

## IT Competency Map

Competency in IT required for the entry level CA•IT derives from knowledge and experience. The level of knowledge required varies according to topic, for example, you may be required to understand databases, but you will not be expected to analyze usage or to advise on changes to the system.

There are three levels of knowledge: (1) Core, (2) Metric, and (3) Advisory:

**Core** represents the knowledge appropriate to understand, identify, and describe the underlying component(s).

**Metric** uses the core knowledge to assess, determine, analyze, and measure a real-world situation.

**Advisory** takes the metric knowledge to advise and conclude with sponsors and stakeholders.

Because Information Technology has no unique issues related to a particular jurisdiction, the CICA and the AICPA created a joint task force to develop this Competency Map so that CA•ITs and CPA/CITPs (Certified Information Technology Professionals) will share a common Competency Map.

Members of the Joint Task Force to Develop the IT Competency Map are:

**CICA Members:**

**J.E. Boritz, FCA**

University of Waterloo, Waterloo

**M. Soong, CA**

Gartner Consulting, Toronto

**R. Reimer, CA**

PricewaterhouseCoopers LLP, Winnipeg

**AICPA members:**

**K. Askelson, CPA, CIA, CITP**

J.C. Penney, Texas

**P. Friedlander, CPA, CITP**

Friedlander Advisory Services, Florida

**M.R. MacBain, CITP.CPA**

Naples, Florida

## 1) Business Information Technology Strategic Planning

### 1a) Enterprise or business strategy and vision

- i) Understand the business focus of the entity
- ii) Understand the position of the entity within its industry
- iii) Understand the relationship between IT strategy and business strategy
- iv) Understand the operational dynamics that influence the business
- v) Understand the business processes as they relate to the strategic plan
- vi) Understand the internal and external business drivers that impact Information Technology

### 1b) Current IT environment

- i) Determine the current status of the entity's use of Information Technology to support its business processes
- ii) Assess IT risk and opportunity
- iii) Assess stakeholder attitude

### 1c) Future IT environment

- i) Assess external environment
- ii) Assess the future status of the entity's system
- iii) Assess the future IT strategy in the context of the entity's business strategy

### 1d) IT strategic plan

- i) Assess IT management's goals and objectives
- ii) Assess overall feasibility and scope
- iii) Identify business constraints
- iv) Assess action plans and timelines
- v) Identify the elements of transition
- vi) Determine process for creating and executing the IT strategic plan
- vii) Determine critical success factors
- viii) Determine appropriate measurements for the IT strategy
- ix) Assess the alignment of the IT and business strategies
- x) Conclude by obtaining sponsor and stakeholder approval

### 1e) Ongoing governance and outcomes

- i) Assess framework for IT governance
- ii) Measure outcomes

## 2) Enterprise Information Technology Architecture

### 2a) IT architecture

- i) Describe infrastructure – the physical and hardware components of a system
- ii) Assess software – the programs and operating software of a system
- iii) Assess people – the personnel involved in the operation and use of a system
- iv) Assess procedures – the programmed and manual procedures involved in the operation of a system
- v) Assess data – the information used and supported by a system

### 2b) Current capacities

- i) Analyze infrastructure
- ii) Assess software
- iii) Assess people
- iv) Assess procedures
- v) Assess data

### 2c) Entity practices

- i) Assess organizational structure
- ii) Assess IT governance
- iii) Assess job functions and descriptions
- iv) Assess system reliability
- v) Assess training and development
- vi) Assess sourcing of IT architecture components

### 2d) Protocols, standards, enabling technologies and application development environment

- i) Understand protocols and standards
- ii) Understand enabling technologies
- iii) Understand application development environment

### 2e) Database architecture

- i) Understand database design
- ii) Understand conceptual level of schema
- iii) Understand impact of using a database
- iv) Understand types of data relationships
- v) Understand implementation models
- vi) Understand data definition and data manipulation

## 3) Business Process Enablement

### 3a) Stakeholders and requirements

- i) Identify key business system stakeholders
- ii) Assess their business system functionality and performance requirements

### 3b) The entity's business

- i) Understand business models
- ii) Assess the effectiveness of the entity's business processes

### 3c) Business processes - risks and opportunities

- i) Assess business processes in the context of business strategy
- ii) Identify and assess barriers and enablers
- iii) Advise approaches to barriers and enablers
- iv) Assess procedures to manage changes to business processes

### 3d) Impact of IT on the entity's business models and processes

- i) Assess the impact of Internet-commerce issues
- ii) Assess the impact of applications of Internet-commerce
- iii) Assess the impact of enterprise systems

### 3e) Business processes

- i) Assess business process
- ii) Advise management on appropriate solutions

## **4) System Development, Acquisition, Implementation, and Project Management**

### **4a) Technology enabled business opportunities**

- i) Identify high level business requirements
- ii) Assess preliminary solution search
- iii) Assess the business case

### **4b) System acquisition process for commercially available solutions or service providers**

- i) Assess business requirements
- ii) Assess vendor selection process
- iii) Assess product gap analysis

### **4c) Systems development life cycle (SDLC) methods and associated tools and techniques**

- i) Understand alternate SDLC models
- ii) Assess business requirements
- iii) Assess high-level conceptual design and related investment and risks
- iv) Assess system design specification
- v) Advise on optimal development approach
- vi) Understand system modeling tools and techniques

### **4d) Systems implementation processes and techniques**

- i) Assess system implementation plan
- ii) Assess acceptance testing approach
- iii) Assess data conversion approach
- iv) Assess project benefits, resources (financial and people) consumed, adequacy of acquisition, development and deployment, and opportunities for improvement

### **4e) Project management**

- i) Assess the project initiation
- ii) Assess the project plan
- iii) Assess the ongoing execution of the project plan
- iv) Assess controls over the project
- v) Assess completion of the project
- vi) Understand project management tools and techniques

## 5) Information Systems Management

### 5a) IT organization

- i) Assess IT policies, procedures and methodologies that support the entity's strategic plan
- ii) Assess IT organization related to system components
- iii) Assess IT human resource policies
- iv) Advise changes to IT organization and policies

### 5b) IT operations, effectiveness, and efficiency

- i) Understand the infrastructure and its relationship to applications and user requirements
- ii) Assess human resources management
- iii) Assess processes used to maintain organizational efficiencies
- iv) Assess service provider activities

### 5c) Asset management

- i) Understand contracts and licenses and understand compliance issues
- ii) Understand data ownership, security and reliability issues
- iii) Understand intellectual property issues
- iv) Understand international issues related to cross-border transportation and storage of data
- v) Assess provider documentation
- vi) Assess creation and maintenance of user documentation
- vii) Assess on-going training and end-user support
- viii) Analyze asset life cycle, including routine technology planning and IT asset management processes

### 5d) Change control and problem management

- i) Understand change control techniques
- ii) Assess problem management

### 5e) Performance and financial control over IT resources

- i) Identify and assess performance metrics and related monitoring processes
- ii) Assess controls over IT costs

## 6) System Reliability

### 6a) Principles of a reliable system

- i) Understand the Security principle and its related risks
- ii) Understand the Availability principle and its related risks
- iii) Understand the Processing Integrity principle and its related risks

### 6b) Controls that provide for system reliability

- i) Understand the controls that provide for system security
- ii) Understand the controls that provide for system availability
- iii) Understand the controls that provide for system processing integrity

### 6c) On-line privacy and confidentiality issues

- i) Understand confidentiality and the protection of the privacy of personal information
- ii) Understand intellectual property protection issues
- iii) Understand current legislation

### 6d) Seal and assurance programs

- i) Understand the value of independent verification of assertions or subject matter
- ii) Understand the work standards that govern assurance programs
- iii) Understand assurance reports and restrictions on seal posting

### 6e) Reliability of the entity's systems and system reliability criteria

- i) Assess the definition and documentation of the entity's policies, objectives, and standards
- ii) Assess the communication of the entity's defined policies, objectives, and standards to authorized users and personnel responsible for implementing them
- iii) Assess the procedures the entity utilizes to achieve and maintain its objectives in accordance with its established policies and standards and to protect the system against potential risks
- iv) Assess the entity's monitoring activities of the system as well as environmental and technological changes to enable the entity to identify potential impairments to system reliability and to take appropriate action to achieve and maintain compliance with its defined objectives, policies, and standards