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Application Guide for CPIT(SA) Certified Professional IT (Systems Architect)

Document Code: SAAPP_2009V1.0

Version: 1.0

11 December 2009

Certified Professional of IT

Table of Contents

1	CERTIFIED PROFESSIONAL OF IT	3
2	APPLICATION	3
2.1	General Eligibility Requirement	3
2.2	Application Procedure	4
2.3	Submission of Application	4
2.4	Credential and Experience Verification	5
2.5	Submission of Essay	5
2.6	Interview	5
2.7	Interview Cancellation, Rescheduling or Absence	5
2.8	Result Notification	6
2.9	Appeal Process	6
3	ASSESSMENT	6
3.1	Overview of the Assessment	6
3.2	Assessment Part 1 – Essay	7
3.3	Assessment Part II – Interview	10
3.4	Overall Assessment	11
4	NOTES TO APPLICANT	11
4.1	Intellectual Property Rights and Privacy of Information	11
4.2	Reference Documents	12
4.3	Contact Information	12
Appendix 1:	IT Systems Architect Competency Activity Grouping (SACAG)	13

1 CERTIFIED PROFESSIONAL OF IT

The Hong Kong Institute for IT Professional Certification (HKITPC) pioneers the first IT professional certification scheme in Hong Kong with the synergy and recognition of IT professionals, academics and employers. By granting a credible credential with a rigorous experience and knowledge assessment, the Certified Professional of IT (CPIT) scheme strives to maintain and promote the profession's expertise, to inspire IT professionals' personal professional development and ultimately to foster the development and competitiveness of the Hong Kong IT Industry.

Originating from an industry-led certification system development project, the HKITPC advances the identification of fundamental competency elements for various specializations in the IT profession whilst values regional application knowledge and experience. The professional competency definitions are also designed to be seamlessly synchronized with the respective frameworks of the Education Bureau's Qualification Framework.

A CPIT must satisfy all education and experience requirements for the CPIT scheme and demonstrates an acceptable level of understanding and competency in a specific IT specialization in the assessment. To maintain the CPIT credential, substantiation of professional commitment to the IT profession by satisfying the CPIT Continuing Professional Development Program is a requisite.

2 APPLICATION

2.1 General Eligibility Requirement

A CPIT applicant should meet the following requirements:

1.1.1 Professional work experience

- Posses adequate work experience in IT from the date of application submission;
- Posses the relevant professional experience satisfying the respective specialization requirements as stipulated in the specific application guides and
- Posses at least one year of IT experience obtained with local exposure.

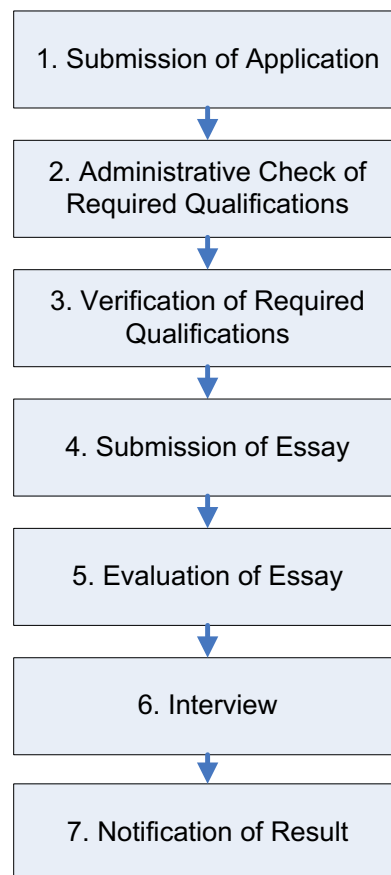
1.1.2 Supporting Entities

- An application must receive support in writing from three references who are either peers, superiors and/or clients of the applicant and are familiar with the applicant's accomplishments and character;
- At least one reference must be a CPIT or with an equivalent professional qualification granted by other IT related professional bodies recognized by the HKITPC Certification Board and
- The references should not be relatives of the applicant.

2.2 Application Procedure

The CPIT scheme is **supervised by the HKITPC Certification Board (CB)** and administered by the HKITPC Secretariat Office (Secretariat Office). To apply for the CPIT, the applicant is required to follow the procedure as stated in Chart 1 below.

Chart 1: Application Procedure for CPIT



2.3 Submission of Application

An application will only be accepted for processing when a complete application package is submitted in person to the Secretariat Office. The application package must contain:

- a. A duly signed Application Form completed according to the stated instructions;
- b. Payment of application fee and
- c. Photocopies of supporting documents in A4 size for all submitted academic/professional qualifications and working experiences (i.e. academic and/or professional credentials, reference letters, etc.)

2.4 Credential and Experience Verification

For verification purpose, the applicant should present the original documents to the Secretariat Office for verification at the time of application submission and provide contact information of the references.

2.5 Submission of Essay

The applicant deemed satisfying both the general and specialization requirements for the respective CPIT credential will be requested by email to submit an essay. The essay should be prepared with reference to section **Assessment Part I – Essay** and submitted within the deadline specified in the email.

2.6 Interview

If the submitted essay is found to be satisfactory by an Assessment Panel, the applicant will be invited to attend an interview with compliance guidelines as described in section **Assessment Part II – Interview**.

The interview invitation will be sent by email. The Secretariat Office will offer 3 tentative interview schedules for the applicant's selection. The applicant is obliged to attend the interview at one of the schedules provided.

2.7 Interview Cancellation, Rescheduling or Absence

If the applicant knows he/she cannot attend the scheduled interview due to unexpected circumstances (such as medical emergency), he/she must inform the Secretariat Office as soon as possible. If the applicant is absent from the scheduled interview due to unexpected circumstances, he/she must inform the Secretariat Office within 3 business days after the scheduled date. The applicant is allowed to reschedule the interview ONCE and in both cases, he/she must produce justification and supporting documentation for failing to attend the interview as previously scheduled.

Applicant failing to comply with the aforementioned guideline will risk termination of the assessment process and forfeiture of the full application fee. Payment of a \$1,750 re-interview fee will be levied to reactivate the assessment process.

The HKITPC reserves the authority to review, accept and reject the claimed justification for absence. If the submitted explanation is not reckoned to be extenuating, the applicant will be required to pay the re-interview fee.

The applicant is allowed a maximum of 6 months to reschedule and attend the interview.

2.8 Result Notification

The notification letter indicating the result of the application will be sent to the applicant by post.

2.9 Appeal Process

If the applicant has questions with the assessment result, he/she can request a general review from the Secretariat Office. On request, the Executive Officer of the Secretariat Office will be the initial contact for:

- Confirming the status of assessment result;
- Seeking clarification on the certification disapproval (e.g. incomplete application, the required academic qualification and/or work experience is not met, the essay assessment is below the eligible level for an interview or the interview assessment is below the eligible level for a certification);
- Understanding the appropriate course of actions with respect to the assessment result and status (e.g. the validity of filing and appeal and how to submit an appeal request);
- Finding out the requirements for an appeal and
- Confirming submission of an appeal.

The Appeal Process, to be conducted by the Appeal Panel, is the only method to review all decisions regarding the application. The detailed Appeal Process can be found online at the HKITPC website.

3 ASSESSMENT

3.1 Overview of the Assessment

As part of the certification requirement, the applicant of CPIT(SA) is required to submit an essay describing two IT systems/projects which the applicant has served as the lead System Architect (SA) as well as to attend an interview.

The essay is intended to serve primarily as an indicator of the applicant's knowledge and experience in performing systems architecting activities based on the IT Systems Architecting Competency Activity Groups (SACAG) as shown in Appendix 1. It also helps to demonstrate the applicant's written communication capability which is considered a key personal competency required for a successful IT Systems Architect.

The essay will be reviewed by an **Assessment Panel (AP)** consisting of 2 assessors (namely the Primary Assessor and the Secondary Assessor). Upon a favorable review, the applicant will be invited to attend an interview with the AP. The interview will be in the form of a presentation and a Question and Answer (Q&A) session. The purpose of the interview serves to:

- validate claims of competency in the essay;

- provide an opportunity for the applicant to further elaborate his/her ITSA knowledge and skills and
- further assess the applicant's personal competency with particular regard to his/her verbal communication and presentation skills.

Both the essay and the interview are important in the final assessment as it is imperative for a successful systems architect to articulate his/her thoughts and ideas in both formats.

A holistic assessment of the applicant's competency will be made based on the SACAG as demonstrated through the essay and the interview. If the applicant has strong reasons to believe his/her experience in systems architect competency can be fully illustrated in a single system/project, he/she should make a special application with sufficient justification at the time of submitting his/her application.

Minimum academic qualifications and professional work experience required for the application are tabulated in Table 1 below:

Table 1: Academic and Professional Work Experience Requirements of CPIT(SA)

Academic Qualification	Experience related to IT Systems Architect
Degree holder	Minimum eight years with at least two projects of high project complexity*
Non-degree holder	Minimum twelve years with at least two projects of high project complexity*

*High Complexity of a program herein denotes and involves a multitude of attributes including:

- The scope and overall cost of the program (cost herein denoted HK\$ 3 million and above)
- The number of stakeholders and parties involved
- The technical and technological elements deployed
- The complexity of the systems architecting functionalities and their associated financial and operational risks.

3.2 Assessment Part 1 – Essay

3.1.1 Essay Requirements

The applicant is required to submit an essay written in either English or Chinese of about 3,000 words. In the essay, the applicant is expected to present his/her project management competency in at least THREE (3) competency groups (Units of Competency) from the Systems Architecture Competency Activity Grouping (SACAG) by describing work and involvements in TWO (2) IT systems/projects in which he/she played the role of the lead systems architect. The two systems/projects must be completed within the past 8 years, counting from the date of application submission. It is also required that the IT systems architecture presented for the assessment

should have been implemented or is being implemented in real life. On paper IT systems architecture that fulfills hypothetical requirements are not qualified for the assessment.

3.1.2 Essay Content

In the essay, the applicant should describe the complexity of the two systems/projects, which can be reflected in the following dimensions and terms:

3.1.2.1 Physical dimension

- Project duration in months for architecting and implementing the system;
- Resource effort in person-day;
- Project direct costs in HKD, RMB or USD;
- System impacts or ROI (Return On Investment) such as direct or indirect cost savings;
- Units of installed software/hardware;
- Number of deployed locations/countries and
- Life expectancy of the resulting system (e.g. it is designed to serve the company's needs for the next 10 years).

3.1.2.2 Organizational/User dimension

- Involvement of multiple user groups and
- Designed to serve a large variety of users.

3.1.2.3 Technology dimension

- Number of architectural components and interfaces;
- Complexity of systems interfaces;
- Number of technology platforms and
- Utilization of leading-edge or emerging technologies.

The requirement of submitting two IT systems/projects aims to allow the applicant to fully elaborate his/her depth and breadth of his/her systems architecture competencies. It also helps to demonstrate the applicant's experience and capability in performing the systems architecting activities repeatedly and methodologically. The applicant can choose to describe the two systems/projects in equal weight (length) or alternatively put more emphasis in one versus the other. The illustration of the applicant's competency in a particular competency group can be from either or both systems/projects. The focus of the assessment will be on the competencies exhibited. The essay should clearly describe the systems architecting activities involved with an aim to demonstrate the applicant's competencies in these competency groups.

While the SACAG has defined eight (8) competency groups (or Units of Competency), it is not expected that the applicant will possess or a particular

IT system/project will require all eight groups of competency. For the purpose of certification, the applicant should demonstrate sufficient competencies in any three competency groups. Any three of the eight groups are acceptable. However, it is important for the applicant to illustrate in the essay the followings: (a) which three competency groups he/she has chosen to describe, (b) why such competencies are important for the systems/projects submitted and (c) how they are logically related in the development of the systems architectures.

3.1.3 Essay Format and Guidelines

- The essay must contain a least, but not limit to, the following:
 - a. A title page
 - Name of the applicant;
 - Date of the application submission;
 - Title of the systems/projects (e.g., the application of systems architecting in relation to the submitted projects);
 - When the systems/projects were architected and implemented;
 - Project owners (Receiving Organization name, i.e., user and contact person name, e-mails and telephone numbers) and/or direct funding sources and
 - Delivery Organization names (i.e. applicant's company), contact person names, e-mails and telephone numbers.
 - b. Table of contents.
 - c. Business objectives, requirements and intended benefits from the system to be architected;
 - d. System stakeholders;
 - e. Architecture vision and constraints;
 - f. System complexity (physical, organizational and technology dimensions mentioned earlier);
 - g. Responsibilities and roles of the applicant in the project;
 - h. Detailed description of the processes, methodologies and activities in coming up to the systems architecture which can illustrate the applicant's competency in the competency groups in the Systems Architect Competency Activity Grouping (SACAG).
- Its length should be about 3,000 words in English or Chinese.
- The essays should be submitted as softcopy using the supplementary form provided. MS Word (.doc) and Adobe Acrobat (.pdf) are the only acceptable file formats. The essay can also be submitted as hardcopy.
- Flowcharts, graphs, tables, charts, graphics, pictures, icons and images may be included or embedded in the essay and will be assessed, but not counted as words. The file size of each document, with embedded elements, must not be larger than 10M bytes.
- Flash, animation, audio, video, JavaScript and plug-in program of any kind must not be included in the softcopy and such media will not be assessed.
- Hyperlink may not be checked or reviewed by the assessor. The contents

- of hyperlink included in the essay will not be assessed.
- Reference publications with relevant title, name and page number presented in prologue, epilogue, footnotes and biography published by the applicant will not be checked, word-counted, reviewed or assessed. The applicant may directly quote the relevant contents in the body text of the essay for easy reference and such cases will be assessed accordingly and
- Contents repeated in the same essay will not be word-counted or scored more than the unique contents.

3.3 Assessment Part II – Interview

If the submitted essay has passed the review of the AP, the applicant will be invited to attend an interview in the form of a presentation and a Q&A session.

3.1.4 Interview Procedures and Guidelines

The applicant can select to use English, Cantonese or Putonghua to conduct the interview and such selection has to be made in the application form. The duration of the interview session will be between 1 to 2 hours. The interview venue will be held in a location approved by the CB. The dress code is formal or smart casual.

The applicant can present one or both submitted projects during the interview. The presentation format should be similar to the one usually conducted to the systems stakeholders in seeking buy-in for the systems architecture. The content of the presentation should follow a similar flow to that in the essay. The applicant should make use of the presentation to elaborate key points that cannot be easily explained in the essay. Besides the content, the AP will also evaluate the presentation based on:

- the general presentation skills;
- how and if the content is systematically and logically presented;
- the proper use of visual aids or tools to help articulate a complicated technology concept and
- the way argument was built up to seek the stakeholder's buy-in to the proposed architecture.

The presentation is expected to be between 30 and 60 minutes, followed by another 30 to 60 minutes for Q&A. The AP may raise questions during and after the presentation in order to gain more insight into the systems/projects for further evaluating the applicant's competency. The Q&A session will also serve to test the applicant's genuine understanding of particular systems architecture skills as well as his/her communication skills.

To facilitate the assessment, it is highly recommended for the applicant to submit samples of his/her work, during the interview, to demonstrate the

activities performed and the artifacts produced by the applicant. The applicant is encouraged to provide as many samples as possible.

The applicant may be asked to submit additional documents before or after the interview for clarifying and/or supporting certain areas of the systems/projects submitted. Normally, one month (from the date of notification) will be given to the applicant to gather and furnish the requested documents.

3.4 Overall Assessment

The applicant is expected to demonstrate sufficient competency in at least three of the competency groups as defined in the SACAG. The professional experience and knowledge of each competency (as exhibited through the essay and interview) will contribute 25% of the score. Each element within each competency process will be used as a reference to evaluate the applicant's skill in that particular competency group. The evaluation will be based on demonstrable results (e.g. architecture artifacts) supported by a sound methodology.

The remaining 25% of the score will be based on the overall knowledge, critical thinking and skills such as essay write-up, presentation and communications skills demonstrated during the interview.

The followings are the possible areas that the application will be evaluated against:

- Systematic, logical and critical thinking in the projects and well expressed in the essay and the interview;
- Breath and depth of knowledge and experience being demonstrated;
- The role and work of the applicant being clearly explained and distinguished from others;
- Awareness of the trends and development in other organizations and industries that have similar project;
- The value and contribution of the projects to the industry;
- A holistic view and understanding of the organization involved;
- Free from spelling, punctuation and grammatical errors and
- Layout and format of the essay and presentation.

A final assessment score, based on the essay, interview and additional documents, will be submitted to the CB for decision. The CB will normally take no more than two months to review the assessment and make a decision on the application.

4 NOTES TO APPLICANT

4.1 Intellectual Property Rights and Privacy of Information

By submitting the application, the applicant agrees to release, waive or delegate rights, including any present or future copyright, other intellectual property and authorship in any work created by the applicant contained in the essay and

described in the interview for the purpose of certification of the applied professional title. It is the applicant's duty to give notice to the Secretariat Office immediately if the applicant at any time knows or should reasonably know of any third-party claim to intellectual property presented by the applicant in the essay or interview.

The applicant should not release any private or confidential information, trade secrets of companies, clients or third-parties in the essay or interview. No score will be gained by describing any private and confidential information of companies, clients or third-parties. It is the duty and obligation of the applicant to obtain written permission for disclosing any perceivable private and confidential information from relevant companies, clients and third-parties before including as contents in the essay and the interview for the assessment.

4.2 Reference Documents

Up-to-date reference documents are available online at the HKITPC website.

4.3 Contact Information

HKITPC Secretariat Office:

Phone: (852) 2319 0900

Fax: (852) 2834 3003

Address: LG1, 78 Tat Chee Avenue, Kowloon Tong, Hong Kong

Email: hkitpc@hkitpc.org

Website: <http://www.hkitpc.org>

Appendix 1: IT Systems Architect Competency Activity Grouping (SACAG)

Competency Activity Group 1: Architecture Framework and Vision

Unit No.	Description
1	Define, prioritize and document architecture vision and principles for the organization
2	Selecting architecture design options and related architecture artifacts
3	Research, evaluate, adopt and make improvements to the relevant architecture development initiatives
4	Adopt architecture framework and develop architecture design building blocks
5	Advocate and explain the adopted architecture design methodology, its underlying principles and expected benefits
6	Establish processes to monitor and confirm the adopted architecture principles, design guidelines and resulting designs to ensure their fitness for the purpose of the organization
7	Establish the necessary processes to manage the implementation of the adopted architecture designs

Competency Activity Group 2: Business Architecture

Unit No.	Description
1	Review, analyse and document the current baseline and develop the target business architecture
2	Perform gap analysis of the current baseline against the target business architecture
3	Evaluate, develop and apply appropriate tools to capture, analyse and model various viewpoints of a business architecture
4	Define metrics and methodologies to measure business performance of applying new technologies
5	Review, design and re-engineer business processes with new technologies to improve business performance
6	Promote and explain the new business architecture to the stakeholders in the organization

Competency Activity Group 3: Data Architecture

Unit No.	Description
1	Define architecture principles for the data assets in an organization
2	Apply and develop appropriate tools to capture and model data assets into data architecture artefacts and to perform lifecycle management of the artefacts in the data architecture registry
3	Evaluate, define, and apply appropriate practices and methodologies to establish the data architecture
4	Build the data architecture from data assets
5	Develop mappings from data assets to the target data architecture
6	Enforce compliance of the enterprise data standards by project teams to implement systems

Competency Activity Group 4: Technology Architecture

Unit No.	Description
1	Define, review, and document the technology architecture baseline, standard, policy and procedure
2	Model the technology architecture using architecture building blocks by considering appropriate architecture viewpoints
3	Build, evaluate and review a target technology architecture reference model
4	Manage technology architecture life cycle
5	Define metrics for quality assurance and confirm that the business goals and objectives are met with the technology architecture

Competency Activity Group 5: Network Architecture

Unit No.	Description
1	Document the (abstracted layer) design of a network architecture
2	Define, review and validate network architecture principles
3	Perform gap analysis of the current baseline (current network architecture) against the business requirements
4	Understand, develop, and recommend network technology architecture model(s) that is/are applicable to satisfy the needs of various stakeholders
5	Define, evaluate, and apply appropriate international, national, industry, de-facto, and corporate standards for the design and construction of network architecture
6	Understand, evaluate, develop and apply appropriate tools for the modelling and analysis of various views of the network architecture
7	Perform lifecycle management of the network architecture

Competency Activity Group 6: Application Integration Architecture

Unit No.	Description
1	Perform trade-offs and recommend application integration architecture model
2	Evaluate, develop and apply appropriate resources to support application integration architecture
3	Establish standards, best practices, verification processes and guidelines
4	Establish and define requirements for necessary application monitoring and audit functions, and implement these functions on the adopted application integration architecture
5	Define and maintain the life cycle management policy for the Application Integration Architecture

Competency Activity Group 7: Software Architecture

Unit No.	Description
1	Demonstrate clear understanding of the key characteristics of various Application Software Architecture Models
2	Evaluate, perform trade-offs and recommend application software architecture models
3	Develop and maintain software development methodologies, standards, practices and procedures
4	Evaluate, perform trade-offs and recommend application software architecture models

Competency Activity Group 8: Embedded Software Architecture

Unit No.	Description
1	Demonstrate clear understanding of the key characteristics of embedded software systems
2	Evaluate, choose and adopt appropriate embedded software architecture models, tools and standards
3	Develop and formulate different options, perform necessary evaluations and trade-offs in choosing the most suitable alternative in the design and development of embedded software systems
4	Abstract and partition the embedded software system into manageable layers as well as apply the appropriate modeling techniques
5	Maintain a common library of reusable embedded software components
6	Define, implement and maintain the lifecycle management policy for the adopted embedded software architecture

Personal Competency

Unit No.	Description
1	Systematic, logical, and critical thinking in the systems/projects and well expressed in essay and presentation
2	Breadth and depth of knowledge and experience being demonstrated
3	The role and work of the applicant can be clearly explained and distinguish from others
4	Awareness in trends and development on other organization and industry that have similar systems/projects
5	The value and contribution of the systems/projects to the industry
6	Holistic view and understanding of the organization
7	Awareness in security and compliance
8	Free from spelling, punctuation and grammatical errors
9	Layout and format of the essay and presentation