

CITREP⁺

Course Mapping Process

Human Capital Development (HCD)

CITREP⁺

1. Objectives
2. Workflow
3. Vocab
4. Skills Framework for ICT Sector (SF for ICT) Course Mapping
5. Steps to Obtain Technical Skills and Competencies (TSCs)
6. Annex A

1

CITREP⁺ Objectives

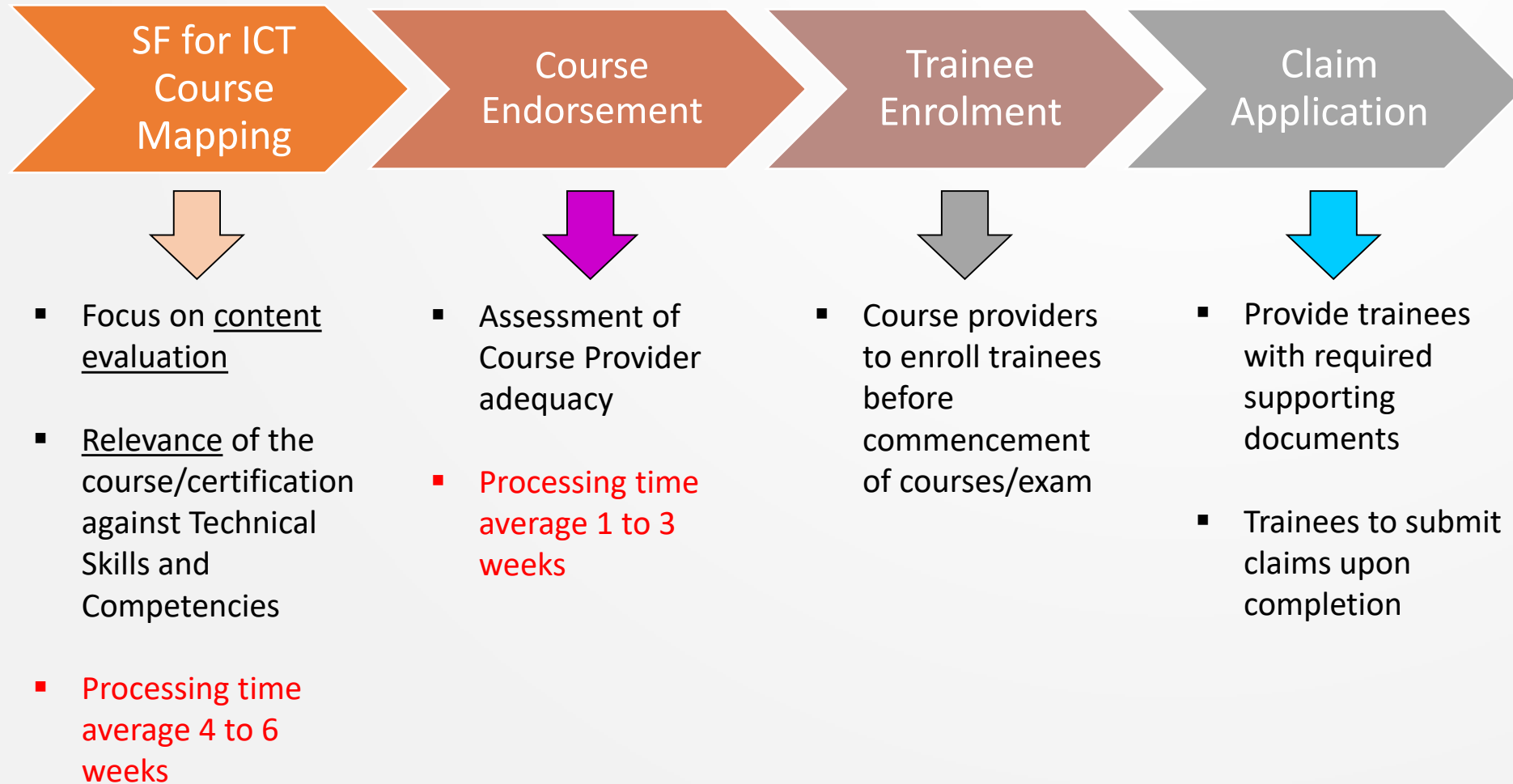
CITREP⁺ Objectives

- To build a strong core of specialised Singaporean ICT professionals with Smart Nation capabilities
- To develop and offer quality infocomm professional development technology courses and professional certifications that impart knowledge and skills in relevant areas

2

Overview of CITREP⁺ Workflow Process

Overview of CITREP+ Workflow Process



3

CITREP⁺ Vocab

CITREP+ Vocab

Important “VOCAB”

SF for ICT –

CAB / CO - Certificate
Awarding Body,
Certification Owner,
Curriculum Owner

Entities issuing qualifications
(certificates or titles)

CP - Course
Provider

Entities that deliver the
training courses or
examinations

ICMS –

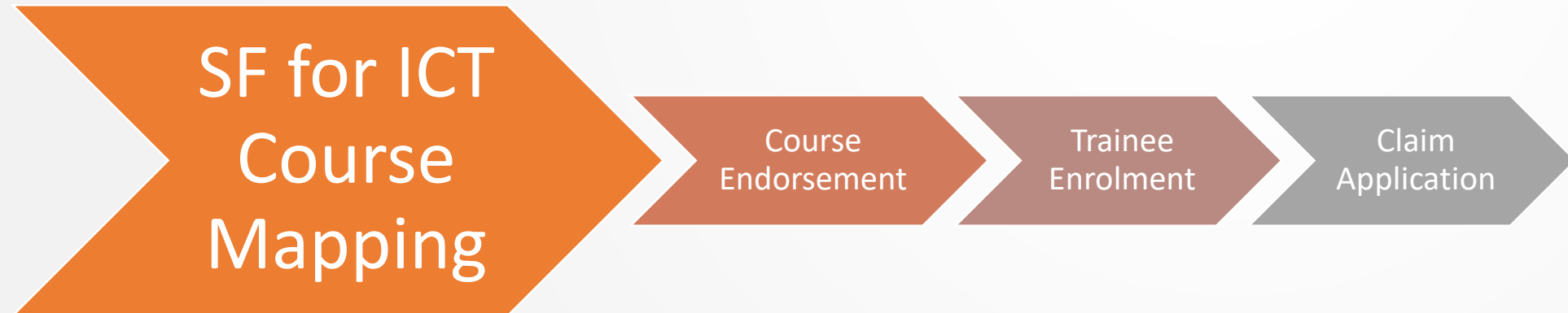
AA - Approving Authority

AO – Administrative Officer

4

SF for ICT Course Mapping

SF for ICT Course Mapping



SF for ICT
Course Mapping validity
Up to 31 March 2019

SF for ICT

Course Mapping - Overview

- The Skills Framework (SF for ICT)
 - Skills Framework Roadmap that **articulates the competency requirements** of key Infocomm professionals.
 - Identifies various ICT sectors, key job roles and its functions
 - 80 Technical Skills and Competencies for 119 industry job roles

- Facilitate the course mapping process for CITREP+.
 - Leverage on SF for ICT to **determine the types of Technical Skills and Competencies required** for various infocomm jobs
 - Develop training strategies for professionals to acquire these skills

Competency Standards – How do they affect Course Providers?

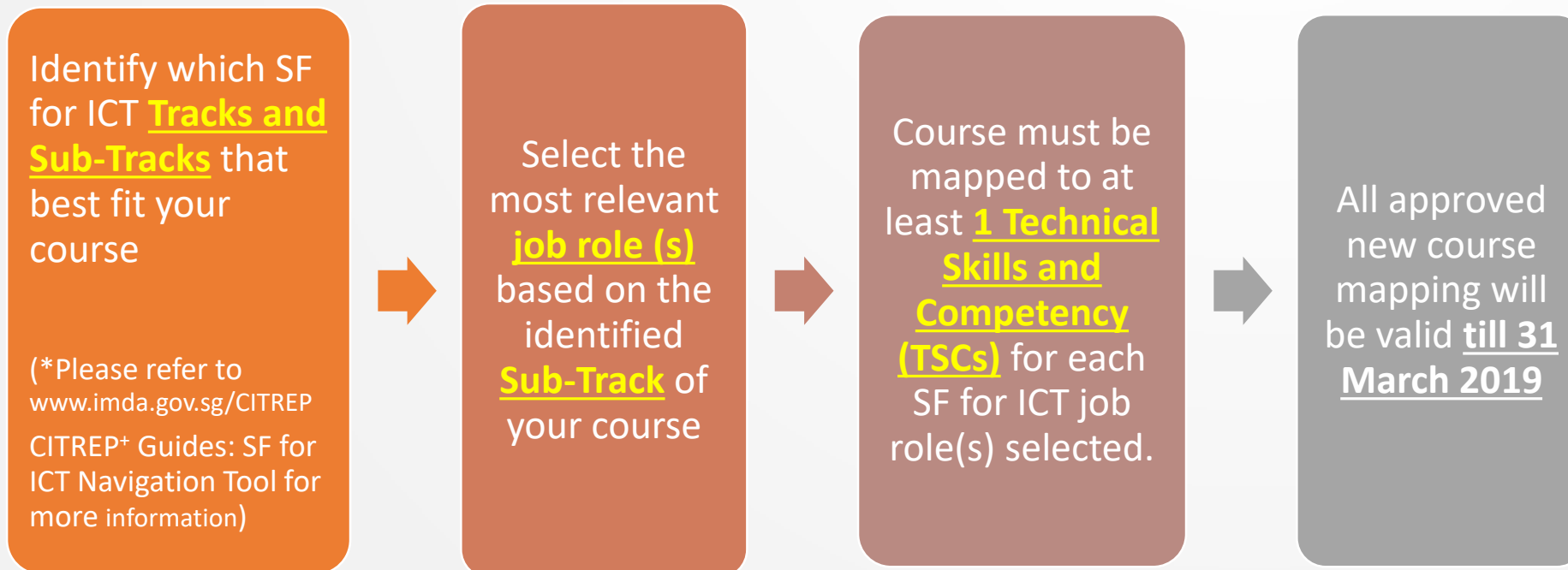
□ Endorsement and Branding

- Benchmark for Quality and Standards
- Marketing Edge – locally and regionally
- Recognised by employers

□ Alignment with SF for ICT

- Facilitate the endorsement process for CITREP+ programme
- Courses that are endorsed as being SF for ICT Aligned/Accredited will be featured on [IMtalent](#) portal

SF for ICT Course Mapping



Supported SF for ICT Skill Areas

- Areas eligible for **Courses and Certification** support level
(Entry Level & Above)

Skill Category: Strategy and Architecture

- All TSCs (Eg, Cyber Risk Management, Data Strategy, etc)

Skill Category: Design

- All TSCs (Eg, Data Design, User Interface Design, etc)

Skill Category: Development and Implementation

- All TSCs (Eg, Analytics and Computational Modeling, Application Development, etc)

Skill Category: Operations and User Support

- All TSCs (Eg, Cyber Forensics, Infrastructure Support, etc)

Skill Category: Sales & Marketing

- Technical Sales and Support

Supported SF for ICT Skill Areas

- Areas eligible for **Certification** support only
(Entry Level & Above)

Skill Category: Stakeholder and Contract Management

- All TSCs (Eg, Contract Management, Stakeholder Management, etc)

Skill Category: Project Management

- All TSCs (Eg, Business Needs Analysis, Programme Management)

SF for ICT Course Mapping - Criteria

Types of Courses and Certification

- **Certifiable Programme**
 - Courses that lead to industry-recognised certifications
 - Appointment by Certificate Awarding Body (CAB)
 - Review on the Certification:
 - Certification Governing Body
 - Body of Knowledge & its currency
 - Certification Approach/Mechanism

Total Duration for Course and Exam Completion

- Minimum - 3 days / Maximum – 12 months

SF for ICT Course Mapping - Criteria

Supporting documents to provide

- 1) Detailed **course curriculum and course materials** (incl. training and/or certification roadmap) – **4 sets**
 - 2) Justification for course mapping - Demand for the selected job role & skill area)
 - 3) Letter of authorisation from Certificate Awarding Body (if applicable)
 - 4) Non-refundable administration fee of \$600 per course, subject to 7% GST (Inclusive of Course Mapping with Endorsement application)
-
- *Please note that SF for ICT Course Mapping is an independent process from CITREP⁺ course endorsement application.*
 - *Courses and certifications that are accepted for mapping will be listed on SF for ICT Portal ([www.SF for ICT.sg](http://www.SFforICT.sg)). The same course/certification has to meet the endorsement criteria if it is submitted for funding support. The course materials used for evaluation will not be returned to CP. The estimated processing duration is about 4-6 weeks from a complete submission.*

SF for ICT Mapping Application

Course Mapping Application Submission

- SF for ICT Mapping applications are submitted online via the Infocomm Competency Management System (ICMS):
 - <https://eservice.imda.gov.sg/icms>
- Please refer to the **ICMS Course Mapping and Endorsement User Guide** for the steps to submit the SF for ICT Mapping application

SF for ICT Course Mapping Application Fee

Payable to “IMDA” upon application

Course Mapping with Endorsement	<u>S\$600</u> per course application (subject to 7% GST) Total Payable: S\$642
Course Endorsement	<u>S\$350</u> per course application (subject to 7% GST) Total Payable: S\$374.50

Please note:

For Course Mapping with Endorsement application, there will be no refund if no course endorsement application is submitted.

5

**Steps to Obtain Job
Roles and Technical
Skills &
Competencies (TSCs)**

CITREP Webpage (www.imda.gov.sg/citrep)

Home > Industry Development > Programmes and Grants > Individuals > Critical Infocomm Technology Resource Programme CITREP

Critical Infocomm Technology Resource Programme Plus (CITREP+)

LAST UPDATED 03 NOVEMBER 2017



 PRINT  SHARE

CITREP+ supports local professionals in keeping pace with technology shifts through continuous and proactive training. Through continuous up-skilling, fresh professionals and mid-career professionals may acquire or enhance technical skills sets which will enable

CITREP Webpage

Application Procedure

All course endorsement and claim applications must be submitted online via the IMDA's Infocomm Competency Management System (ICMS).

Applicants must upload and attach the supporting documents via ICMS during the submission of online applications.

The sponsoring organisations and self-sponsored individuals must have a valid ICMS account to submit a CITREP+ claim. To apply for a new organisation or individual account, please [click here](#).

Self-sponsored applicants must have their SingPass ID and password to access ICMS. To find out more and/or apply for SingPass, please [click here](#).

Sponsoring organisations will require either SingPass ID or CorpPass ID to access ICMS. After December 2017, business entities will have to access ICMS using CorpPass ID. To find out more and/or apply for CorpPass, please [click here](#).

To access ICMS, please [click here](#).

To download CITREP+ guides, please [click here](#).

Action: Select this to
access CITREP Guide Page

Trainees

CITREP Guide Page

Home > Industry Development > Programmes and Grants > Individuals > Critical Infocomm Technology Resource Programme CITREP >
CITREP Guides

CITREP Guides

LAST UPDATED 03 NOVEMBER 2017



 PRINT  SHARE

Sponsoring Organisations & Individuals

- [CITREP+ Claim Application Guide \(1 April 2017 to 31 March 2018\)](#) 
- [CITREP+ MOOC Claim Application Guide \(1 April 2017 to 31 March 2018\)](#) 

SF for ICT Course Mapping

Step 1

Identify which SF for ICT **Tracks and Sub-Tracks** that best fit your course

(*Please refer to www.imda.gov.sg/CITREP
CITREP+ Guides: SF for ICT Navigation Tool for more information)



Select the most relevant **job role (s)** based on the identified **Sub-Track** of your course



Course must be mapped to at least **1 Technical Skills and Competency (TSCs)** for each SF for ICT job role(s) selected.



All approved new course mapping will be valid **till 31 March 2019**

SF for ICT Framework for CITREP+ Course Mapping (IMTALENT.SG/SFforICT)

With the Skills Framework, individuals are equipped to make informed decisions about career choices, as well as take responsibility for skills upgrading and career planning.



Assess Career Interests

- Discover employment opportunities
- Understand career pathways
- Recognise personal attributes required



Prepare for Desired Jobs

- Understand skills and competencies required



Find Avenues to Close Skills Gap

- Identify relevant training programmes to equip oneself with the required skills and competencies
- Participate in on-the-job training opportunities provided by companies



Renew, Upgrade and Deepen Skills

- Plan for career development/transition
- Recognise skills and competencies required for the intended job role
- Identify training programmes to upgrade and deepen skills

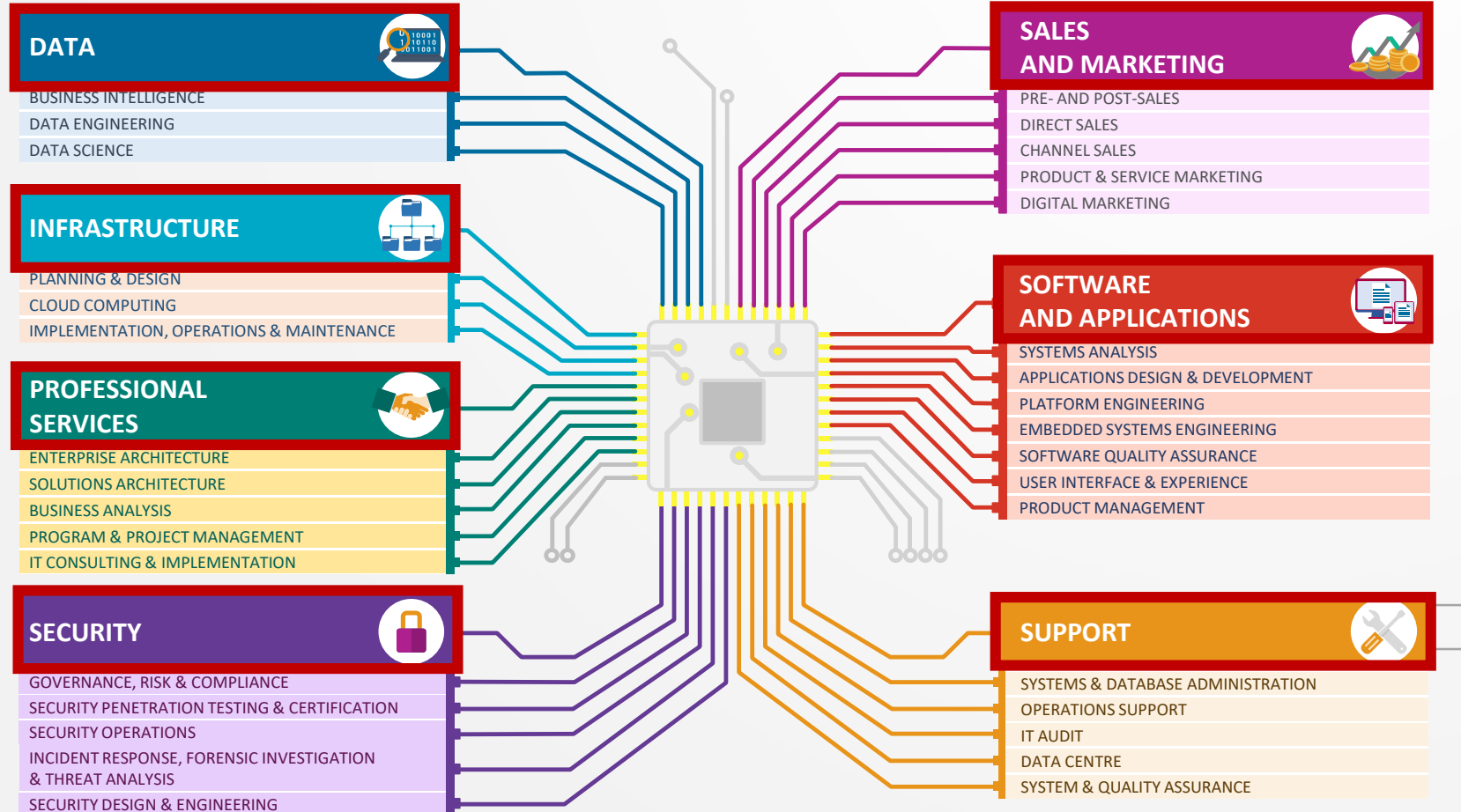
For more information, please visit [Skills Framework Portal](#) or navigate the Skills Framework for ICT [HERE](#).

Introduction to the Skills Framework for Infocomm Technology (ICT):

Action: Select this to view Tracks and Sub-Tracks

SF for ICT Framework for CITREP+ Course Mapping

Action: Identify the track that is most relevant to your course



SF for ICT Course Mapping

Step 2

Identify which SF for ICT **Tracks and Sub-Tracks** that best fit your course

(*Please refer to www.imda.gov.sg/CITREP
CITREP+ Guides: SF for ICT Navigation Tool for more information)



Select the most relevant **job role (s)** based on the identified **Sub-Track** of your course

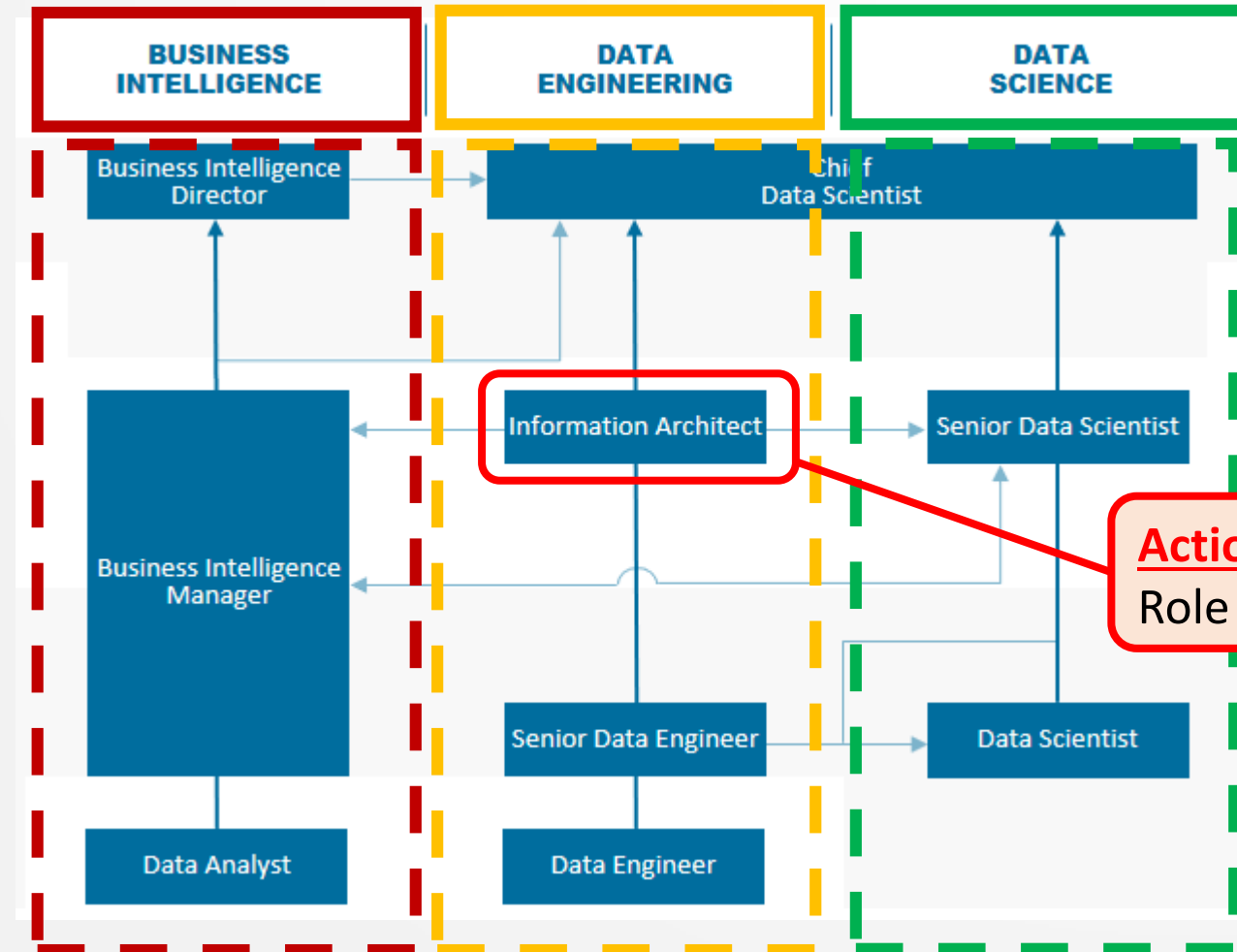


Course must be mapped to at least **1 Technical Skills and Competency (TSCs)** for each SF for ICT job role(s) selected.

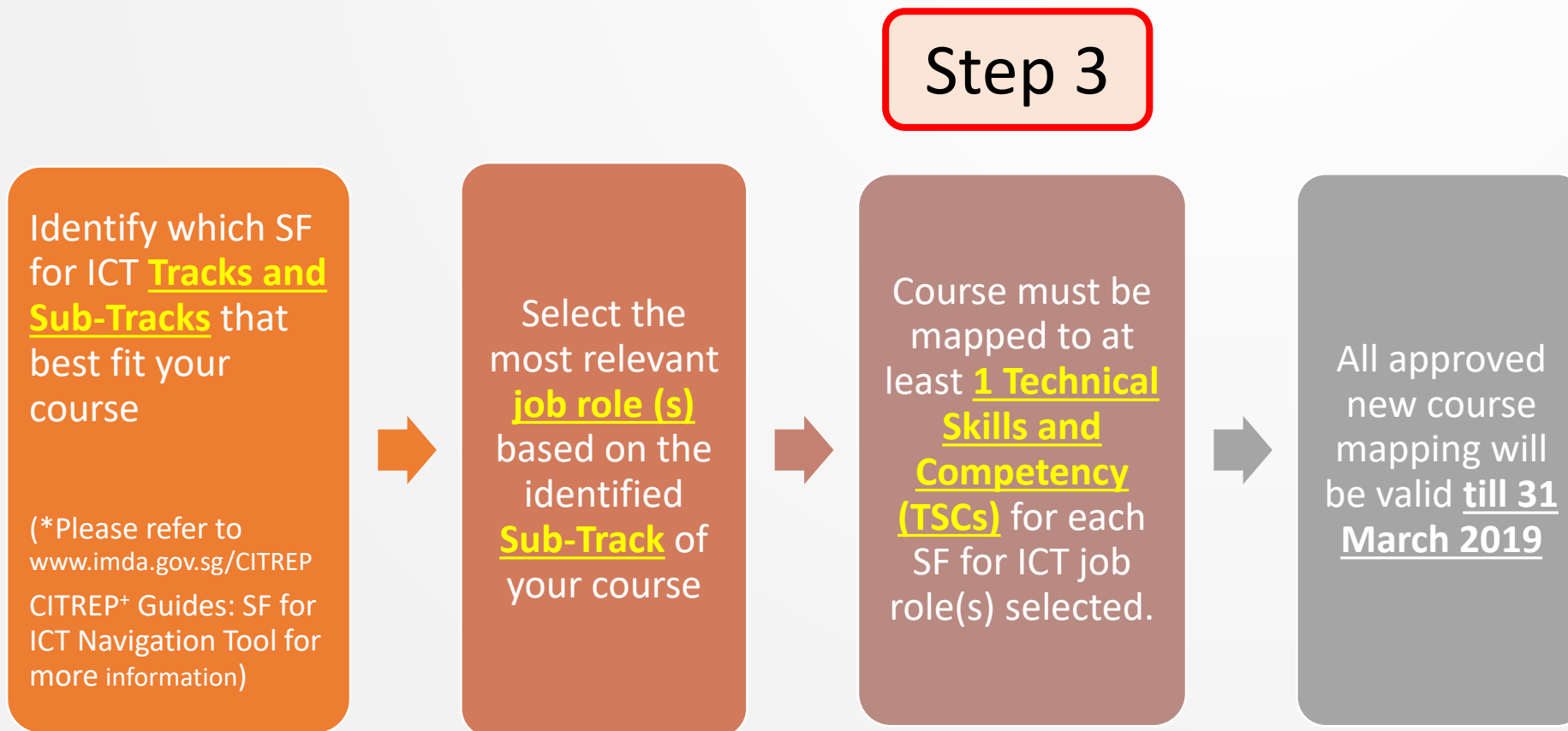


All approved new course mapping will be valid **till 31 March 2019**

SF for ICT Framework for CITREP+ Course Mapping



SF for ICT Course Mapping



SF for ICT Course Mapping

DATA SCIENTIST Career Pathway

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

Job Description
The Data Scientist analyses data through application of scientific methods and data-discovery tools. He integrates and prepares large and varied datasets, and models complex business problems. He/She discovers business insights and identifies opportunities through the use of statistical, algorithmic, mining and visualisation techniques. He assists with architecting specialised database and computing environments, developing methodologies, performing analysis, summarising results and developing conclusions. He possesses a combination of analytical, machine learning, data mining and statistical skills as well as experience with algorithms and coding.

He has a deep passion for analysing and resolving complex business problems. He displays an intellectual curiosity about the business needs as well as the capability to engage with stakeholders to understand business issues.

Critical Work Functions View details

- Manage projects
- Prepare data sets
- Analyse data
- Present insights





Technical Skills & Competencies	Proficiency Level	Generic Skills & Competencies (Top 5)	Proficiency Level
Analytics and Computational Modelling	4	Transdisciplinary Thinking	Basic
Business Needs Analysis	4	Creative Thinking	Basic
Data Design	4	Interpersonal Skills	Intermediate
Data Governance	4	Leadership	Intermediate
Data Strategy	4	Resource Management	Intermediate
Data Visualisation	4		
Emerging Technology Synthesis	3		
Programme Management	3		
Solution Architecture	4		
Stakeholder Management	3		
Test Planning	3		

Action:
1. Identify at least 1 TSC based on Job Role

SF for ICT Framework for CITREP+ Course Mapping

Action: Access Skills Framework Portal for detailed TSC proficiency Level description

With the Skills Framework, individuals are equipped to make informed decisions about career choices, as well as take responsibility for skills upgrading and career planning.

 Assess Career Interests	 Prepare for Desired Jobs	 Find Avenues to Close Skills Gap	 Renew, Upgrade and Deepen Skills
<ul style="list-style-type: none">• Discover employment opportunities• Understand career pathways• Recognise personal attributes required	<ul style="list-style-type: none">• Understand skills and competencies required	<ul style="list-style-type: none">• Identify relevant training programmes to equip oneself with the required skills and competencies• Participate in on-the-job training opportunities provided by companies	<ul style="list-style-type: none">• Plan for career development/ transition• Recognise skills and competencies required for the intended job role• Identify training programmes to upgrade and deepen skills

For more information, please visit [Skills Framework Portal](#) or navigate the Skills Framework for ICT [HERE](#).

Introduction to the Skills Framework for Infocomm Technology (ICT):

Action: Click here to access TSCs
[IMTALENT.SG/SFforICT](https://imtalent.sg/SFforICT)

To obtain a more detailed version of the competency units, please refer to Annex A at the end of the document

SF for ICT Framework for CITREP+ Course Mapping

WHO IS IT FOR? **HOW DOES IT WORK?**

Technical Skills and Competencies comprise occupation/job-specific knowledge, skills and abilities that a person needs to have to perform the various tasks.

Click [here](#) to download the Overview of Technical Skills and Competencies for the SF for Infocomm Technology.

Click below to view the Technical Skills and Competencies for the SF for Infocomm Technology.

Design ^

- Data Design
- Embedded Systems Interface Design
- Infrastructure Design
- Security Architecture
- **Software Design**
- Solution Architecture
- User Experience Design
- User Interface Design

Development and Implementation v

User Support v

Project Management v

Action: Select this to view Technical Skills & Competencies

SF for ICT Course Mapping

- New Application

Alternatively, you may refer to the ICMS navigation guide below to complete your NEW submission:

- Login as **CP AO**
 - Go to **Course/Certification Endorsement**
 - Click the square button **New Application**
 - **Select Programme For Submission: Course Mapping**
 - Proceed with the necessary info and mapping matrix
 - **Submit for Approval** the application for CP AA's approval
- Note : The system will generate a new Ref ID number

- Login as **CP AA**
 - Click on **Items Pending for Your Action**
 - Review the application details submitted by CP AO
 - Click on **Approve** button to submit for IDA's processing
- Note : The system will generate the same Ref ID number

Submit SF for
ICT Course
Mapping via
ICMS

**Submit/apply
SF for ICT COURSE
MAPPING APPLICATION
IN ICMS**

SF for ICT Course Mapping (Online Submission)

- New Application

MENU

Course/Certification
Endorsement
Trainee Enrolment

Select Programme For Submission :

APPLICATION CONTACT INFORMATION

CC20: Tourism, Hospitality & Retail

Name Of Administrative Officer (AO)
Administrative Officer (AO)'s Contact No.
Administrative Officer (AO)'s Email Address
Name of Approving Authority (AA) *
Approving Authority (AA)'s Contact No.
Approving Authority (AA)'s Email Address

COURSE/CERTIFICATION INFORMATION

Type *
Skill Area * : -- Select --
Course Title * :

Skill Area - SF ICT Data
Skill Area - SF ICT Instructure
Skill Area - SF ICT Professional Services
Skill Area - SF ICT Sales and Marketing
Skill Area - SF ICT Security
Skill Area - SF ICT Software & Applications
Skill Area - SF ICT Support

Job Role in NICF * :

Selected

SF for ICT - Data

Available

<<< >>>

Submit SF
for ICT
Course
Mapping via
ICMS

Sample Submission in ICMS:

Select "Course Mapping" as
Programme
Select "SF for ICT" for
respective fields

SF for ICT Course Mapping (Online Submission)

- New Application

TRAINING ROADMAP			
CORE MODULES			
Total No. of Core Modules :	1	Min. No. of Core Modules Completed :	1
S/N	CORE MODULE TITLE	DURATION	
1.	<Course Module Title 1>	5.0 Days	
ELECTIVE MODULES			
Total No. of Elective Modules :	0	Min. No. of Elective Modules Completed :	
S/N	ELECTIVE MODULE TITLE	DURATION	
CERTIFICATION ROADMAP			
CORE MODULES			
Total No. of Core Modules :	0	Min. No. of Core Modules Completed :	
S/N	CORE MODULE TITLE	DURATION	
ELECTIVE MODULES			
Total No. of Elective Modules :	0	Min. No. of Elective Modules Completed :	
S/N	ELECTIVE MODULE TITLE	DURATION	

Submit SF
for ICT
Course
Mapping via
ICMS

Sample Submission in ICMS:

TRAINING ROADMAP

SF for ICT Course Mapping (Online Submission)

- New Application

NICF MAPPING

Total No. of Core Modules : 1 Total No. of Elective Modules : 0

Core Module 1

Title of Core Module 1 <Course Module Title 1>

COURSE OUTCOMES

No. Of Course Outcomes 5

S/N	DESCRIPTION
1.	<Course Outcome 1>
2.	<Course Outcome 2>
3.	<Course Outcome 3>
4.	<Course Outcome 4>
5.	<Course Outcome 5>

Submit SF
for ICT
Course
Mapping
via ICMS

Sample Submission in ICMS:

COURSE OUTCOMES

SF for ICT Course Mapping (Online Submission)

- New Application

COURSE OUTCOMES

No. Of Course Outcomes

S/N	DESCRIPTION
1.	Course Outcome1

PROPOSED COMPETENCY UNITS(CU) & COMPETENCY ELEMENTS (CE)/PERFORMANCE STATEMENTS (PS)

No. of Competency Units

CU CODES & CE/PS

1. SF-ICT-01 : Mapping to SF for ICT - Data	<input type="button" value="Remove"/>
SF-ICT-01-E1	Mapping to SF for ICT - Data

COURSE MAPPING MATRIX

Competency Units & Elements/Performance Statements		Course Outcomes
CU Code	CE	
SF-ICT-01	SF-ICT-01-E1	1 <input checked="" type="checkbox"/>

Submit SF
for ICT
Course
Mapping via
ICMS

Sample Submission in ICMS:

**PROPOSED CU & CE/PS
Course Mapping Matrix**

SF for ICT Course Mapping (Offline Submission)

- SF for ICT Mapping Excel Spreadsheet

FOR TRAINING PROVIDER INPUT: COURSE MAPPING TO JOB ROLE AND TSC

Certification ID NICF/0913/CE/201707/004119
Instructions:
(1) Update fields under Certification ID, Certification Body and Course Provider details in cells B1, A3 and B3 respectively. Certification ID will be generated in ICMS once the application is submitted.
(2) Copy the Certification number and paste it in cell B2.
(3) Indicate Course Title.

For mapping of each course/ module to SF for ICT, refer to following :
Step 1 - Select Track from the the drop-down list.
Step 2 - Select Sub-Track.
Step 3 - Select Job Role and Technical Skills Competency.

(4) Proficiency Level will be displayed and do not require input.
(5) Indicate remarks, if any.
(6) If course falls under respective Emerging areas, select "Y" under drop down list (where applicable).

Action: Refer to Instructions as provided in spreadsheet

Mapping to SF for ICT						
Course Title	Track	Sub-Track	Job Role	Technical Skill Competency	Proficiency level	Remarks
xyz course	Data	la Engineering	Chief Data Scientist	Business Innovation	Level 5	
	Data					
	Infrastructure					
	Professional Services					
	Sales and Marketing					
	Security					
	Software and Applications					
	Support					

For TP Input A Search by Job Role Search for TSC

SF for ICT Course Mapping (Offline Submission)

- SF for ICT Mapping Matrix Word Document

- Mapping matrix of course details to Technical Skills & Competencies
- Sent to Expert Panel together with course materials for their Evaluation

TSC	TSC Category	Description	Proficiency Level	Proficiency Level Description	Knowledge	Abilities	Course Outcomes	Reference to Course Materials	Remarks
Analytics and Computational Modelling	Development and	Develop, select and apply	Level 5	Design advanced statistical and computational	<ul style="list-style-type: none"> Industry developments and trends in analytics, algorithms and statistical modelling New and emerging data analytics and modelling tools and methodologies 	<ul style="list-style-type: none"> Direct data analytics and statistical modelling efforts across the organisation Make decisions on appropriate data analytics and computational methodologies to the problem Design complex or advanced statistical and computational models 			

Action: Input description of courses sections/portions which map to the respective TSCs.

It is advisable to include the specific topics/pages of the course materials which map to the relevant TSCs selected.