dispersed over different ISACA frameworks. ISACA has researched the key area of enterprise governance for many years and has developed frameworks such as COBIT, Val IT, Risk IT, BMIS, the publication Board Briefing on IT Governance, and ITAF to provide guidance and assistance to enterprises. COBIT 5 integrates all of this knowledge.

## Principle 4: Enabling a Holistic Approach - Enablers

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**COBIT 5 Enablers<sup>11</sup>:** Enablers are factors that, individually and collectively, influence whether something will work—in this case, governance and management over enterprise IT. Enablers are driven by the goals cascade, i.e., higher-level IT-related goals define what the different enablers should achieve.

The COBIT 5 framework describes seven categories of enablers (figure 7):

1. Principles, policies and frameworks are the vehicle to translate the desired behavior into practical guidance for day-to-day management.
2. Processes describe an organized set of practices and activities to achieve certain objectives and produce a set of outputs in support of achieving overall IT-related goals.
3. Organizational structures are the key decision-making entities in an enterprise.

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<sup>11</sup> See Appendix “G”.

4. Culture, ethics and behavior of individuals and of the enterprise are very often underestimated as a success factor in governance and management activities.
5. Information is pervasive throughout any organization and includes all information produced and used by the enterprise. Information is required for keeping the organization running and well governed, but at the operational level, information is very often the key product of the enterprise itself.
6. Services, infrastructure and applications include the infrastructure, technology and applications that provide the enterprise with information technology processing and services.
7. People, skills and competencies are linked to people and are required for successful completion of all activities and for making correct decisions and taking corrective actions.

Some of the enablers defined previously are also enterprise resources that need to be managed and governed as well. This applies to:

- Information, which needs to be managed as a resource. Some information, such as management reports and business-intelligence-information, are important enablers for the governance and management of the enterprise.
- Service, infrastructure and applications.
- People, skills and competencies.

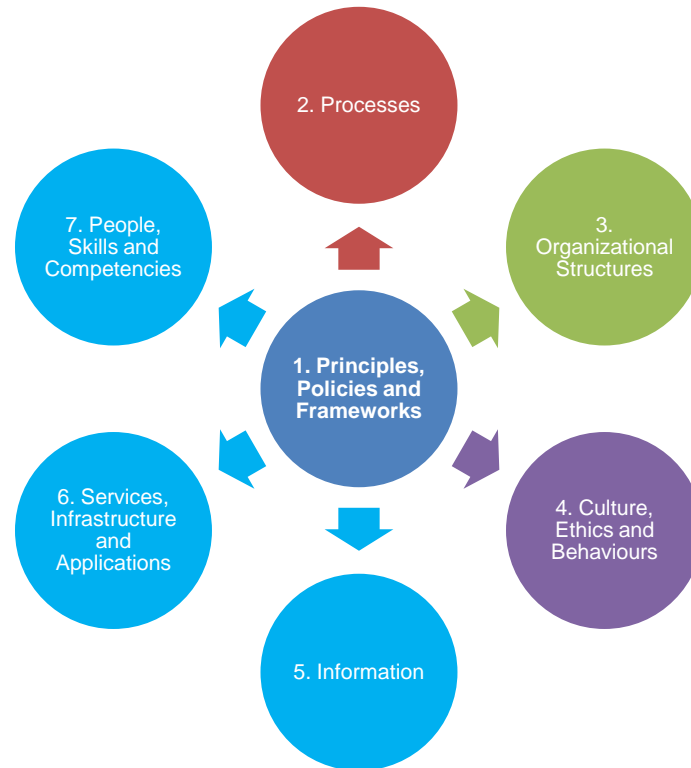


Figure 7: COBIT5 Enterprise Enablers

## Principle 5: Separating Governance & Management

**Governance**<sup>12</sup>: 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.

**Management**<sup>13</sup>: Management plans, builds, runs and monitors activities in alignment with the direction set by the governance body to achieve the enterprise objectives.

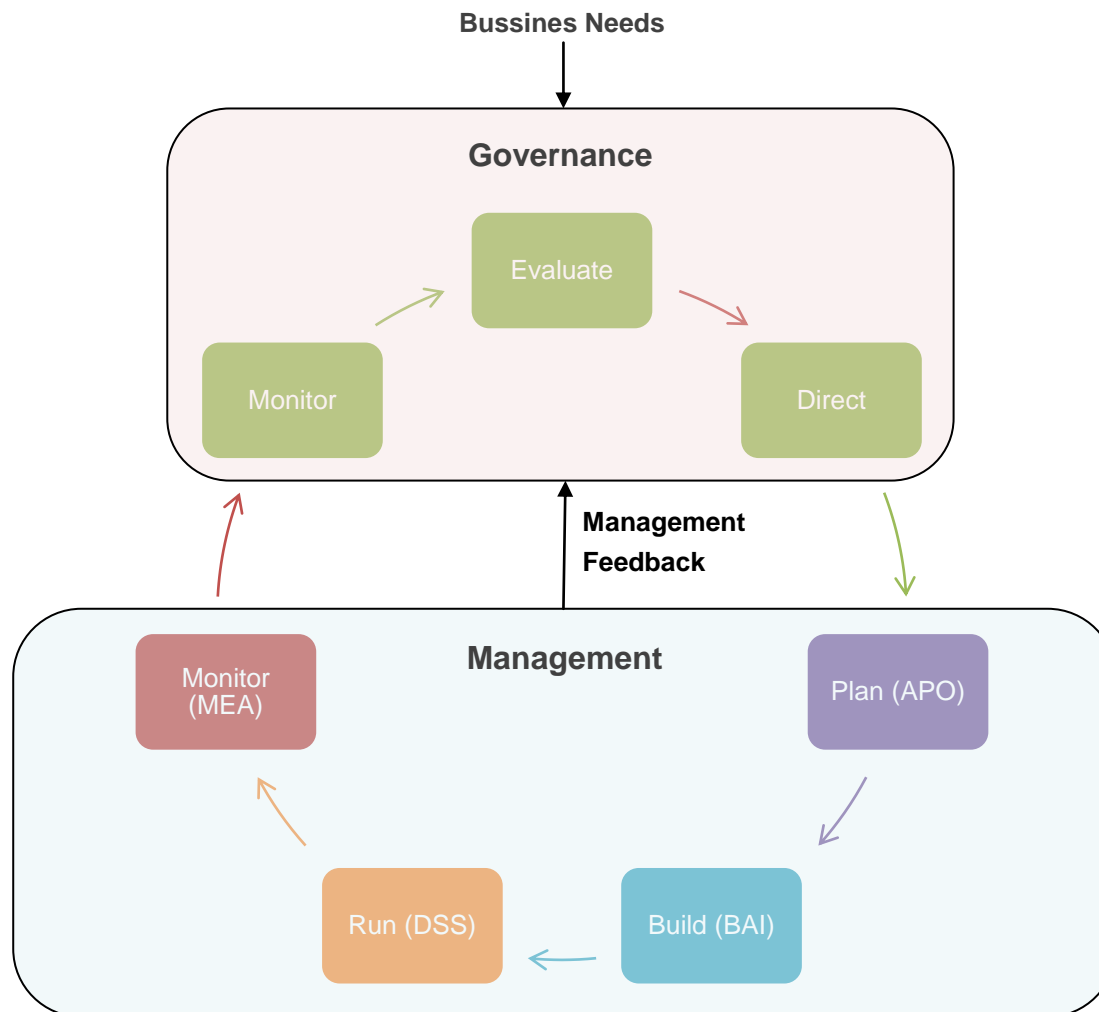
Enabler	Governance – Management Interaction
Processes	In the illustrative <a href="#">COBIT 5 process model</a> (COBIT 5: Enabling Processes), a distinction is made between governance and management processes, including specific sets of practices and activities for each. The process model also includes RACI charts, describing the responsibilities of different organizational 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.
Principles, policies and frameworks	Principles, policies and frameworks are the vehicle by which governance decisions are institutionalized within the enterprise, and for that reason are an interaction between governance decisions (direction setting) and management (execution of decisions).

Figure 8: COBIT 5 Governance and Management Interactions

<sup>12</sup> In most enterprises, governance is the responsibility of the board of directors under the leadership of the chairperson.

<sup>13</sup> In most enterprises, management is the responsibility of the executive management under the leadership of the CEO.

## Principle 5 (Cont.): Process Reference Model



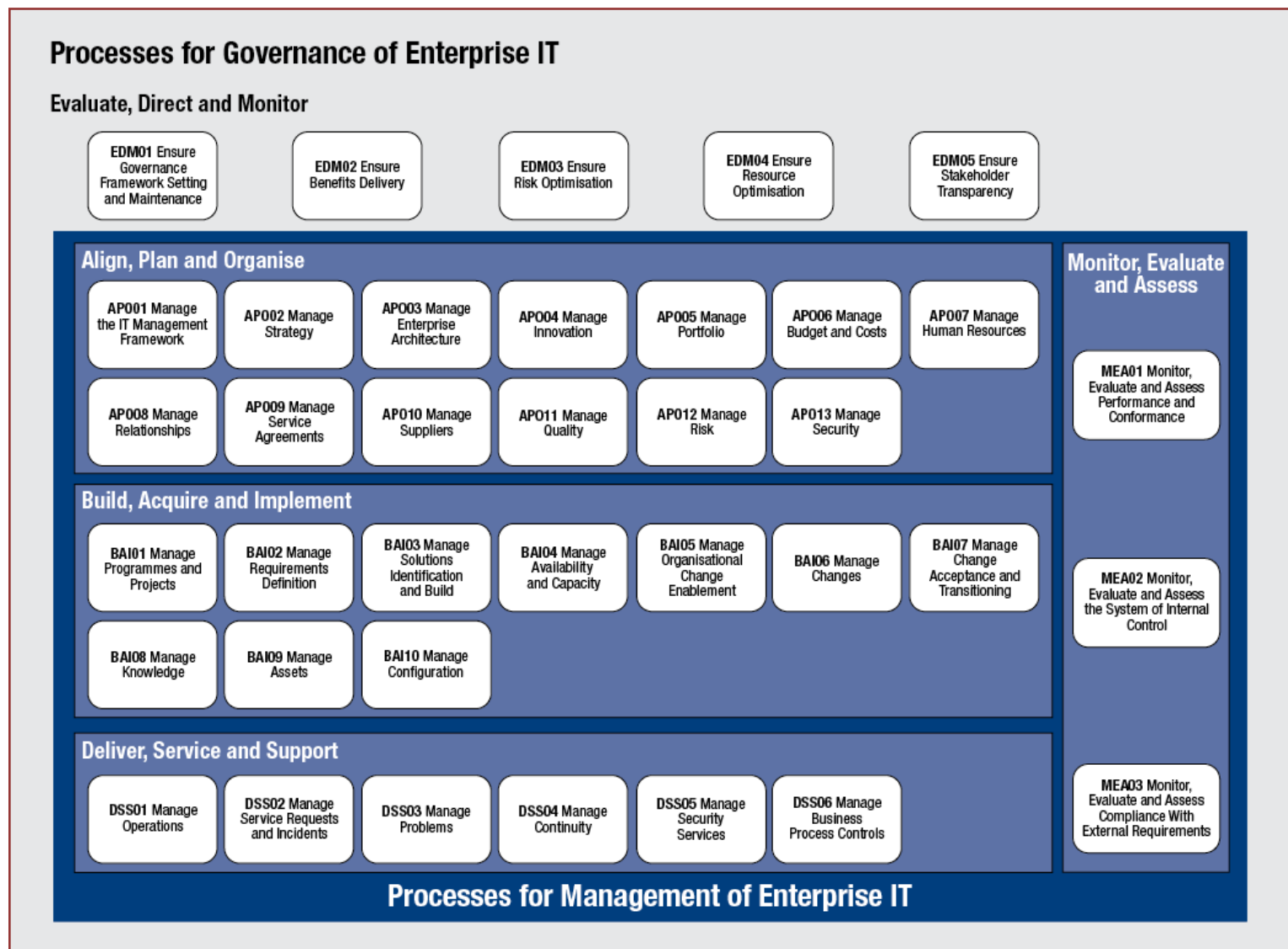
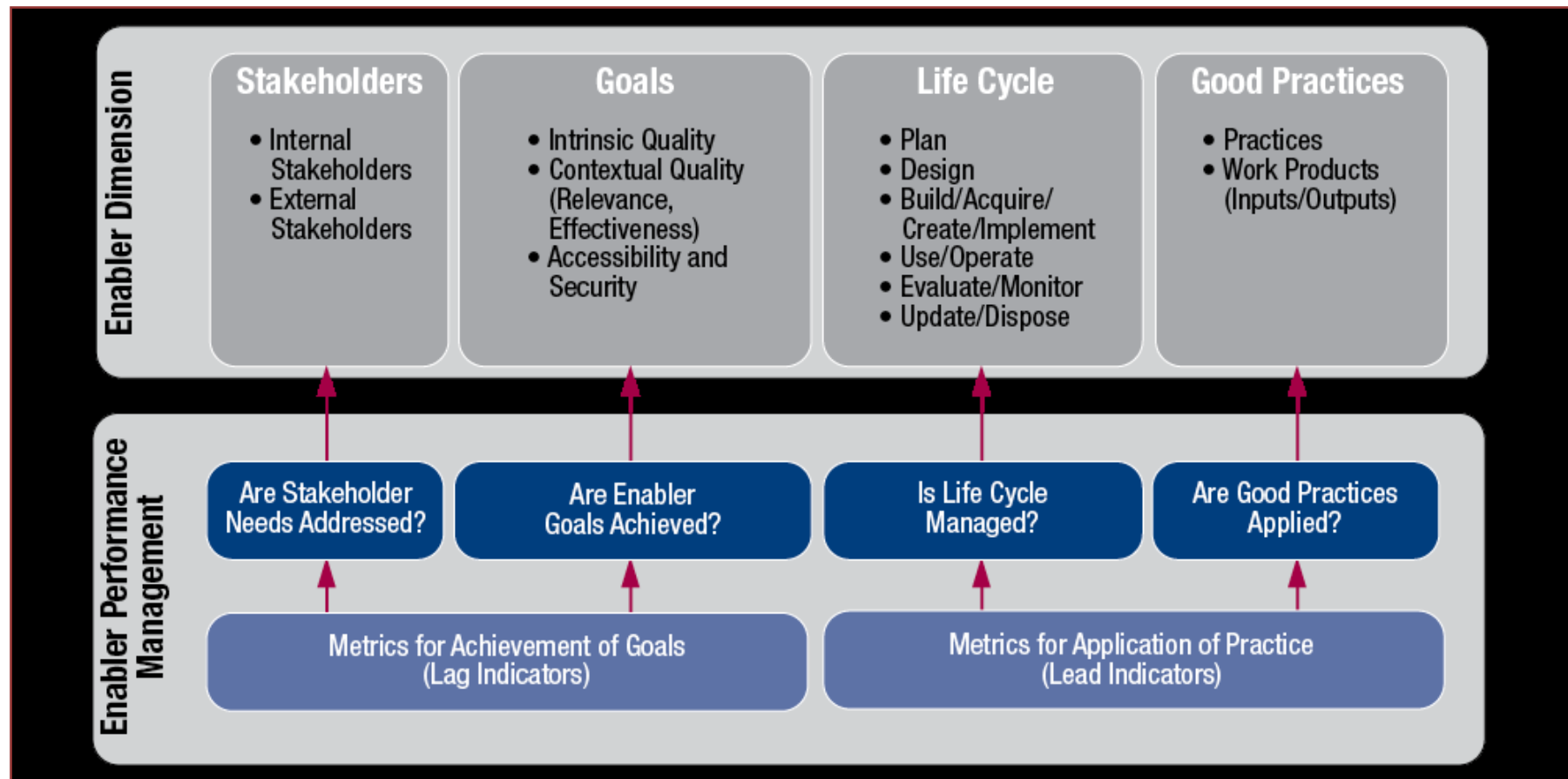


Figure 9: COBIT 5 Process Reference Model

## Appendix G: Detailed Description of COBIT Enablers

This section contains a more detailed discussion of the seven categories of enablers.





## Appendix G: Enablers Dimensions

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Four common dimensions for enablers:

- 1. Stakeholders:** each enabler has stakeholders, i.e., parties who play an active role and/or have an interest in the enabler. For example, processes have different parties who execute process activities and/or who have an interest in the process outcomes.
- 2. Goals:** each enabler has a number of goals, and enablers provide value by the achievement of these goals. Goals can be defined in terms of:
  - Expected outcomes of the enabler
  - Application or operation of the enabler itself

Categories:

- Intrinsic quality
- Contextual quality
- Access and security

**3. Life cycle:** each enabler has a life cycle, from inception through an operational/useful life until disposal. Phases:

- Plan (which includes concepts development and concepts selection)
- Design
- Build/acquire/create/implement
- Use/operate
- Evaluate/monitor
- Update/dispose

**4. Good practices:** For each of the enablers, good practices can be defined. Good practices support the achievement of the enabler goals. Good practices provide examples or suggestions on how best to implement the enabler, and what work products or inputs and outputs are required.

## COBIT5: Enabler Guides – Enabling Processes

A process is defined as “a collection of practices influenced by the enterprise’s policies and procedures that takes inputs from a number of sources (including other processes), manipulates the inputs and produces outputs (e.g., products, services)”.

Dimensions:

- **Stakeholders:** Processes have internal and external stakeholders, with their own roles; stakeholders and their responsibility levels are documented in RACI<sup>14</sup> charts.
- **Goals:** Process goals are defined as “*a statement describing the desired outcome of a process. An outcome can be an artifact, a significant change of a state or a significant capability improvement of other processes*”.

Process goals can be categorized as:

- **Intrinsic goals:** Does the process have intrinsic quality? Is it accurate and in line with good practice? Is it compliant with internal and external rules?

<sup>14</sup> Responsible, Accountable, Consulted or Informed.

- ✚ **Contextual goals:** Is the process customized and adapted to the enterprise's specific situation? Is the process relevant, understandable, easy to apply?
- ✚ **Accessibility and security goals:** The process remains confidential, when required, and is known and accessible to those who need it.

At each level of the goals cascade, hence also for processes, metrics<sup>15</sup> are defined to measure the extent to which goals are achieved.

- **Life cycle:** each process has a life cycle. It is defined, created, operated, monitored, and adjusted/updated or retired.
- **Good practices:** COBIT 5: Enabling Processes contains a process reference model, in which process internal good practices are described in growing levels of detail: practices, activities and detailed activities.
- **Inputs and outputs:** the COBIT 5 inputs and outputs are the process work products/artifacts considered necessary to support operation of the process.

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<sup>15</sup> Metrics can be defined as “a quantifiable entity that allows the measurement of the achievement of a process goal. Metrics should be SMART—specific, measurable, actionable, relevant and timely”.

## COBIT5: Enabling Processes – PRM

COBIT 5 is not prescriptive, but it advocates that enterprises implement governance and management processes such that the key areas are covered, as shown [Principle 5](#). In theory, an enterprise can organize its processes as it sees fit, as long as the basic governance and management objectives are covered. Smaller enterprises may have fewer processes; larger and more complex enterprises may have many processes, all to cover the same objectives.

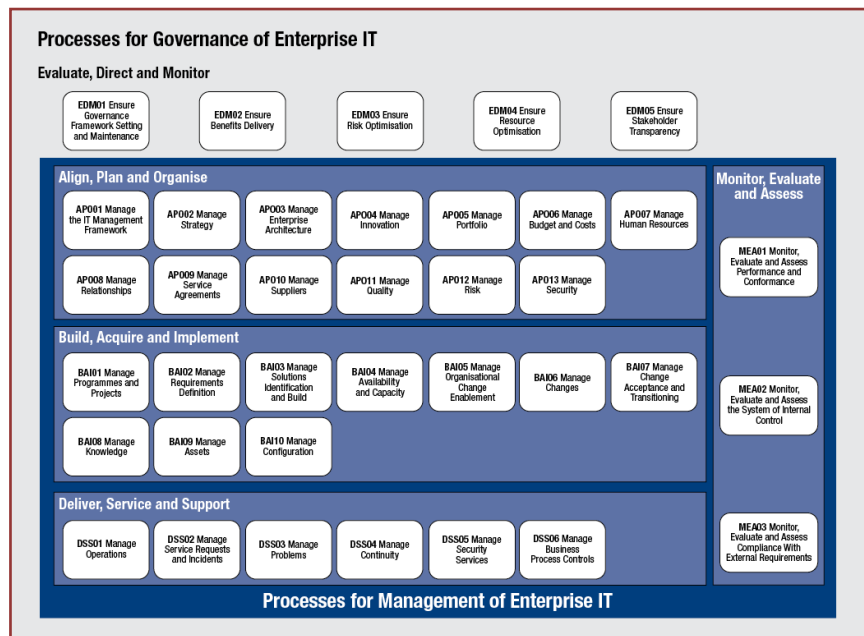


Figure 10: COBIT 5 Process Reference Model

# COBIT5: Enabling Processes – Examples

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## Governance:

- ✚ EDM01 - Ensure Governance Framework Setting and Maintenance

## Management:

- Align, Plan and Organize:
  - ✚ APO10 - Manage Suppliers
  - ✚ APO13 - Manage Security
- Build, Acquire and Implement:
  - ✚ BAI01 - Manage Programmes and Projects
  - ✚ BAI06 - Manage Changes
- Deliver, Service and Support:
  - ✚ DSS04 - Manage Continuity
  - ✚ DSS05 - Manage Security Services
- Monitor, Evaluate and Assets:
  - ✚ MEA02 - Monitor, Evaluate and Assess the System of Internal Control

## COBIT5: Enabler Guides – Enabling Information

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**Data** can be defined as something that is, or represents, a fact. This can be in many forms (e.g., text, numbers, graphics, sound, video).

**Information** is data in context. Context means providing a meaning to the data, defending the format in which the data are presented and the relevance of the data within a certain usage context.

Dimensions:

- **Stakeholders:** Stakeholders can be categorized by their roles in dealing with information, e.g.:
  - *Information producer:* Responsible for creating the information<sup>16</sup> (planning).
  - *Information custodian:* Responsible for storing and maintaining the information (acquires).
  - *Information consumer:* Responsible for using the information (use).

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<sup>16</sup> In this context, it should be noted that the concept 'information owner' is often used. 'Information producer' includes the data owner, who is ultimately accountable in the enterprise for the existence of the information item type, and other roles that create actual information items.

- **Goals (intrinsic, contextual and security/accessibility):** The basic information security concept of confidentiality, integrity and availability (CIA) is globally accepted among security professionals. COBIT 5 covers the CIA criteria in the information enabler as information goals.
- **Life cycle:**

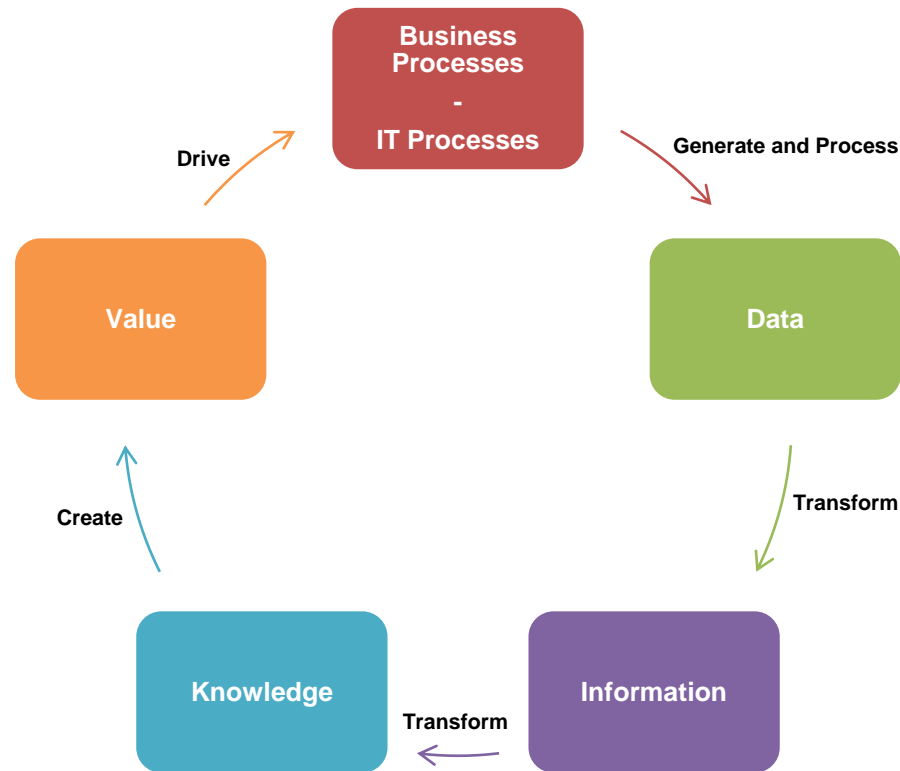


Figure 11: COBIT 5 Metadata—Information Cycle



- **Good practices:**

- ✚ **Physical world layer:** The world where all phenomena that can be empirically observed take place (ej. the paper of a book).
- ✚ **Empiric layer:** The empirical observation of the signs used to encode information and their distinction from each other and from background noise (ej. the alphabet of a book).
- ✚ **Syntactic layer:** The rules and principles for constructing sentences in natural or artificial languages (ej. syntactic of the language of a book).
- ✚ **Semantic layer:** The rules and principles for constructing meaning out of syntactic structures. Semantics refers to the meaning of information (ej. ways for interpreting a text in a book).
- ✚ **Pragmatic layer:** The rules and structures for constructing larger language structures that fulfill specific purposes in human communication. Pragmatics refers to the use of information (ej. the book is a novel, is a technical documentation, etc.).
- ✚ **Social world layer:** The world that is socially constructed through the use of language structures at the pragmatic level of semiotics, e.g., contracts, law, culture (ej. the book is a gift).

- **Inputs and outputs:** N/A

# COBIT5: Enabling Information - Examples

## Life Cycle Stage Description

Plan	Consider overall business requirements—through defined stakeholder value proposals, business strategy and objectives, business model, and corresponding sourcing strategy—to plan management of supplier information (identification, collection, declaration, classification, storage, disposal, etc.). For example: Supplier information will be collected by the procurement department and stored in the supplier management system.
Design	Design the supplier information elements: carrier, media, access channel, code language, type, currency, retention period, contingency and use contexts, etc. For example: Business has designed a common integrated automated supplier system that requires suppliers to input their information in a specified standard format directly on an online system.
Build/acquire	Build/acquire the supplier information elements (supplier database, supplier management system, payment methods, etc.). For example: Business has set up a project management team to acquire and implement a new sourcing software application or an e-invoicing module. In the case of integrated systems with the supplier systems, the supplier's ISMS may be reviewed at this time.
Use/operate: store, share, use	<p>Consider/utilize supplier information to perform the business sourcing activities, such as:</p> <ul style="list-style-type: none"> <li>- Ranking suppliers</li> <li>- Selecting suppliers based on set criteria</li> <li>- Pay suppliers—debit/credit</li> <li>- Update (delete, add and maintain) supplier information</li> </ul> <p>For example: Analytics over suppliers—through consolidating supplier network information relative to total purchases the business has identified an opportunity to negotiate supplier price reductions.</p>
Monitor	<p>Continuously check and evaluate/assess the elements of the supplier information to ensure continuous alignment with business sourcing and overall strategy. These elements include, for example:</p> <ul style="list-style-type: none"> <li>- Carrier (soft copy, hard copy)</li> </ul>

- Media
- Access channel
- Code language
- Type
- Currency
- Retention period
- Contingency
- Use contexts

For example: Business has decided to not accept supplier information in hard copy, effective with the next business cycle.

Dispose

Dispose of the information, as identified during the supplier information design, taking into account the regulatory and business retention requirements. For example: Business requires disposal of supplier records that are over 10 years old (retention period determined in the design phase).

Figure 12: Example Information Life Cycle for Supplier Information

## Summarize

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- **COBIT5:** A Business Framework for the Governance and Management of Enterprise IT:
  - **Framework**
  - **Enablers Guides**
  - **Professional Guides**
- **Five Principles:**
  1. Meeting Stakeholder Needs: create value for their stakeholders by maintaining a balance between the realization of benefits and the optimization of risk and use of resources
  2. Covering the Enterprise End-To-End: COBIT 5 integrates seamlessly in any governance system.
  3. Applying a Single Integrated Framework: It aligns with other latest relevant standards and frameworks (ITIL, ISO, PMBOK, etc.); even, all the knowledge previously dispersed over different ISACA frameworks (VAL IT, Risk IT, BMIS).
  4. Enabling a Holistic Approach: seven categories of enablers (Appendix G).

## 5. Separating Governance & Management: ej. EDM – APO/BAI/DSS/MEA.

### • Seven Enablers:

1. Principles, policies and frameworks
2. Processes
3. Organizational structures
4. Culture, ethics and behavior
5. Information
6. Services, infrastructure and applications
7. People, skills and competencies

Enabler	How Can This Enabler Help to Address the Issue?
Principles, Policies and Frameworks	<p>Providing rules/guidance in fraud prevention and detection includes:</p> <ul style="list-style-type: none"> <li>- Regulatory compliance policy</li> <li>- Data protection policy</li> <li>- Internal control framework</li> <li>- Information security principles and policy</li> <li>- Business continuity and disaster recovery policy</li> <li>- Fraud risk policy</li> </ul>
Processes	<p>A number of governance and management processes (from <i>COBIT 5: Enabling Processes</i>) are relevant in the context of fraud prevention and detection and can be used to define a set of management practices</p>

	<p>capable of dealing with this issue:</p> <ul style="list-style-type: none"> <li>- EDM03 Ensure risk optimization.</li> <li>- APO12 Manage risk.</li> <li>- APO13 Manage security.</li> <li>- BAI03 Manage solutions identification and build.</li> <li>- BAI08 Manage knowledge.</li> <li>- BAI09 Manage assets.</li> <li>- DSS05 Manage security services.</li> <li>- MEA01 Monitor, evaluate and assess performance and conformance.</li> </ul>
Organizational Structures	<p>Key responsibility to overcome this issue lies with:</p> <ul style="list-style-type: none"> <li>- CFO</li> <li>- Legal representation</li> <li>- Chief information security officer (CISO)</li> <li>- Information security steering committee</li> <li>- Information security manager</li> <li>- Risk function</li> <li>- CIO</li> <li>- Business process owner</li> </ul> <p>Other related functions can include:</p> <ul style="list-style-type: none"> <li>- Head development</li> <li>- Head IT operations</li> </ul>
Culture, Ethics and Behavior	<p>The following behaviors are important for detecting fraud efficiently:</p> <ul style="list-style-type: none"> <li>- People respect the importance of information security policies and principles.</li> <li>- Continuous Improvement' is promoted and executed.</li> <li>- Positive behavior towards raising issues or negative outcomes</li> </ul>
Information	<p>A number of information items are essential for detecting fraud given the velocity of modifying information:</p> <ul style="list-style-type: none"> <li>- Transaction data</li> <li>- Client information</li> <li>- Insights in fraud patterns using camera images</li> <li>- Information released by regulators and local authorities</li> </ul>

Services,  
Infrastructure  
and  
Applications

People, Skills  
and  
Competencies

- Insights in trends from specialist interest groups or analysts
- Information security and system configuration documentation

A number of services and tools (usually to be provided by the IT function) are relevant to efficiently prevent and detect fraud:

- Fraud detection systems
- Other security measures
- Continuous stream query processing

Technical skills are required to set up the required security and perform the required fraud detection. Analytical skills are required to perceive fraud trends.

Figure 13: Illustrative Set of Enablers for Fraud Detection

## References/Resources

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### ISACA

- <https://www.isaca.org/Pages/default.aspx>

### COBIT5

- <https://cobitonline.isaca.org/>

### ITIL

- <https://www.axelos.com/best-practice-solutions/itil/what-is-itil>

### ISO

- <https://www.iso.org/about-us.html>





# Thank you