



CGEIT[®] ITEM DEVELOPMENT GUIDE



CGEIT ITEM DEVELOPMENT GUIDE

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CGEIT ITEM DEVELOPMENT GUIDE

PURPOSE OF THE CGEIT ITEM DEVELOPMENT GUIDE

The purpose of the CGEIT Item Development Guide (Guide) is to provide assistance to item writers in their efforts to develop items for the CGEIT exam. This Guide explains the structure of CGEIT exam questions and will assist item writers in becoming more skilled in writing items.

As you read through this Guide, please pay particular attention to the item writing principles. Applying these principles will greatly enhance the chances of your items being accepted.

CGEIT EXAM STRUCTURE

ISACA and the CGEIT Certification Committee developed the CGEIT Job Practice. The purpose was to identify the domains as well as the tasks being performed and knowledge required by professionals involved with the governance of an enterprise's information technology (IT). This job practice serves as the blueprint for the CGEIT exam. Questions must be written to test a candidate's knowledge of this content as defined by the CGEIT Job Practice (see Appendix A, "CGEIT Job Practice").

WRITING QUALITY ITEMS

The first thing to consider when writing an item is its target audience, or the CGEIT exam candidate. An item must be developed to test the knowledge of an IT professional with 5 years of IT governance experience and one (1) year experience in Domain 1 influencing overall organizational structure, policy, and processes.

The CGEIT Certification Committee describes a qualifying CGEIT to have the ability to:

- Develop frameworks, policy, and the enterprise plan (doesn't simply execute them)
- Demonstrate awareness of how IT governance fits within the enterprise
- Align IT with corporate governance
- Integrate solutions—can see and function in inter-relationships
- Steer the enterprise from a technological perspective
- Understand how an enterprise gains value through the use of IT
- Use IT in governing the business direction
- Report on a model (doesn't simply contribute to the model)
- Recognize the concept of business alignment

As critical it is for an item writer to understand the knowledge level of the CGEIT candidate it is equally critical for an item writer to remember that IT governance is a global profession. Individual perceptions and experiences might not reflect the more global position or circumstance. Since the examination and CGEIT items will be developed for the international community, this will require you, the item writer, to be somewhat flexible when determining a globally accepted practice.

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MULTIPLE-CHOICE ITEMS

The CGEIT exam will consist of a variety of multiple-choice items. The multiple-choice item is the most commonly used type of test question in certification exams.

Multiple-choice items consist of a stem and four possible options.

Item Stem:

The item stem is the introductory statement or question that describes a situation or circumstance related to the knowledge being assessed. Item stems can be written in the form of an incomplete statement as well as in question form.

Item Options:

The options complete the introductory statement or answer the question and consist of one correct answer (key) and three incorrect answers or distractors.

Key:

The key must reflect current practice. In some cases the key will be the only correct choice, while in other cases the key will be deemed to be the BEST choice when considered against the other choices provided.

Distractors:

Distractors are the incorrect options but should be plausible or possible correct answers to candidates who are not knowledgeable enough to choose the key.

STEPS TO WRITING ITEMS

STEP 1 Select a topic within the CGEIT Job Practice. Items should be written to test knowledge necessary to perform a specific task. Items should focus on a single topic or knowledge statement. Items written from a knowledge statement will most likely result in higher quality, practically-based questions. Refer to Appendix A “CGEIT Job Practice” for a list of the task and related knowledge statements.

Once a topic is chosen, follow the steps listed below. While writing your item, please refer to the Item Writing Principles for further guidance and review your item using the Item Development Checklist found in Appendix B.

STEP 2 Write the item stem and keyable answer (Answer A).

STEP 3 Develop plausible distractors. The distractors should not be made up words or phrases. Distractors should appear to be correct choices to an inexperienced professional. The development of quality distractors is usually the most difficult task for an item writer. If you have difficulty with this part of item development, consult with your colleagues. Also think about what an inexperienced IT professional might think the correct answer would be. These incorrect experiences make for the best distractors.

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STEP 4 Include a thorough explanation of why the keyable answer is correct as well as why each distractor is not a correct choice. It is not acceptable to simply state that the distractors are incorrect.

STEP 5 Include any and all reference sources. Refer to the ISACA web site for applicable references – <http://www.isaca.org/knowledge-center>.

STEP 6 Review the item using the Item Development Checklist found in Appendix B.

STEP 7 Have a peer or colleague review and critique the item.

GENERAL ITEM WRITING PRINCIPLES

DOs:

1. Write the stem in the positive tone. Negatively written items will be automatically returned to the item writer for rewrite.
2. Test only one testing concept or knowledge statement per item. Knowledge statements were developed for this purpose. For a listing of knowledge statements, refer to Appendix A, “CGEIT Job Practice”.
3. Ensure that the stem and all options are compatible with each other. For example, if your stem reads, “Which of the following controls will BEST...”, then all options must be controls.
4. Keep the stem and options as short as possible by avoiding the use of unnecessary text or jargon. Do not attempt to teach the candidate a concept or theory by providing too much information before asking the question. Remember, this is an exam, not a classroom.
5. Include common words or phrases in the item stem rather than in the key and distractors.
6. Write all options the same approximate length and format. A good test taker with very little knowledge or experience in IT will select the option that is either the shortest or the longest in length and will most likely choose the correct answer.
7. Write options that are grammatically consistent with the item stem and maintain a parallel grammatical format. For example if the key begins with a verb ending with “ing”, then all distractors must begin with a verb ending with “ing”.
8. Use only professionally acceptable or technical terminology in the item stem and options

DON'Ts:

1. Avoid using a key word or phrase in the item key that appears in the stem. Experienced test takers will look for clues such as this that often identify the key.
2. The use of words such as “frequently”, “often”, “common”, or “rarely” introduce subjectivity into the item and will not be accepted. If an item is subjective, it can be argued that more than one option is keyable. Subjectivity is the most common reason why items are returned to the item writer and not tested on exams.
3. The use of terms in the stem such as “always”, “never”, or “all” are not acceptable since very little is absolute and thus it makes it easier for candidates to eliminate distractors.
4. Terms such as “least”, “not” or “except” are negative and require a candidate to choose an incorrect or least preferred choice, rather than a correct or preferred choice. Negatively phrased test questions do not test well and will not be accepted.

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5. Avoid the use of gender pronouns such as he, she, his, or her.
6. Items with options “all of the above” or “none of the above” will be returned to the item writer. Good test takers know that these types of options are very rarely correct and do not make good distractors.
7. Items testing knowledge regarding vendor specific products will be returned to the item writer as ISACA does not endorse any vendor products.
8. Avoid testing subjective concepts such as the following:
 - a. Specific international or local laws and regulations.
 - b. Specific information regarding cultural or industry issues that do not apply globally and across all industries.
 - c. Specific roles and responsibilities within your organization.

Remember that the CGEIT exam is administered globally and across all industries and the concepts tested must be accepted and recognized practice globally and in all industries.

ITEM EXAMPLES

Please note that the item examples appearing in this Guide have been taken from other exam study sources and are included here only as examples of exam item format (not content) to help you construct your CGEIT items.

Items can either be direct questions, incomplete statements or scenario questions.

Direct question:

Stem: Which of the following would be included in an IT strategic plan?

Options:

- A. Analysis of future business objectives
- B. Specifications for planned hardware purchases
- C. Target dates for development projects
- D. Annual budgetary targets for the IT department

Note that the stem is in the form of a question.

Incomplete statement:

Stem: IT governance ensures that an organization aligns its IT strategy with

Options:

- A. enterprise objectives.
- B. IT objectives.
- C. audit objectives.
- D. control objectives.

Note that the responses for this item are followed by a period, as the response serves to complete the sentence started in the stem.

It is wise to draft an item first as a direct question, and then revise it to an incomplete sentence if this offers smoother, less repetitive wording.

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SCENARIO QUESTIONS

There are a number of considerations when writing scenario questions.

This type of item consists of introductory information (or the scenario) for the items to follow.

- There should be a set of two-to-five items that pertain to this introductory information.
- The introductory material must be related to a particular field, be relevant and practical, and it must contain all the information necessary for the candidate to draw the correct conclusion – do not force the candidate to make assumptions.
- The associated items should be in some sort of sequence and follow a logical progression.
- Each item should be independent of the other items so that missing one item does not cause missing another item of the set. Care should be taken to ensure that one item does not point to the key of another item.
- New information can not be introduced in any of the associated items. All information necessary to answer the question must be in the scenario or introductory information.

The best scenarios are written on real-life situations faced on the job. Also, the more subjective concepts such as regulations and roles and responsibilities are good to test within a scenario since you can explain the specifics requirements of the regulation or the organization's reporting structure in the introductory paragraph(s).

RUBRICING

All items must be assigned a rubric. The rubric indicates which CGEIT task and knowledge statement the item most closely refers to. Each rubric consists of a 2 to 3-digit task statement number AND a 2 to 3-digit knowledge statement number. The rubrics are indicated before each task and knowledge statement. Please refer to Appendix A—CGEIT Job Practice when rubricing an item.

ITEM SUBMISSION AND REVIEW PROCESS

All subject matter experts that have completed the *CGEIT Item Writing Application* will receive periodic emails (item writing campaigns) communicating the task and knowledge statements within the CGEIT job practice that are requested by the CGEIT Certification Committee. Item writing campaigns will also include deadlines as to when items are to be submitted for review.

Items must be submitted to cgeititems@isaca.org. All items **MUST** be submitted in English using the form located in Appendix C – Item Construction Form. All fields within the Item Construction Form must be complete. If fields are left blank, your item will be returned without review.

An initial review will be performed by an ISACA representative to ensure completeness and compliance with the item writing principles. Items that are judged to be flawed in any significant way will be sent back to the item writer with appropriate and constructive feedback. Items accepted by the ISACA representative will be forwarded to either the CGEIT Test

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Enhancement Subcommittee (TES) to be considered for inclusion in the exam item pool or the CGEIT Quality Assurance Team (QAT) for possible inclusion in the CGEIT review materials.

Once reviewed by either volunteer group, the item will be accepted or returned. If returned by either the TES or QAT, the item will be returned to the writer, including appropriate and constructive feedback. If accepted, the item will become the property of ISACA and the item writer will receive honorarium payment. ISACA awards an honorarium of US \$50 for items accepted by the TES or QAT along with 2 CPE credit hours. If an item is written in an area of need and accepted by the TES or QAT the honorarium is US\$100.

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Appendix A

CGEIT Job Practice

NOTE: The highlighted task and knowledge statements tend to be subjective content making them difficult to write globally accepted questions with only one answer. We encourage item writers to develop scenario questions to test these subjective areas. Scenario questions allow the item writer to include subjective information and specifics in the introductory paragraphs so no assumptions need to be made to answer the question. For example, when testing roles and responsibilities, an organization chart and specific roles and responsibilities can be defined in the scenario. Multiple questions can then be written to test the information included in the scenario.

Domain 1—IT Governance Framework: Define, establish and maintain an IT governance framework (leadership, organizational structures and processes) to: ensure alignment with enterprise governance; control the business information and information technology environment through the implementation of good practices; and assure compliance with external requirements.

Task Statements:

Develop, or be part of the development of, an IT governance framework that includes the following responsibilities and tasks:

- 1.1 Define the requirements and objectives for, and drive the establishment of, IT governance in an enterprise, considering values, philosophy, management style, IT awareness, organization, standards and policies.
- 1.2 Ensure that an IT governance framework exists and is based on a comprehensive and repeatable IT process and control model that is aligned with the enterprise governance framework.
- 1.3 Establish appropriate management governance structures, such as an enterprise investment committee, IT strategy committee, IT steering committee, technology council, IT architecture review board, business needs committee and IT audit committee.
- 1.4 Ensure that the enterprise and IT governance frameworks enable the enterprise to achieve optimal value for the enterprise.
- 1.5 Confirm that the IT governance framework ensures compliance with applicable external requirements and ethical statements that are aligned with, and confirm delivery of, the enterprise's goals, strategies and objectives.
- 1.6 Obtain independent assurance that IT conforms to relevant external requirements; contractual terms; organizational policies, plans and procedures; generally accepted practices; and the effective and efficient practice of IT.
- 1.7 Apply IT best practices to enable the business to achieve optimal value from implementation of IT services and IT-enabled business solutions.
- 1.8 Ensure the establishment of a framework for IT governance monitoring (considering cost/benefits analyses of controls, return on investment for continuous monitoring, etc.), an approach to track all IT governance issues and remedial actions to closure, and a lessons-learned process.

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- 1.9 Ensure that appropriate roles, responsibilities and accountabilities are established and enforced for information requirements, data and system ownership, IT processes, and benefits and value realization.
- 1.10 Report IT governance status and issues, and effect transparency in reporting.
- 1.11 Establish a communications plan to continuously market, communicate and reinforce the need and value of IT governance across the enterprise.

Knowledge Statements:

- 1.1 Knowledge of how to affect organizational, process and cultural change by translating objectives into actions
- 1.2 Knowledge of the components of an enterprise governance framework
- 1.3 Knowledge of how to direct, manage and report on IT governance activities at the enterprise level and collaborating with enterprise governance as appropriate
- 1.4 Knowledge of business drivers for the use of IT industry practices, standards and frameworks.
- 1.5 Knowledge of how accountability is established for information requirements, data and system ownership, and IT processes
- 1.6 Knowledge of COBIT, Val IT and related products.
- 1.7 Knowledge of the scope, objective and benefits of IT practices, standards and frameworks, such as ITIL, CMMI, PRINCE2, PMBOK, TOGAF, ISO 17799/27000 series, and the IT Balanced Scorecard
- 1.8 Knowledge of scope, objective and benefits of continuous process improvement, such as Six Sigma, Total Quality Management and the Balanced Scorecard
- 1.9 Knowledge of IT governance implementation practices
- 1.10 Knowledge of how IT practices, standards and frameworks relate to, and complement, each other
- 1.11 Knowledge of the process of selection, customization and integration of IT practices, standards and frameworks, as relevant for the enterprise
- 1.12 Knowledge of how to align the application of IT practices, standards and frameworks to the needs and culture of the enterprise
- 1.13 Knowledge of assurance methodologies and techniques
- 1.14 Knowledge of marketing and communications methods and techniques
- 1.15 Knowledge of how to utilize mission, vision, guiding principles, critical success factors, etc., in setting the direction for IT governance across the enterprise
- 1.16 Knowledge of the impact of cultural changes and the need to choose the correct time and way to achieve the desirable results, considering different but possible scenarios

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Domain 2—Strategic Alignment: Ensure that IT enables and supports the achievement of business objectives through the integration of IT strategic plans with business strategic plans and the alignment of IT services with enterprise operations to optimize business processes.

Task Statements:

Develop, or be part of the development of, an enterprise's IT strategy that includes the following responsibilities and tasks:

- 2.1 Define and implement a strategic planning framework, requiring and facilitating collaborative and integrated business and IT management planning.
- 2.2 Actively support/promote and participate in IT management planning by employing best practice enterprise architecture (EA) frameworks.
- 2.3 Ensure that appropriate policies and procedures are in place, understood and followed to support IT and business strategic alignment.
- 2.4 Identify and take action on barriers to strategic alignment.
- 2.5 Ensure that effective communication and engagement exists between business and IT management regarding shared strategic initiatives and performance.
- 2.6 Ensure business and IT goals cascade down through the enterprise into clear roles, responsibilities and actions.
- 2.7 Assist senior management by aligning IT initiatives with business objectives and facilitating prioritization of business strategies that optimally achieve business objectives.
- 2.8 Identify and monitor the interdependencies of strategic initiatives and their impact on value delivery and risk.
- 2.9 Ensure that the strategic planning process is adequately documented, transparent and meets stakeholder needs.
- 2.10 Maintain and update the IT management plans, artifacts and standards for the enterprise.
- 2.11 Monitor, evaluate and report on the effectiveness of the alignment of IT and enterprise strategic initiatives.
- 2.12 Monitor and assess current and future technologies and provide advice on the costs, risks and opportunities that they bring.

Knowledge Statements:

- 2.1 Knowledge of the enterprise's mission, objectives, culture, economic and business environment, key business processes, and how they are supported by IT
- 2.2 Knowledge of how an enterprise's structure, operational frameworks, systems, resources, internal and external stakeholder relationships, and culture can impact the enterprise's ability to achieve sufficient strategic alignment
- 2.3 Knowledge of the strategic planning process and techniques
- 2.4 Knowledge of enterprise architecture components, principles and frameworks, and their implementation
- 2.5 Knowledge of how to map strategy to specific, enabling business processes and IT dashboard/balanced scorecard principles to monitor key goal and performance metrics
- 2.6 Knowledge of benchmarking planned vs. actual strategic performance
- 2.7 Knowledge of scope, objectives and benefits of investment programs
- 2.8 Knowledge of portfolio, program and project management techniques

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- 2.9 Knowledge of linking enterprise business strategy with related best practices and selling the value proposition to key stakeholders
- 2.10 Knowledge of how procedures, monitoring and updating of the IT strategy are impacted and implemented by changes in business strategy
- 2.11 Knowledge of current and future technology direction to support the business by creation of technological infrastructure plan and architecture board that sets and manages what technology can deliver to achieve business objectives

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Domain 3—Value Delivery: Ensure that IT and the business fulfill their value management responsibilities: IT-enabled business investments achieve the benefits as promised and deliver measurable business value both individually and collectively, that required capabilities (solutions and services) are delivered on-time and within budget, and that IT services and other IT assets continue to contribute to business value.

Task Statements:

Develop, or be part of the development of, a systematic, analytical and continuous value governance process that includes the following responsibilities and tasks:

- 3.1 Ensure that business takes ownership and accountability for business cases, business transformation, organizational change, business process operation and benefit realization for all IT-enabled business investments.
- 3.2 Ensure that all IT-enabled investments are managed as a portfolio of investments.
- 3.3 Ensure that all IT-enabled investments are managed as programs and include the full scope of activities and expenditures that are required to achieve business value.
- 3.4 Ensure that all IT-enabled investments are managed through their full economic life cycle so that value is optimized.
- 3.5 Recognize that different categories of investments need to be evaluated and managed differently.
- 3.6 Ensure that all IT solutions are developed and maintained effectively and efficiently through the development life cycle to deliver the required capabilities.
- 3.7 Ensure that all IT services are delivered to the business with the right service levels.
- 3.8 Ensure that IT services enable the business to create the required business value using assets (people, applications, infrastructure and information) to deliver the appropriate capabilities at optimal cost.
- 3.9 Define and monitor appropriate metrics for the measurement of solution and service delivery against objectives and for the measurement of benefits realized, and respond to changes and deviations.
- 3.10 Engage all stakeholders and assign appropriate accountability for delivery of business and IT capabilities and realization of benefits.
- 3.11 Ensure that IT investments, solutions and services are aligned with the enterprise strategies and architecture.

Knowledge Statements:

- 3.1 Knowledge of value governance practices
- 3.2 Knowledge of IT investment management practices and processes
- 3.3 Knowledge of business case development and monitoring, portfolio program and project management practices
- 3.4 Knowledge of managing and reporting the status of IT investments
- 3.5 Knowledge of IT investment processes, funding models and investment life cycle management, including benefits management
- 3.6 Knowledge of cost optimization
- 3.7 Knowledge of solution delivery processes and practices (systems development life cycle)
- 3.8 Knowledge of service delivery practices and processes
- 3.9 Knowledge of enterprise, information and IT architecture techniques and frameworks

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Domain 4—Risk Management: Ensure that appropriate frameworks exist and are aligned with relevant standards to identify, assess, mitigate, manage, communicate and monitor IT-related business risks as an integral part of an enterprise's governance environment.

Task Statements:

Develop, enhance and maintain a systematic, analytical and continuous enterprise risk management process across the enterprise that includes the following responsibilities and tasks:

- 4.1 Ensure that IT risk identification, assessment, mitigation, management, communication and monitoring strategies are integrated into business strategic and tactical planning processes.
- 4.2 Align the IT risk management processes with the enterprise business risk management framework (where this exists).
- 4.3 Ensure a consistent application of the risk management framework across the enterprise IT environment.
- 4.4 Ensure that risk assessment and management is included throughout the information life cycle.
- 4.5 Define risk management strategies, and prioritize responses to identified risks to maintain risk levels within the appetite of the enterprise.
- 4.6 Ensure that risk management strategies are adopted to mitigate risk and to manage to acceptable residual risk levels.
- 4.7 Implement timely reporting on risk events and responses to appropriate levels of management (including the use of key risk indicators, as appropriate).
- 4.8 Establish monitoring processes and practices to ensure the completeness and effectiveness of established risk management processes.

Knowledge Statements:

- 4.1 Knowledge of the context of risk management at the strategic, portfolio, program, project and operations level
- 4.2 Knowledge of risk management frameworks and standards (e.g., COSO ERM, MoR, OCTAVE, ISO31000, AS/NZ 4360:2004)
- 4.3 Knowledge of the enterprise's business objectives
- 4.4 Knowledge of the enterprise's risk management framework (including the risk classification model used to support risk identification and assessment)
- 4.5 Knowledge of the enterprise's external business environment
- 4.6 Knowledge of the enterprise's internal environment
- 4.7 Knowledge of how the enterprise defines and executes business strategies to achieve its goals and objectives
- 4.8 Knowledge of how to map business process down to IT process to understand dependencies and root cause
- 4.9 Knowledge of the enterprise's risk appetite
- 4.10 Knowledge of the enterprise's IT resources (applications, information, infrastructure and people)
- 4.11 Knowledge of the threats, vulnerabilities and opportunities inherent in the enterprise's use of IT
- 4.12 Knowledge of the types of business risks, exposures and threats that can be addressed using IT resources

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- 4.13 Knowledge of quantitative and qualitative methods to determine sensitivity, criticality and maturity of IT-related contributions to business success
- 4.14 Knowledge of quantitative and qualitative methods (including enterprise-specific descriptive measurement scales, IT-related asset valuation methods and probability, use of both audit and stream data types, and impact and loss expectancy models/techniques) to assess IT risks
- 4.15 Knowledge of methods to discover more rare, but high-impact risk types, such as process analysis techniques
- 4.16 Knowledge of risk mitigation strategies in relation to the use of IT in the enterprise
- 4.17 Knowledge of risk management techniques that can be applied to affect enterprise risk management, particularly as they relate to IT-related activities
- 4.18 Knowledge of methods to effectively manage and report the status of identified risks

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Domain 5—Resource Management: Ensure that IT has sufficient, competent and capable resources to execute current and future strategic objectives and keep up with business demands by optimizing the investment, use and allocation of IT assets.

Task Statements:

Develop, or assist in the development of systematic and continuous resource planning, management and evaluation processes that include the following responsibilities and tasks:

- 5.1 Ensure that the requirements for trained resources with the requisite skill sets are understood and are assessed appropriately.
- 5.2 Ensure the existence of appropriate policies for the training and development of all staff to help meet enterprise requirements and personal/professional growth.
- 5.3 Develop and facilitate the maintenance of systems to record the resources available and potentially available to the enterprise.
- 5.4 Undertake gap analyses to determine shortfalls against requirements to ensure that the business and IT resources (people, application, information, infrastructure) are able to meet strategic objectives.
- 5.5 Effectively and efficiently ensure clear, consistent and enforceable human resource allocation to investment programs and services.
- 5.6 Ensure that sourcing strategies are based on the effective use of existing resources and the identification of those that need be acquired.
- 5.7 Ensure that people, hardware, software and infrastructure procurement policies exist that effectively and efficiently fulfill resource requirements.
- 5.8 Through periodic assessment of the training requirements for human resources, ensure that sufficient, competent and capable human resources are available to execute the current and future strategic objectives and that they are kept up to date with constantly evolving technology.
- 5.9 Ensure integration of resource identification, classification, allocation and periodic evaluation processes into the business's strategic and tactical planning and operations.
- 5.10 Ensure that the IT infrastructure is standardized; economies of scale are achieved, wherever possible; and interoperability exists, where required, to support the agility needs of the enterprise.
- 5.11 Ensure that IT assets are managed and protected through their economic life cycle and are aligned with current and long-term business operations requirements to support cost-effective achievement of business objectives.

Knowledge Statements:

- 5.1 Knowledge of corporate business and IT resources (people, applications, infrastructure and information)
- 5.2 Knowledge of an enterprise's business and IT resources and acquisition processes (people, application, software, hardware, facilities and outsourced services)
- 5.3 Knowledge of the skill and technology mixes required to meet the enterprise's business objectives
- 5.4 Knowledge of human resource management processes and optimization practices needed to meet established technical and business proficiency, competency, and capability requirements

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- 5.5 Knowledge of outsourcing and offshoring processes that may be employed to meet investment program and operation and service level agreements
- 5.6 Knowledge of the strengths and weaknesses inherent within the enterprise's human and technical business and IT resources and how to identify trainers with the requisite skill sets to maintain work competency and proficiency
- 5.7 Knowledge of enterprise business strategies
- 5.8 Knowledge of business and IT resource planning and strategic and tactical planning methods, techniques and processes
- 5.9 Knowledge of quantitative and qualitative methods used to determine and evaluate business and IT resource utilization and the availability of these resources to effectively meet enterprise objectives
- 5.10 Knowledge of methods for monitoring and reporting on business and IT resource performance

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Domain 6—Performance Measurement: Ensure that business-supporting IT goals/objectives and measures are established in collaboration with key stakeholders and that measurable targets are set, monitored and evaluated.

Task Statements:

Develop, or assist in the development of, systematic and continuous performance management and evaluation processes that include the following responsibilities and tasks:

- 6.1 Establish the enterprise's strategic IT objectives, with the board of directors and executive leadership team, categorized into four areas: financial (business contribution), customer (user orientation), internal process (operational excellence), learning and growth (future orientation), or whatever areas are appropriate for the enterprise.
- 6.2 Establish outcome and performance measures, supported by metrics, and targets that assess progress toward the achievement of enterprise and IT objectives and the business strategy.
- 6.3 Evaluate IT process performance, track IT investment portfolio performance, and measure IT service delivery through the use of outcome measures and performance drivers.
- 6.4 Use maturity models and other assessment techniques to evaluate and report on the health of the enterprise's performance level.
- 6.5 Use continuous performance measurement to identify, prioritize, initiate and manage improvement initiatives and/or appropriate management action.
- 6.6 Report relevant portfolio, program and IT performance to relevant stakeholders in an appropriate, timely and accurate manner.

Knowledge Statements:

- 6.1 Knowledge of the enterprise's business objectives
- 6.2 Knowledge of strategy mapping and balanced scorecard principles
- 6.3 Knowledge of the scope, objectives and benefits of commonly used IT maturity models, including their maturity attributes
- 6.4 Knowledge of data collection techniques for performance measurement
- 6.5 Knowledge of continuous improvement methodologies
- 6.6 Knowledge of IT governance implementation practices
- 6.7 Knowledge of characteristics of, and selection criteria for, measures and metrics
- 6.8 Knowledge of outcome measures and performance drivers
- 6.9 Knowledge of accepted practices in performance measurement (e.g., maturity models) and effective industry benchmarking techniques
- 6.10 Knowledge of tools and techniques that facilitate measurements, good communications and organizational change
- 6.11 Knowledge of automated monitoring tools and techniques
- 6.12 Knowledge of root cause analysis techniques
- 6.13 Knowledge of life cycle cost-benefit analysis techniques
- 6.14 Knowledge of evaluating and monitoring IT performance and value governance

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Appendix B

Item Development Checklist

Before submitting an item, you must be able to answer YES to all of the following questions.

1. Does the item test a CGEIT concept at the appropriate experience level of the test candidate?
2. Does the item test only one CGEIT concept?
3. Is the item clear, concise and free of unnecessary or ambiguous terms?
4. Is there enough information in the stem to allow for only one correct answer? A candidate must not be able to interpret a distractor as correct based on assumptions due to a lack of information in the stem!
5. Is there only one possible or best answer in any situation, organization or culture? Many items are returned because there is more than one possible key based on situations not addressed in the stem.
6. Are the stem and all options compatible with each other? For example: “Which of the following controls...?” All options must be controls.
7. Does the item have plausible distractors but only one correct answer?
8. Does the item avoid words or phrases in the key that already appear in the stem?
9. Does the item avoid subjective terms such as “frequently”, “often”, “common”.... in the stem and options?
10. Does the item avoid absolute terms such as “all”, “never”, “always”... in the stem and options?
11. Does the item avoid such terms as “least”, “not”, “except”...?

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Appendix C

ITEM CONSTRUCTION FORM

Name:

ISACA ID:

Task Statement #: *(Refer to CGEIT Job Practice)*

Knowledge Statement #: *(Refer to CGEIT Job Practice)*

Testing Concept: (One sentence describing what is being tested)

Stem:

Options:

- A. (Always make A the correct answer)
- B.
- C.
- D.

Key: A

Justification:

- A. (Why is A the correct answer)
- B. (Why is B incorrect)
- C. (Why is C incorrect)
- D. (Why is D incorrect)

Reference(s): Provide references to enable independent review. Include the publication title, publication year, author and page.

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Appendix D

References

Domain 1: IT Governance Framework

References:

- IT Governance Institute, Board Briefing on IT Governance, 2nd Edition
- IT Governance Institute, *CobiT 4.1*, USA , 2007
 - ME 4 Provide IT Governance
 - ME 3 Ensure Compliance with external requirements
 - Appendix II – Mapping IT Processes to IT Governance Focus Areas, etc.
 - Figure 12 – Generic Maturity Model
 - PO 4 Define IT processes, organization and relationships
 - PO 6 Communicate management aims and direction
- IT Governance Institute, IT Governance Implementation Guide Using CobiT and Val IT , 2nd edition
- IT Governance Institute, IT Governance Domain Practices and Competencies
 - IT Alignment: Who is In Charge?
 - Optimising Value Creation from IT Investments
 - Information Risks: Who's Business Are They?
 - Governance of Outsourcing
 - Measuring and Demonstrating the Value of IT
- IT Governance Institute, *Enterprise Value: Governance of IT Investments - The Val IT Framework*, USA, 2006
 - VG 1 - Ensure informed and committed leadership
 - VG 2 - Define and implement processes
 - VG 3 – Define roles and responsibilities
 - VG 4 – Ensure appropriate and accepted accountability
 - VG 6 Establish reporting requirements
 - VG 7 establish organizational structures
- IT Governance Institute, *Enterprise Value: Governance of IT Investments - The Business Case*. USA, 2006
- IT Governance Institute, *Enterprise Value: Governance of IT Investments - The ING Case Study*, USA, 2006
- International Federation of Accountants, *Enterprise Governance - Getting the Balance Right*, February 2004, www.ifac.org
- Corporate Governance, *Corporate Governance Defined*, USA , 2005, www.corpgov.net/library/definitions
- ITIL, UK Office of Government Commerce (OGC) IT Infrastructure Library
- CMM, Capability Maturity Model for Software, Software Engineering Institute (SEI)
- Balanced Scorecard by Robert S. Kaplan and David P. Norton

Domain 2: Strategic Alignment

References:

- Board Briefing on IT Governance, 2nd Edition
- IT Governance Institute, *CobiT 4.1*, USA , 2007 , www.itgi.org
 - ME 4 Provide IT Governance
 - Appendix II - Mapping
 - Figure 12
- IT Governance Domain Practices and Competencies (series of documents)
- Capability Maturity Model® Integration (CMMI®) Version 1.2, Carnegie Mellon University

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- The Six Sigma Handbook: The Complete Guide for Greenbelts, Blackbelts, and Managers at All Levels, Revised and Expanded Edition
- References on “Enterprise Architecture”

Domain 3: Value Delivery

References:

- Board Briefing on IT Governance, 2nd Edition
- ValIT as referenced above
- IT Governance Institute, *CobiT 4.1*, USA , 2007 , www.itgi.org
 - Processes as referenced above
 - Appendix II - Mapping
 - Figure 12
- IT Governance Domain Practices and Competencies (series of documents)

Domain 4: Risk Management

References:

- Board Briefing on IT Governance, 2nd Edition
- IT Governance Institute, *CobiT 4.1*, USA , 2007 , www.itgi.org
 - ME 4 Provide IT Governance
 - Appendix II - Mapping
 - Figure 12
- IT Governance Domain Practices and Competencies (series of documents)
- Australian New Zealand Standard 4360 v 2004
- COSO
- Information Risks: Whose Business are They Document (references in that document as well)
- OGC Risk Context (Successful Delivery Toolkit)
- MIT Center for Information Systems Research (CISR) Research Briefings, IV (2C), July 2004.

Domain 5: Resource Management

References:

- Board Briefing on IT Governance, 2nd Edition
- IT Governance Institute, *CobiT 4.1*, USA , 2007 , www.itgi.org
 - ME 4 Provide IT Governance
 - Appendix II - Mapping
 - Figure 12
- IT Governance Domain Practices and Competencies (series of documents)
- PRINCE2, Office of Government Commerce
- Resource Management in OGSA, Global Grid Forum

Domain 6: Performance Measurement

References

- Board Briefing on IT Governance, 2nd Edition
- IT Governance Institute, *CobiT 4.1*, USA , 2007 , www.itgi.org
 - ME 4 Provide IT Governance
 - Appendix II - Mapping IT Processes to IT Governance Focus Areas

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- Maturity Attribute Table (Figure 15)
- IT Governance Domain Practices and Competencies (series of documents), in particular:
- Measuring and Demonstrating the Value of IT
- IT Governance Implementation Guide
- CMMI
- *The Balanced Scorecard: Translating Strategy Into Action*. Drs. Kaplan and Norton. Boston, MA: HBS Press, 1996.
- *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*. Drs. Kaplan and Norton. Boston, MA: HBS Press, 2001.
- *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*. Drs. Kaplan and Norton. Boston, MA: HBS Press, 2004.
- *Alignment: Using the Balanced Scorecard to Create Corporate Synergies*. Drs. Kaplan and Norton. Boston, MA: HBS Press, 2006.
- *Strategies for Information Technology Governance*. Wim Van Grembergen, Editor. Hershey, PA and London: Idea Group Publishing, 2004