

Enterprise Architecture Competency Development for Green Innovation

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- **The Architecture Mindset**
- **Learning Ecosystem**
- **EA Competency**
- **EA Capability Overview**
- **Industry EA Certification**
- **Skills Framework for ICT**
- **Learning Approaches Roadmap**

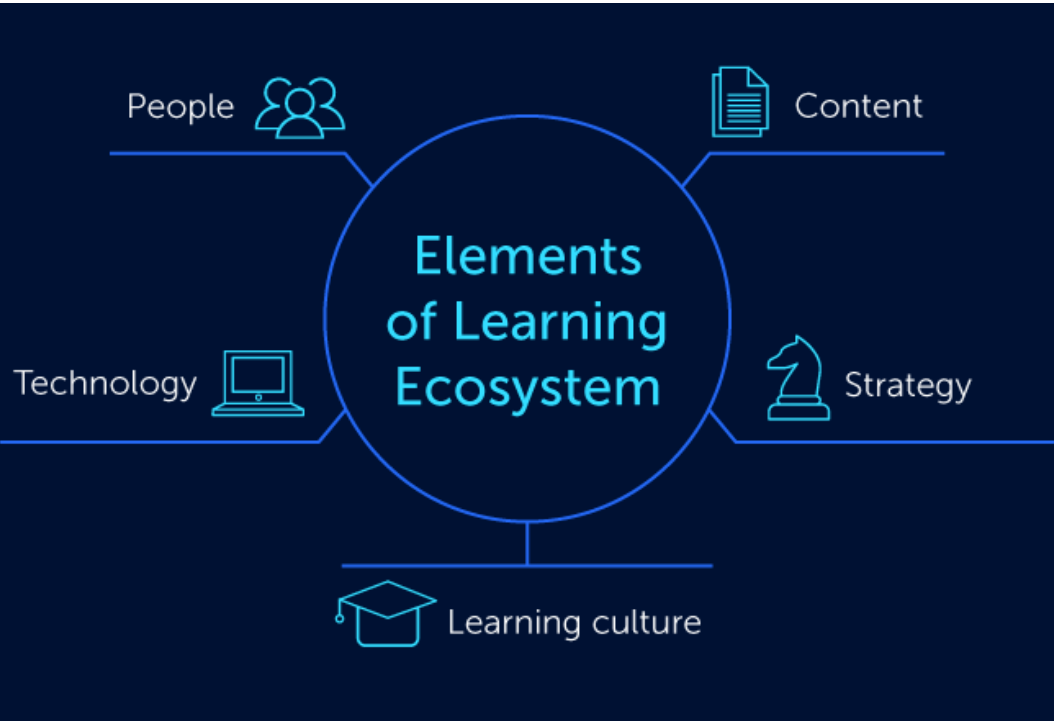
Build an architecture mindset across the organization

“In most digital-native companies, everyone is either an architect or thinks like one.” *McKinsey Digital**

Leaders with high digital aspirations need to embed that same mindset by socializing and educating the organisation on why good architecture is important and how it can impact the business.

**Oliver Bossert and Niels van der Wildt*

The Learning Ecosystem



A learning ecosystem comprise of **people, content, technology, culture, and strategy**, that exists within and outside of an organization, that has an impact on both the **formal** and **informal** learning that goes on in that organization.

STRATEGY

. Human Capital development roadmap aligned to the Organization's strategy

PEOPLE

- Individual learners
- Volunteers
- Speakers
- Facilitators
- Subject matter experts
- Staff (all areas, all levels)
- Partners
- Regulators
- Employers
- Influencers

CONTENT

- Online courses
- Place-based courses
- Conference sessions, online and offline
- Webinars
- Community interactions
- Social media interactions
- Journals and publications
- Videos
- Web pages and blogs
- Simulations
- Documents

TECHNOLOGY

- LMS and/or LXP
- CRM or AMS
- Webinar platform
- Virtual conference platform
- Community platform
- Social networks
- Search engines
- Data management
- Business intelligence
- Curation tools
- Learning record store

CULTURE

. drive engagement, promote continuous learning, and support learners how they want to develop themselves.

EA Competency & Sustainability

- The discipline of Enterprise Architecture (EA) must be embraced at every level in an organization to the point of a company-wide cultural shift.
- To equip EA Architects, EA Collaborators and EA Contributors with the knowledge and abilities of the industry best practices in the practice of Enterprise Architecture.
- Equipping with the relevant knowledge, abilities, values and attitude to develop, support and practice a sustainable and resource efficient Enterprise

Drivers for EA Competency Development:

- To equip members with the practical EA knowledge, skillsets and best practices in driving continuous digital transformation and reformation that is aligned to the sustainability practice.
- To accelerate EA adoption as part of the digital culture that will propel the realisation of a digital Enterprise.
- In alignment with IMDA's mission on increasing demand for EA talents in the areas of Business Architects, Data Architects, Software Architects, Infrastructure Architects and Solution Architects.

EA Capability Overview

EA Base Capabilities



C **Digital EA Office**
To ensure the sustainability of EA establishment

B **Digital EA Tools & Repository**
To leverage on the centralised, single source of truth in Digital EA Tool and Repository to manage the EA processes lifecycle and Artefacts management



The **TOGAF®**
Standard — Version 9.2

A **EA Competency Development**
To continuously build EA competencies for the EA team to drive Digital EA adoption



4 **Post Implementation Review**
Revisit and review the Digital EA adoption and practice to make practical enhancements to be aligned to the business.

3 **EA Implementation and Validation**
Practicing EA, building EA Value, EA Work

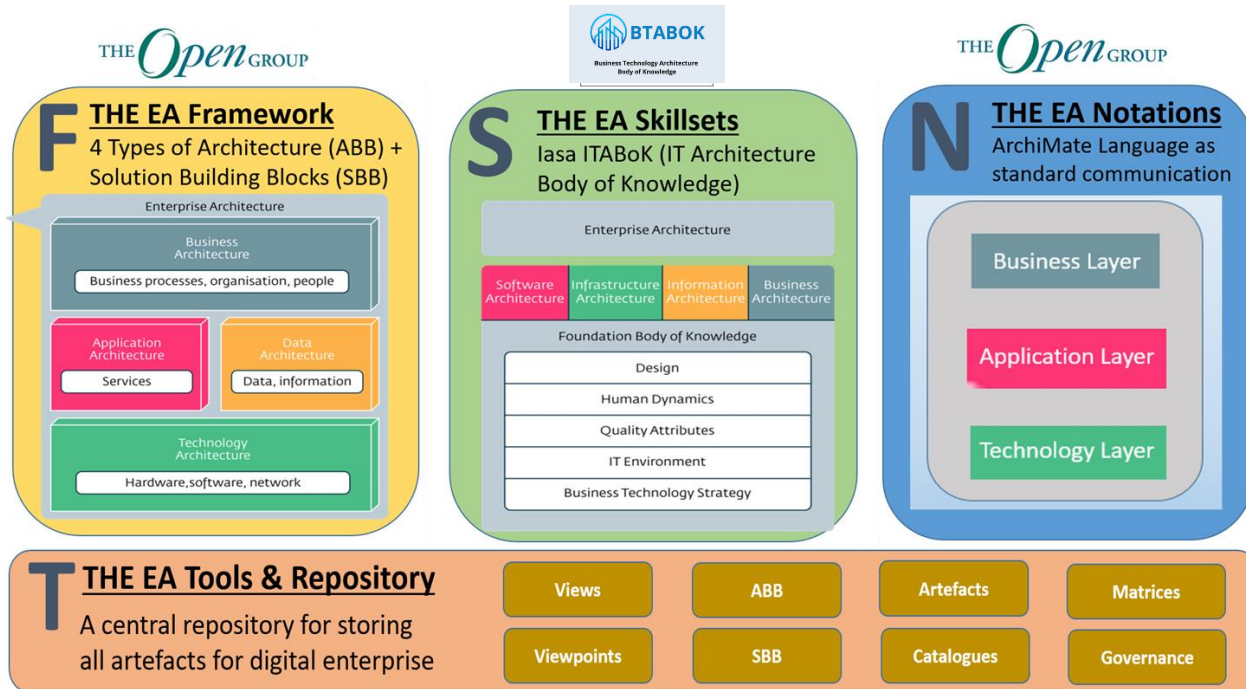
EA Practice

2 **EA Repository Setup and Configuration**
Define the Digital EA Repository Framework, Governance and Process

1 **Establishing EA Framework and Metamodel**
Build up EA capability and put in place processes, governance and interaction model for the EA function

EA Capability Overview

The Digital EA Building Blocks (F, S, N, T)



EA Competency Relevancy:



Authorised and Accredited By
Global Industry Bodies



Supported by the Government
Funding Programmes



Skill Competency Assessment &
Development



Mapped to Skills Framework for
Infocomm Technology (ICT) and
Standards



Contextualised Coaching and Work
Place Learning



Access Enterprise Architects' Network



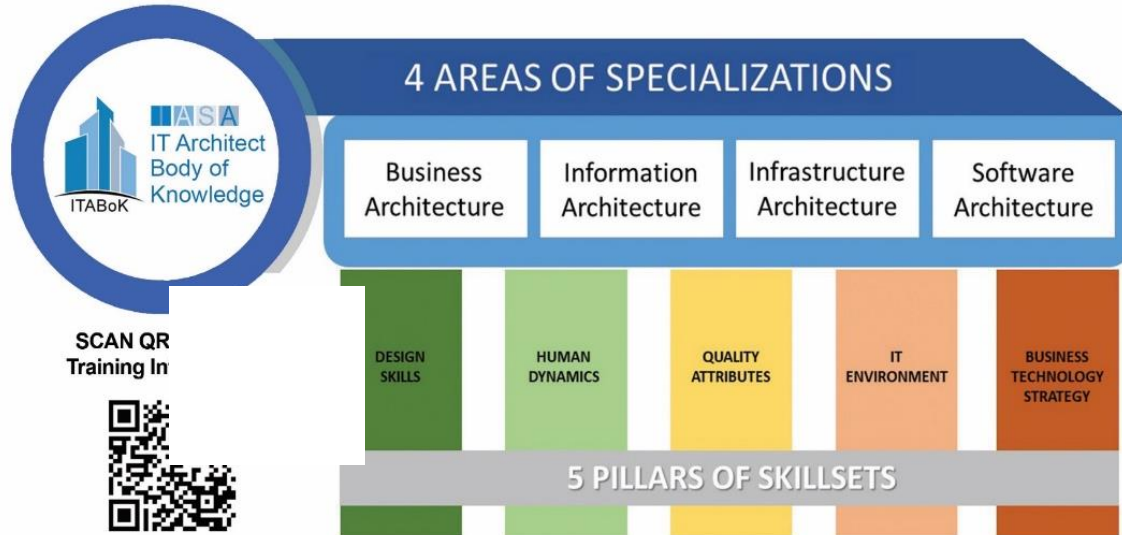
Experienced EA practitioners'
Guidance / Input



Alignment to the Enterprise Needs

IASA IT Architecture Body of Knowledge

Advocating Enterprise Architecture Best Practices, Standards, Training and Certifications



Fundamental pillars of BTABOK

DESIGN SKILLS

Requirements Modelling, Architecture Description, Methodologies and Processes, Analysis and Testing, Traceability, Views & Viewpoints...

HUMAN DYNAMICS

Managing the culture, customer relations, collaboration and negotiations, leadership, presentation...

QUALITY ATTRIBUTES

Manageability, Maintainability, Supportability, Flexibility, Performance, Reliability, Availability, Scalability...

IT ENVIRONMENT

IT Environment describes the space our solution has to be designed to operate in, internally and externally

BUSINESS TECHNOLOGY STRATEGY

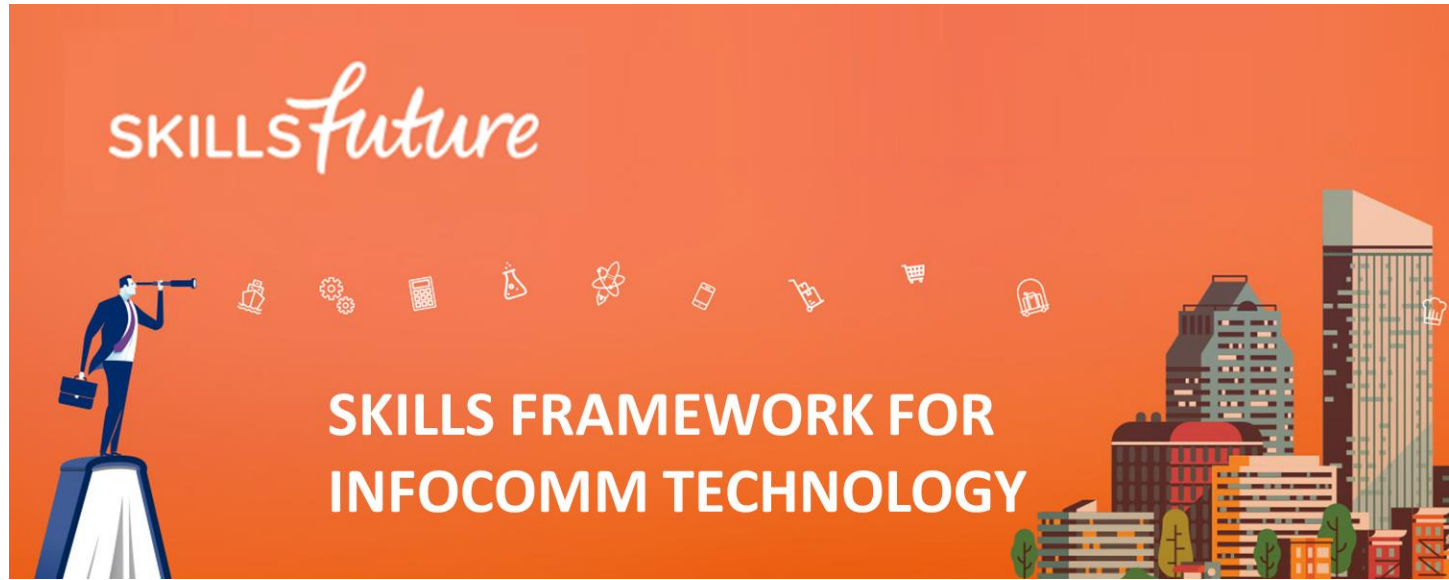
Ability to understand the business context and putting it into perspective aligning technology to the business

Industry EA Certifications

- IASA® Business IT Architecture Fundamental (BITAF)
- IASA® IT Architecture Core (AC) (CITA-F)
- IASA® Business Technology Strategy (BTS) (CITA-A)
- IASA® Specialisation (CITA-A)
 - Business Architecture
 - Infrastructure Architecture
 - Software Architecture
 - Information Architecture
 - Solution Architecture
- TOGAF® Enterprise Architecture
- ArchiMate® Foundation & Practitioner (Level 1 and 2)
- COBIT® 2019 Foundation

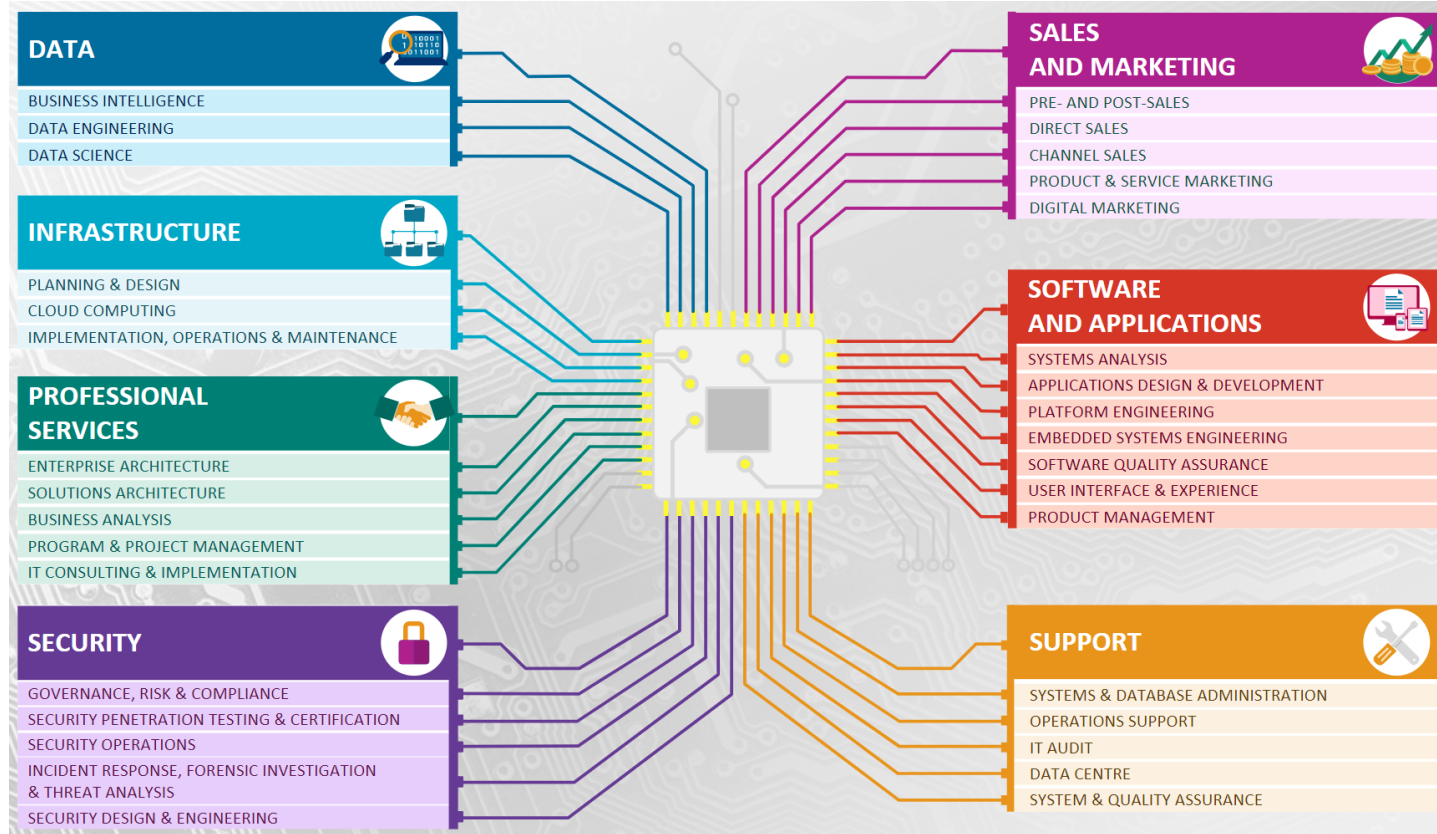


Skills Framework for ICT



<https://www.skillsfuture.sg/skills-framework/ict>

SKILLS FRAMEWORK FOR ICT



<https://www.imda.gov.sg/cwp/assets/imtalent/skills-framework-for-ict/index.html>

Navigating by Job Role

SKILLS FRAMEWORK FOR ICT

INTRODUCTION

HOW TO USE THE TOOL

MAIN VIEW

TRACKS

DATA AND ARTIFICIAL INTELLIGENCE

INFRASTRUCTURE

SOFTWARE AND APPLICATIONS

STRATEGY AND GOVERNANCE

OPERATIONS AND SUPPORT

CYBER SECURITY

SALES AND MARKETING

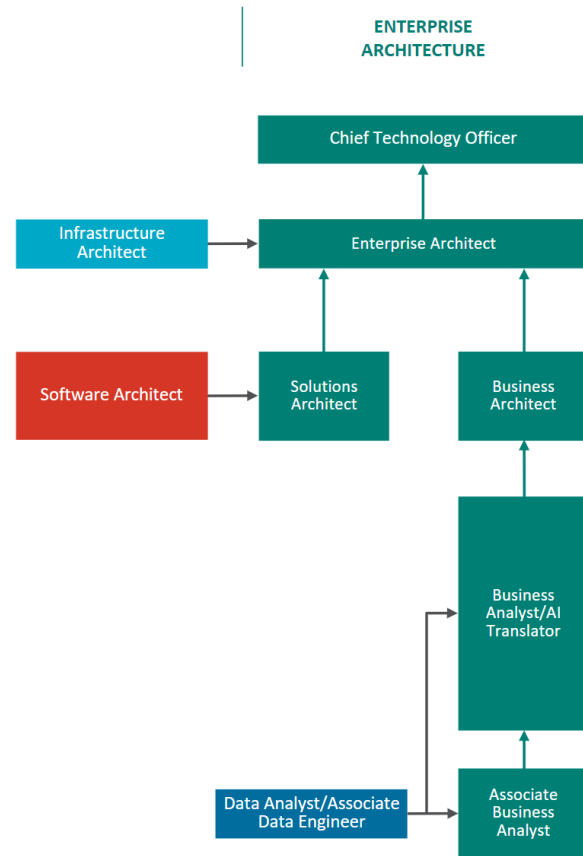
TECHNICAL SKILLS & COMPETENCIES

GENERIC SKILLS & COMPETENCIES



SKILLSfuture SG

Click on Sub-track names below to view feeder roles and next moves



→ Lateral Movement

→ Vertical Progression

Navigating by Job Role

BUSINESS ARCHITECT

Job Description

The Business Architect analyses, designs and develops roadmaps and implementation plans based on a current versus future state business architecture, and review the architecture standards for approval. He/She leads and facilitates the business architecture governance process based on the enterprise architecture governance structure, and manages exceptions to architectural standards at a business level. He assesses near-term needs to establish business priorities and aligns architectural requirements with IT strategy. He consults with clients and IT teams on business architecture solutions and provides recommendations on emerging technology to senior management.

He works in a dynamic and evolving business environment. He is knowledgeable of relevant enterprise architecture methodologies, frameworks and modelling tools. He is also familiar with organisational design frameworks and tools.

The Business Architect effectively synthesises diverse needs of the business unit, and has strong situational analysis, problem solving and decision making abilities. He possesses excellent communication skills and is able to influence key stakeholders.

Critical Work Functions and Key Tasks

[View details](#)

Click on any of the Skills and Competencies to view a detailed description

Technical Skills & Competencies	Proficiency Level	
Business Agility	4	Organisational Design 4
Business Environment Analysis	4	Partnership Management 5
Business Innovation	5	Performance Management 5
Business Needs Analysis	5	Process Improvement and Optimisation 5
Business Performance Management	4	Project Feasibility Assessment 4
Business Process Re-engineering	5	Project Management 5
Business Requirements Mapping	5	Solution Architecture 5
Business Risk Management	5	Stakeholder Management 5
Change Management	5	Strategy Implementation 4
Data Visualisation	5	Strategy Planning 4
Design Thinking Practice	4	Sustainability Management 4
Emerging Technology Synthesis	4	
Enterprise Architecture	4,5	
IT Strategy	4	
Networking	4	
Organisational Analysis	5	



Examples of skills framework

SKILLS FRAMEWORK FOR ICT

- INTRODUCTION
- HOW TO USE THE TOOL
- MAIN VIEW
- TRACKS
 - DATA AND ARTIFICIAL INTELLIGENCE
 - INFRASTRUCTURE
 - SOFTWARE AND APPLICATIONS
 - STRATEGY AND GOVERNANCE
 - OPERATIONS AND SUPPORT
 - CYBER SECURITY
 - SALES AND MARKETING
- TECHNICAL SKILLS & COMPETENCIES
- GENERIC SKILLS & COMPETENCIES


INFOCOMM MEDIA DEVELOPMENT AUTHORITY
SKILLSFuture SG

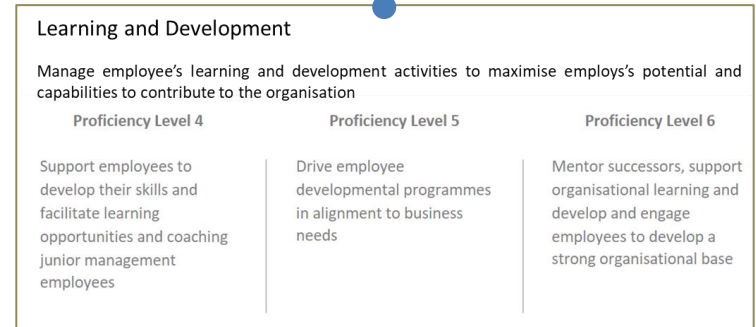
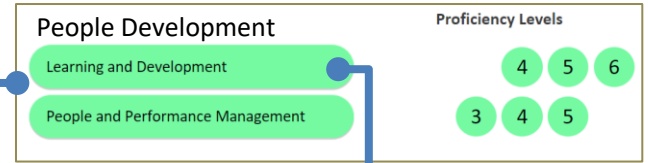
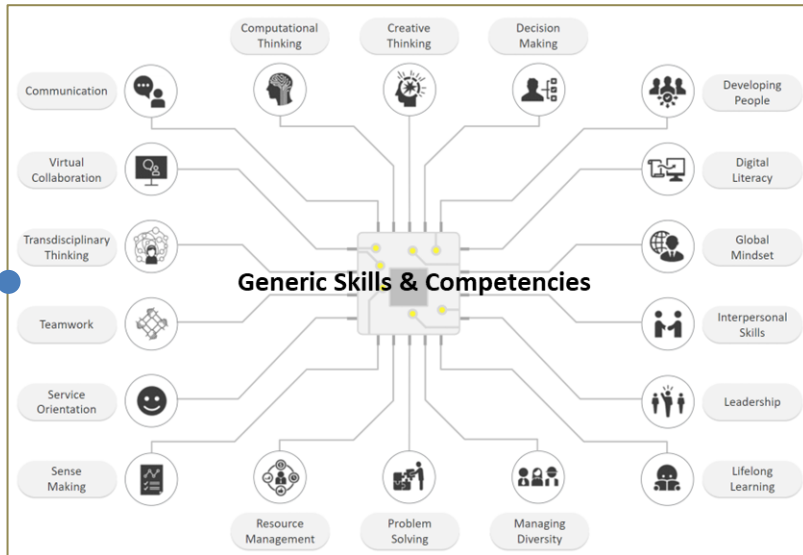


Image Source: Infocomm Media Development Authority of Singapore

A sample of the Skills Framework for ICT TSC

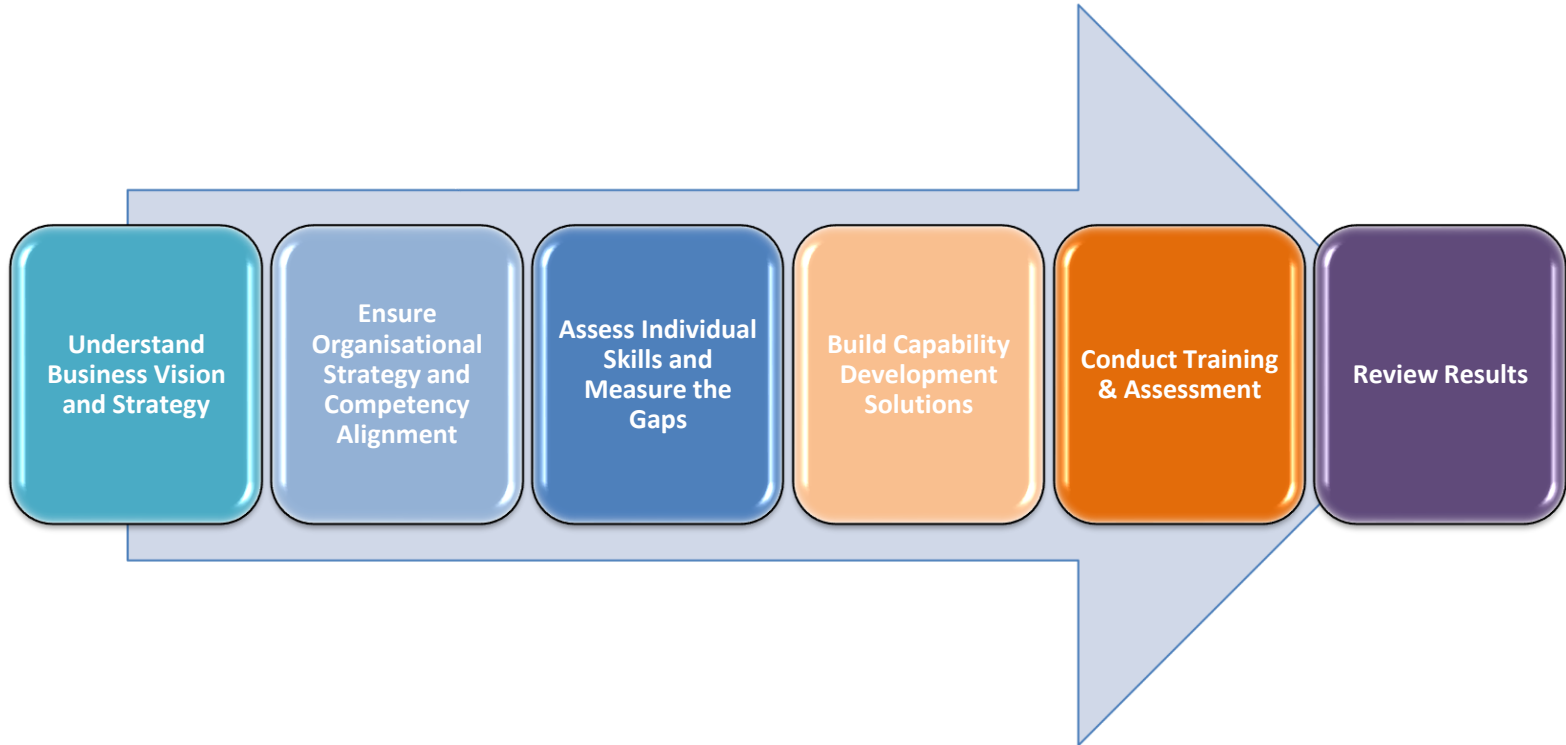
SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Strategy and Architecture					
TSC	Enterprise Architecture					
TSC Description	Operationalise a business strategy on the planning and development of business structures and models to facilitate the evolution of a business to its desired future state. This involves the review and prioritisation of market trends, evaluation of alternative strategies, as well as the strategic evaluation and utilisation of enterprise capability and technology to support business requirements					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
				ICT-SNA-4012-1.1	ICT-SNA-5012-1.1	ICT-SNA-6012-1.1
				Articulate impact of trends and alternative strategies on enterprise architecture, and develop action plans to support the transition to the desired future state.	Design business architecture blueprint and frameworks to achieve the desired future state, and attain enterprise resources to facilitate the transition.	Envision and lead the development of a future-ready enterprise architecture, and strategically manage resources and capabilities to sustain the evolution of the business.
Knowledge				<ul style="list-style-type: none"> Fundamental concepts of an enterprise architecture Industry trends and alternative business strategies Principles and techniques in project planning and management Best practices of implementing business unit action plans 	<ul style="list-style-type: none"> Elements of an enterprise structure including capabilities, governance structure and business processes Gap analysis Business case creation Components of an enterprise architecture blueprint Techniques for blueprint design and development Business architecture modelling techniques Return on Investment (ROI) analysis 	<ul style="list-style-type: none"> Business strategy formulation and planning Best practices and methodologies in enterprise architecture development SWOT analysis for business transformation initiatives Enterprise architecture metrics Sustainability assessment of enterprise architecture Strategic resource management

Learning Approaches Roadmap



Skill Competency Development Process

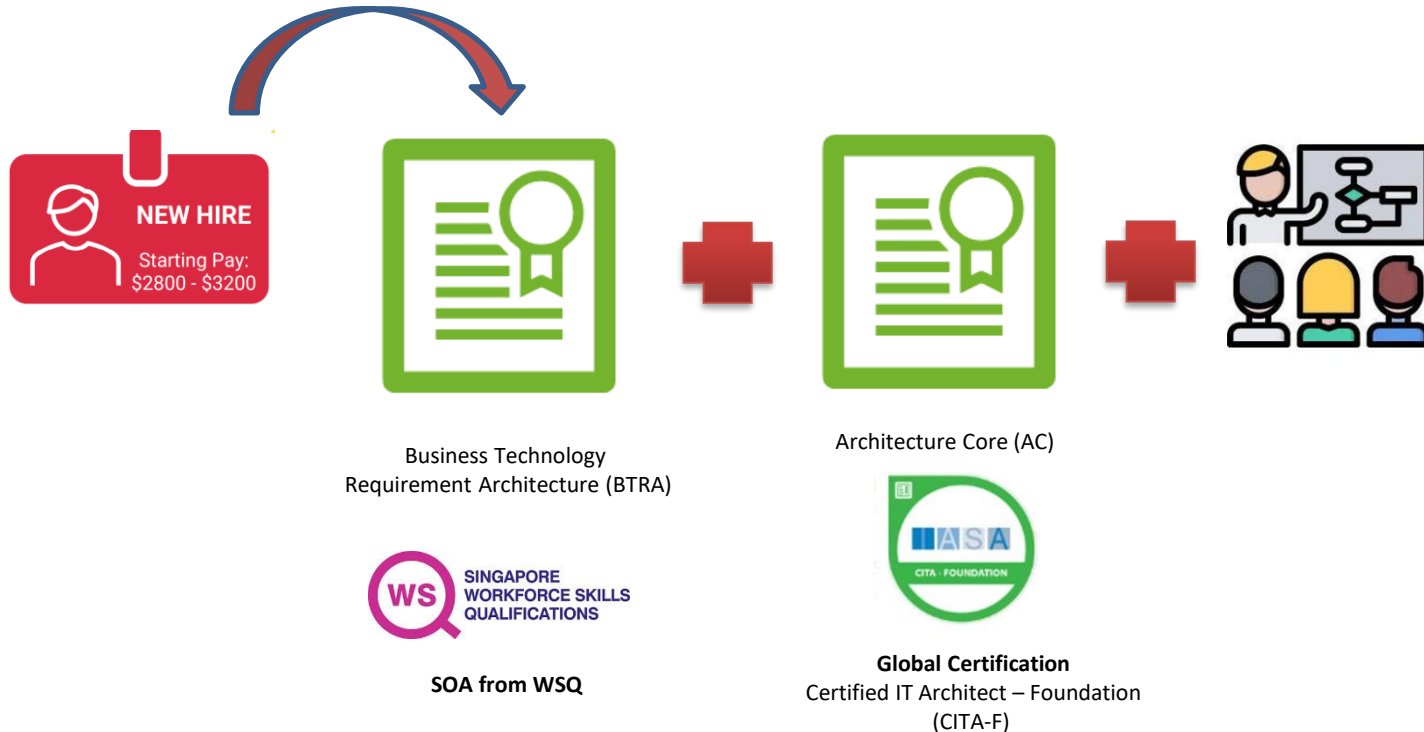


Mapping the Competency Roadmap

	EA Roles								Other Roles			
Programs and Certifications / Roles Recommended *** Complimentary ** Career development * <i>(in chosen discipline)</i>	Architecture Board	Chief Architects	Business Architects	Software/Solution Architects	Infrastructure Architects	Information Architects	Program/Project Managers	Senior IT Managers/Department Heads	IT Managers, Analysts, IT Consultants	IT Supervisors, Team Leads	LOB, Heads, Business Technology Stakeholders	
Open Group Certification												
TOGAF EA Foundation + Practitioner (Level 1 + 2)	***	***	***	***	***	***	***	***	**	**	**	
ArchiMate EA Foundation + Practitioner (Level 1 + 2)	***	***	***	***	***	***	***	***	**	**	**	
IASA Curriculum Certifications												
Business IT Architecture Fundamental	**	***	***	***	***	***	***	***	***	***	*	
IASA Architect Core	*	***	***	***	***	***	***	***	***	*		
Business Technology Strategy	***	***	***	***	***	***	**	***	**	*	**	
Business Architecture	***	***	***	**	**	**	*	***	**	*	**	
Software Architecture		***	**	***	**	**	*	**	**	*		
Solution Architecture		***	**	***	**	**	*	**	**	*		
Information Architecture		***	**	**	**	***	*	**	**	*		
Infrastructure Architecture		***	**	**	***	**	*	**	**	*		
Other Training Programs												
Business Process Architecture & Redesign Strategy in BPMN	**	**	***	**	**	**	**	***	***	**	***	
Architecting Software with Object Oriented Analysis & Design using UML (ASOOAD)		**	*	***	*	**	**		**	**		
Enterprise Governance Framework & Architecture with COBIT@2019	**	***	***	***	***	***	**	**	**	*		

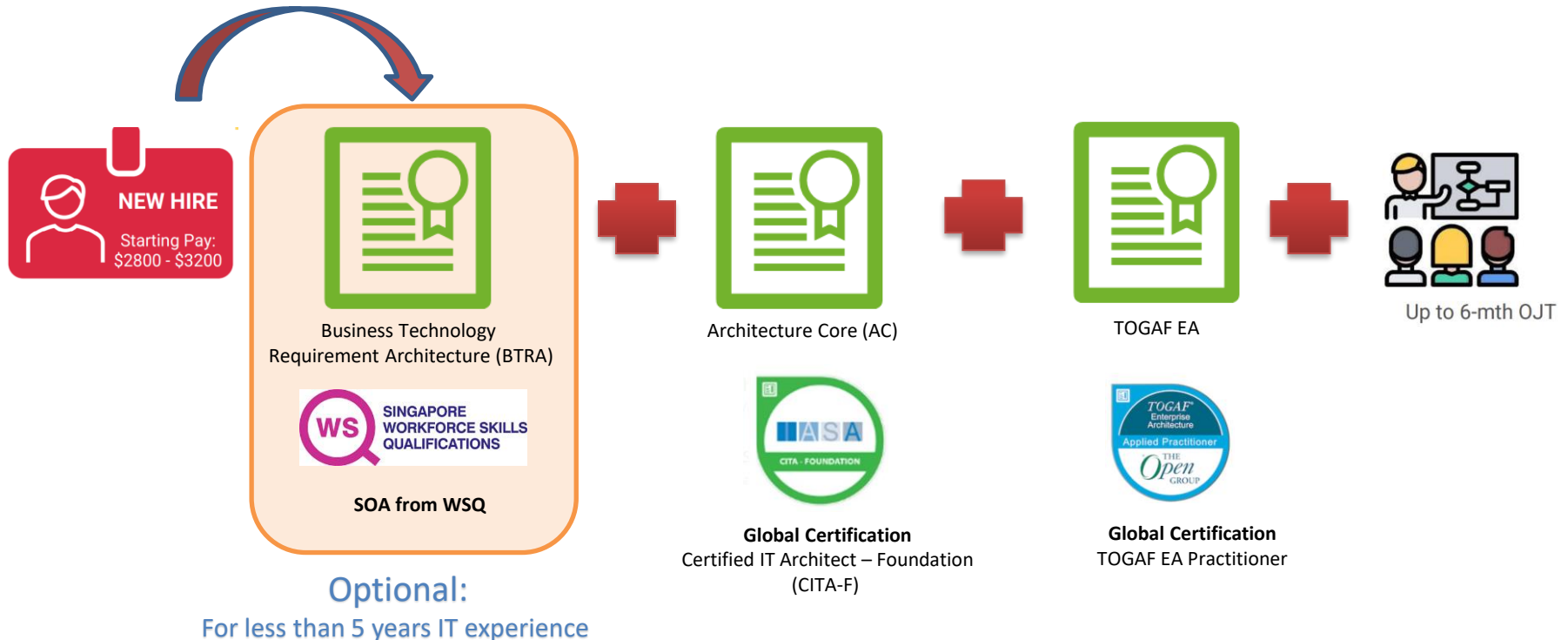
Approach 1: Career Conversion Programme for Non-IT to become Business / IT Analyst

Objective: Reskilling new hire from non-IT background to Business Analyst or IT Analyst



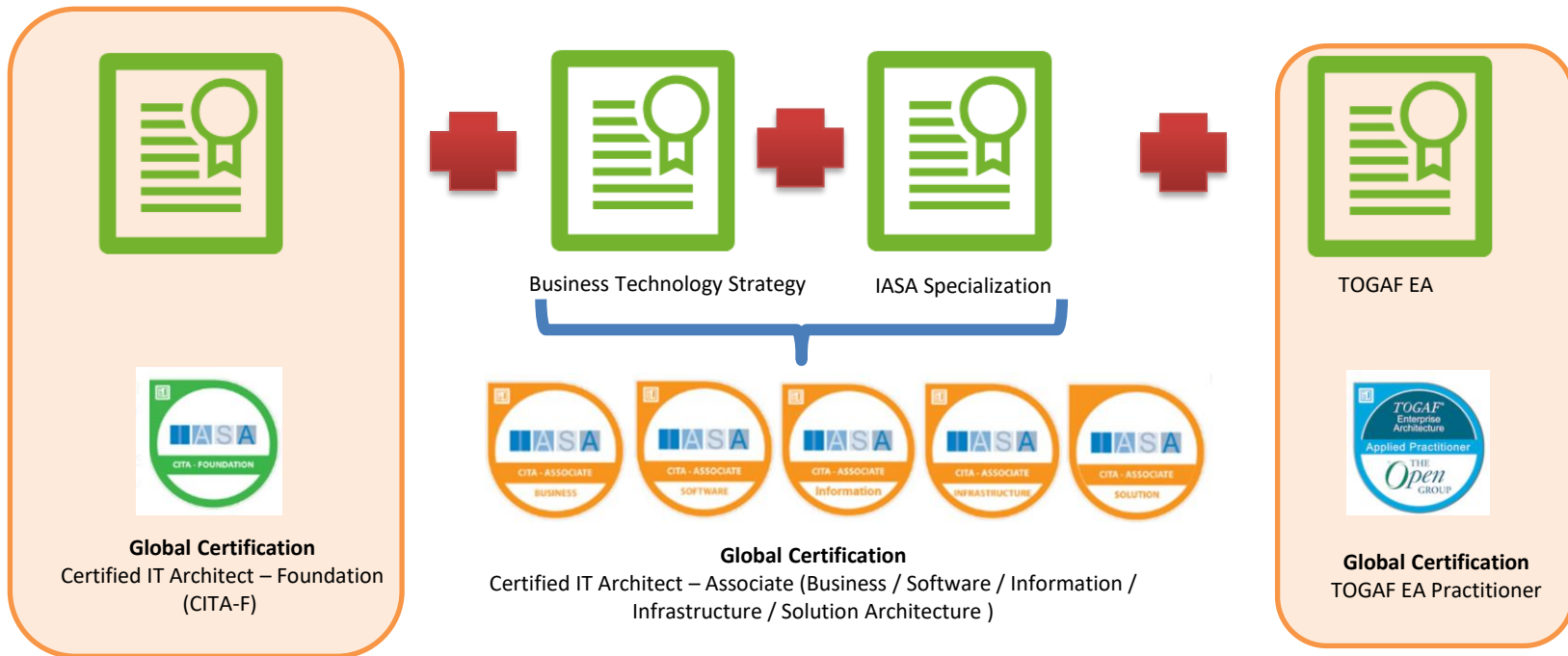
Approach 2: Career Conversion Programme for IT Professional to Aspiring Architects

Objective: Reskilling new hire from IT background to Aspiring Architects



Approach 3: Place & Train (New hire) OR Professional Development (New hire / Existing staff) for Architects

Objective: Deep skilling/upskilling existing architect to architect specialist



Certified IT Architect (CITA)

Certified EA Practitioner (The Open Group)

Notes

CITA – Certified IT Architect

BTABoK – Business
Technology Architecture
Body of Knowledge

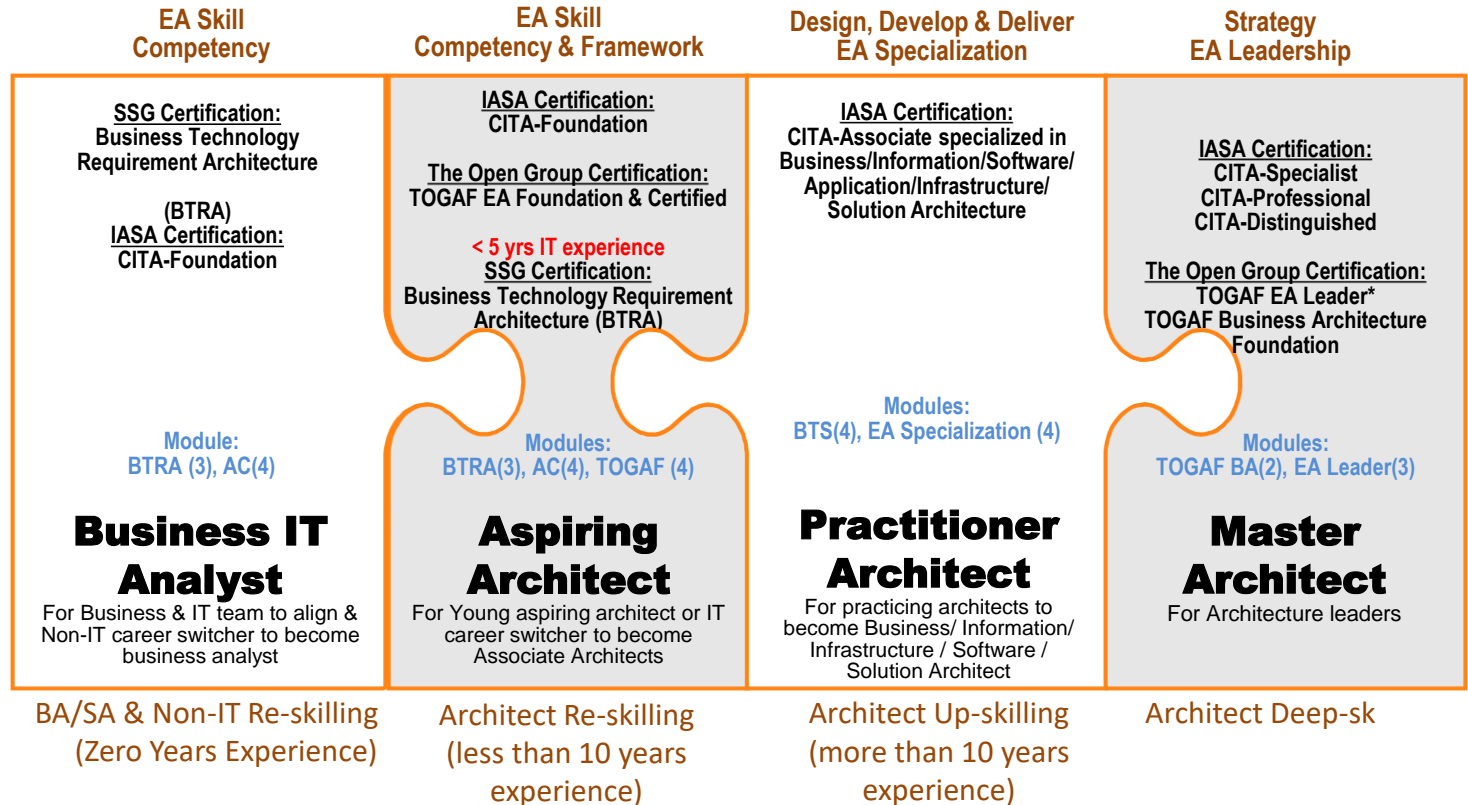
BTRA - Overview of BTABoK
Competency Model

CITA-Foundation -
Application of BTABoK
Competency Model

CITA-Associate - Architect
Specialization

TOGAF EA Practitioner
Certified - EA
Framework/Notational

*Upcoming



Government Funding Support (Up to 70%)



- For training programmes commencing in 1 January 2023.
- Singapore Citizens aged 40 years old and above, physically based in Singapore will be eligible for 70% funding support capped at S\$3,000 per course
- Singapore Citizens aged 40 years old and below and all SPR physically based in Singapore will be eligible for 50% funding support capped at S\$3,000 per course
- Singapore Citizens aged above 25 years old are eligible to use SkillsFuture Credit for the unsubsidized course fee.
- NTUC members are able to use UTAP funds for 50% unfunded course fee (capped at \$500).

"Commit yourself to lifelong learning. The most valuable asset you'll ever have is your mind and what you put into it."

Albert Einstein / Brian Tracy

Thank You