

Capacity Building for Digital Government Transformation



Digital Government Competency Framework

Document 3.3



Digital Government Competency Framework, First Edition (2022)

Published by

Information & Communication Technology Agency of Sri Lanka

No 490,

R.A De Mel Mawatha

Colombo 03

<https://www.icta.lk>

<https://lightingdigital.gov.lk/>

Published by ICTA

Table of Contents

- List of Tables iv
- List of Figures iv
- Acronyms v
- Executive Summary 1
- 1. Introduction..... 3
- 2. Problem Statement..... 5
- 3. Literature Review 5
 - 3.1 What is a Competency Framework? 5
 - 3.2 Overview of existing Competency Frameworks 6
- 4. Digital Government Competency Framework of Sri Lanka..... 8
 - 4.1 Objective 8
 - 4.2 Definitions 8
 - 4.3 Conceptual Model 9
 - 4.4 Focus Areas 10
 - 4.5 Stakeholder Layers 10
 - 4.6 Snapshot of the Framework 12
 - 4.7 Top & 2nd Tier Management – Competencies 13
 - 4.8 CDIO – Competencies 14
 - 4.9 Middle & Junior Management – Competencies 15
 - 4.10 Operational – Competencies 16
 - 4.11 Need Assessment Toolkit 17
 - 4.12 Reports 19
 - 4.13 Benefits of having a Competency Framework for the Government 22
- 5. Implementation Approach..... 23
- 6. List of Contributors 25
- 7. References..... 29
- 8. Annexure 01..... 30
 - 8.1 Target segments for ICT competency standards..... 30
 - 8.2 What is known as Competency?..... 30
 - 8.3 How are competencies being used 31
- 9. Annexure 02 32
 - 9.1.1 DigComp 2.0 32
 - 9.1.2 Digital Literacy Global Framework 33

List of Tables

Table 1: Existing Competency Frameworks7

Table 2: Definitions 8

Table 3: Focus Areas.....10

Table 4: Stakeholder Layers..... 11

List of Figures

Figure 1: Diffusion of Innovation Curve..... 2

Figure 2: Implementation Model by ICTA..... 4

Figure 3: Establish Digital Government Competency Framework..... 9

Figure 4: Snapshot of the Framework.....12

Figure 5: Competencies - Top & 2nd Tier Management13

Figure 6: CDIO - Competencies14

Figure 7: Middle & Junior Management - Competencies 15

Figure 8: Competencies - Operational Staff.....16

Figure 9: Need Assessment Tool Kit (Page 01) 17

Figure 10: Need Assessment Tool Kit (Page 02).....18

Figure 11: Focus Area-wise Competency Gap19

Figure 12: Competency Gap 20

Figure 13: Summary of Assessments 21

Figure 14: Implementation Approach 23

Acronyms

APCICT	- Asian and Pacific Training Centre for Information and Communication Technology
ASEAN	- Association of Southeast Asian Nations
CEDEFOP	- European Centre for the Development of Vocational Training
CoE	- Council of Europe
DigComp	- Digital Competence Framework for Citizens
DiSTO	- Digital Skills to Tangible Outcomes
DLGF	- Digital Literacy Global Framework
DQ	- Digital Intelligence
EU	- European Union
GoSL	- Government of Sri Lanka
HRCB	- Human Resources & Capacity Building
HRD	- Human Resource Development
ICT	- Information, Communication and Technology
ICTA	- Information and Communication Technology Agency
IT	- Information Technology
ITU	- International Telecommunication Union
MIL	- Media and Information Literacy
NTA	- Need Assessment Toolkit
OECD	- Organization for Economic Co-operation and Development
UN	- United Nations
UNESCO	- United Nations Educational, Scientific and Cultural Organization

Executive Summary

Usage of ICT is becoming widespread across society and more and more people are using technologies. With society becoming digitalized the knowledge, attitude, and skills that are required to be competent are becoming essential.

Digital skills are necessary for an increasing number of professions in the workplace, and even in historically manual areas like agriculture, digital applications are beginning to make inroads, necessitating some level of digital literacy.

Creating a digitally proficient population necessitates digital skills increase and governments require well-structured systems to determine existing digital skill levels and manage future requirements.

When it comes to competency mapping related to digital government transformation, the government currently lacks an appropriate basis and defined methodology. However, because government personnel's competencies are at various levels, the ad hoc structure that is available is quite complicated.

The Sri Lankan government organizational service cadre is segregated as Senior, Tertiary, and Secondary and there is around one million government workforce as of 2019.

As of 2019, the Sri Lankan government's organizational service cadre is divided into four categories: senior, tertiary, secondary, and Primary with a total workforce of over one million people.

Senior	Tertiary	Secondary	Primary	Total
54,095	34,397	662,653	279,797	1,030,942

Around 750,000 officials from the Senior, Tertiary, and Secondary levels make up the whole workforce, which ICTA is focusing on capacity building. Further, as their nature of work is diversified and the competencies of its employees vary greatly.

However, the government's complexity creates numerous practical challenges in implementing a capacity-building project for the government sector. Geographical conditions, the hierarchical structure of government organizations, unequal resource distribution, and a lack of opportunities are only a few examples.

Similarly, according to the 'Diffusion of Innovation Theory,' the peak of the curve for Sri Lankan government officials is often at the tail end of the curve, where adoption of novel ideas and concepts is relatively low. As a result, ICTA is focusing on the 'Innovators and Early Adopters,' segments of the government workforce, to elevate digital capability among government employees, as well as pushing the 'Early Majority, Late Majority, and Laggards,' to the front and changing the curve for Sri Lankan government service.

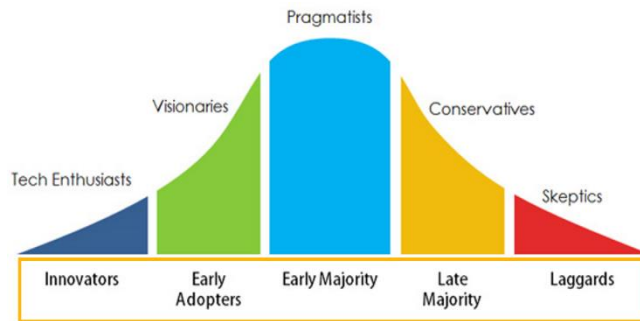


Figure 1: Diffusion of Innovation Curve

This document focuses solely on the importance of having a competency framework for the government sector and establishing an ICT Competency Framework and the processes taken to develop, implement and adopt a competency framework for the public sector.

1. Introduction

Sri Lanka is swiftly moving towards a significant transformation in the government sector which demands a rapid transformation, particularly in the way the government officials think and work. ICTA is expected to build the required competencies at all levels to ensure the capable human capital of the government will positively embrace the cultural shift that will take place with digital transformation. As a result, public service and its officers will be productive, and efficient and deliver citizen-friendly and citizen-centric services seamlessly.

These technology improvements create and increase the need for governments to cultivate a digitally proficient populace to expand economic participation, drive economic development, and compete in the global economy. To do so, the government must identify present digital skill levels as well as determine and forecast current and future digital skill requirements in their country.

Competency Frameworks are being adopted to build human capacities in a structured manner. According to the APCICT competency framework known as a “cluster of related knowledge, skills and attitudes that affects a major part of one’s job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development.” (UN-APCICT, 2010) In other words, competency standards are standards that measure how competent someone is to perform a role or responsibility in a job. This framework will help to transform the workforce.

Digital Government Competency Framework can help a country transform its workforce progressively. By specifying the required skills for various employment levels. Competency frameworks can help employers to find the required qualified workforce. Further, it helps the government to hire, train and appraise and promote the staff and plan labor needs. (UN-APCICT, 2015)

Currently, there is no reliable method of determining the desired competency level at any particular staff level in GoSL. As a result, GoSL is unable to determine the current competency level as well as to identify the competency gaps of the government employees. Further ICTA is unable to develop appropriate plans based on capacity expectations without knowing the competency gaps. As a result, both employees and the organizations will miss out on opportunities to enhance essential knowledge, skills, and attitudes in their respective fields of work.

Furthermore, the Sri Lankan Digital Government Competency Framework is based on the country's digital government strategy, global digital government benchmarks, and existing competency requirements. However, the existing state may not be permanent, and it will need to be updated periodically to account for changes in the global and local environments.

To facilitate the application of the Digital Government Competency Framework across the government, ICTA has developed the model shown below. Furthermore, the below model will be utilized to capacitate 100,000 government officials, under the NextGenGov initiative.

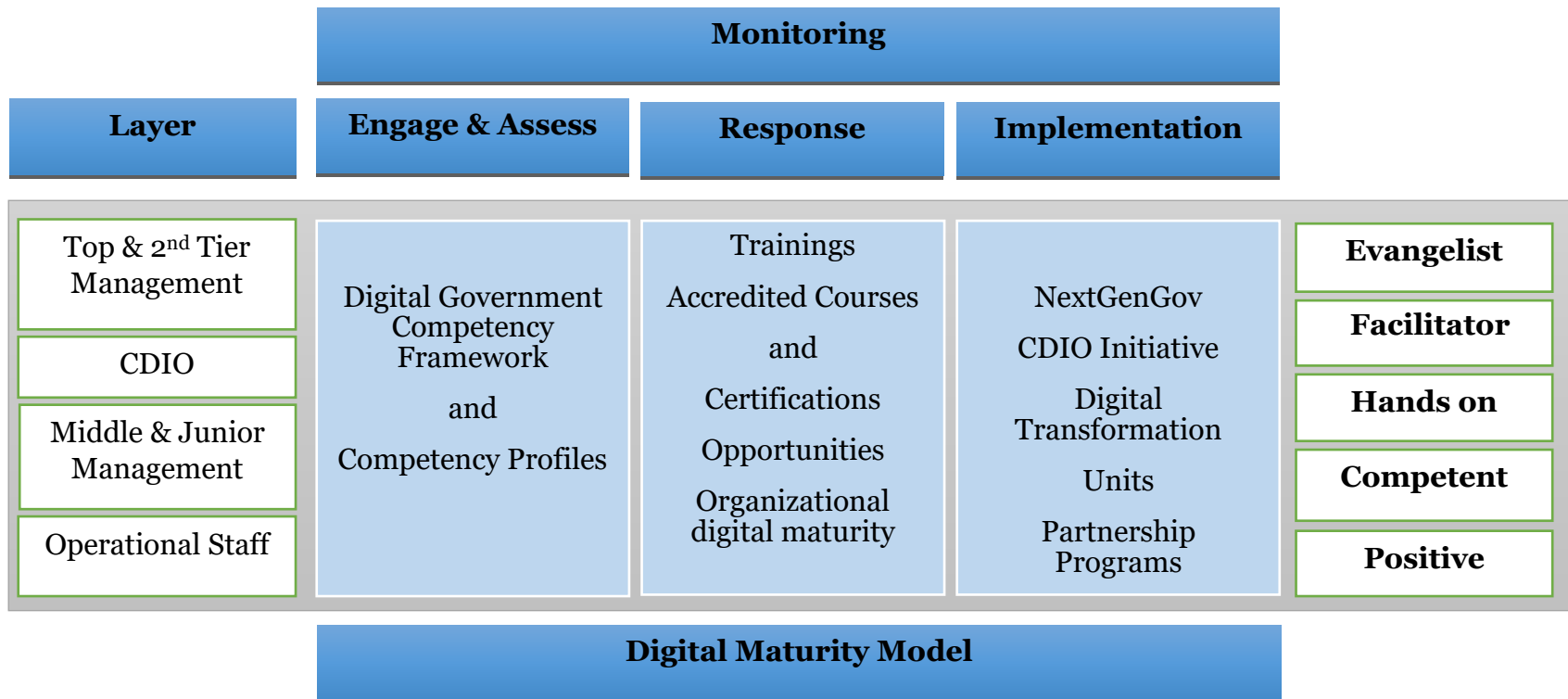


Figure 2: Implementation Model by ICTA

2. Problem Statement

The government workforce has a complex and diversified organization, and the competencies of its employees vary greatly. Further, currently, it is difficult to capacitate many officials systematically in a short period. Furthermore, there is no unified approach for capacity building across the government.

3. Literature Review

3.1 What is a Competency Framework?

Competency frameworks are conceptualizations that **“aim to structure a set of intertwined competencies that aim to improve the capacities of a specific target group”**. They can be found in policy documents, school curricula, certification schemes, and other places. scholarly papers These frameworks abound in the digital world, as evidenced by More than one hundred people who have been identified as part of the all-aboard study. (UNICEF, 2019)

A digital skills framework categorizes and organizes the complexity and breadth of digital skillsets. Frameworks establish a common language and, in some cases, specify skill levels or learning outcomes. (Vuorikari & Punie, 2019, p. 1)

Although many competency frameworks are spanning a wide range of topics, this document focuses solely on Digital Government competency frameworks.

Several countries are concerned about how to provide sufficient competencies and abilities to further expand public service delivery. Hence, there are several digital literacy competence frameworks developed by international organizations. ICTA will combine a few competency matrices to develop a unique competency matrix that supports GoSL requirements.

Please refer to Annexure 01 for more information on working definitions of competencies, the target segment for each competency, and the application of competencies in a government setting.

3.2 Overview of existing Competency Frameworks

ICTA evaluated the existing global national ICT and digital literacy frameworks, which are detailed in this part, to ensure that the proposed framework is appropriate to GoSL.

Name of the Framework	Description
Digital Competence Framework for Citizens (DigComp 2.0)	<p>The Joint Research Centre of the European Commission first published the Digital Competence Framework for Citizens (DigComp) in 2013, and it was updated in 2017.</p> <p>The framework also specifies the knowledge, skills, and attitudes required for each competence, with eight proficiency levels. Following are the competency areas considered in this framework.</p> <ul style="list-style-type: none"> Information and data literacy Communication and collaboration Digital content creation Safety Problem-solving <p>DigComp, which was developed for and is largely utilized by European Union (EU) member states, has been used as a foundation for establishing strategy, education programs, and assessment tools in over 20 nations in Europe and around the world. Details are included in Annexure 02.</p>
Digital Literacy Global Framework (DLGF)	<p>The development of the framework included a technical review of more than 40 global digital literacy frameworks, which were then mapped against DigComp. In the end, DLGF supplemented the existing DigComp framework with two additional competence areas, namely “devices and software operations” and “career-related competencies”, and one additional competence under the “problem solving” competence area, namely “computational thinking”. Details</p>

	of the framework are included in Annexure 02.
Digital Skills to Tangible Outcomes (DiSTO)	<p>A group of researchers at the London School of Economics, established the Digital Skills to Tangible Results framework to improve and quantify people's digital skills, digital engagement, and ICT use outcomes.</p> <p>The framework categorizes skills into four categories.</p> <ul style="list-style-type: none"> • Operational skills - the skills to operate digital media • Formal skills - the skills to handle the special structure of digital media such as menus and hyperlinks • Information skills - the skills to search, select and evaluate information in digital media • Strategic skills - the skills to employ the information contained in digital media to reach personal or professional goals. <p>This methodology used performance-based methodologies to analyze self-assessments, allowing researchers to establish a baseline based on actual performance. As a result, it produces consistent results in terms of skill levels.</p>
New Essential Digital Skills Framework	<p>The new Essential Digital Skills Framework from the United Kingdom Department of Education is intended to help adults improve their digital skills. The framework focuses on "the abilities required to engage in, and contribute to today's and tomorrow's digital worlds. This includes five categories of skills:</p> <ul style="list-style-type: none"> • Communicating • Handling information and content • Transacting • Problem-solving • Being safe and legal online

Table 1: Existing Competency Frameworks

After performing literature, it was identified that in several cases, countries have multiple frameworks in use and most likely for different purposes. Further 11 countries have developed their national frameworks, and of these 7 have in addition adopted enterprise frameworks. On the other hand, 36 countries have only adopted enterprise frameworks. Also, some countries have adopted multiple frameworks as well. (UNESCO, 2018)

4. Digital Government Competency Framework of Sri Lanka

4.1 Objective

To formulate a competency framework that facilitates seamlessly to capacitate all government officials.

4.2 Definitions

Competency:

The ability to perform particular tasks and duties to the standard of performance expected in the workplace, applying all relevant skills, knowledge, and attitudes consistently over time in the required workplace situations. (ILO, 2015)

Area	Definition	Example
Knowledge	The outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories, and practices that is related to a field of work or study."	Thorough understanding of key steps to planning a program or project and be well-versed in strategies for evaluating success.
Skills	Expertise to apply knowledge and using know-how to complete tasks and solve problems.	Expertise obtained on being safe in digital space by practicing tools and techniques learned at a workshop
Attitude	Inherent characteristics or qualities are expressed through what you think, do, and feel.	Positive attitudes towards new assignments and initiatives

Table 2: Definitions

4.3 Conceptual Model

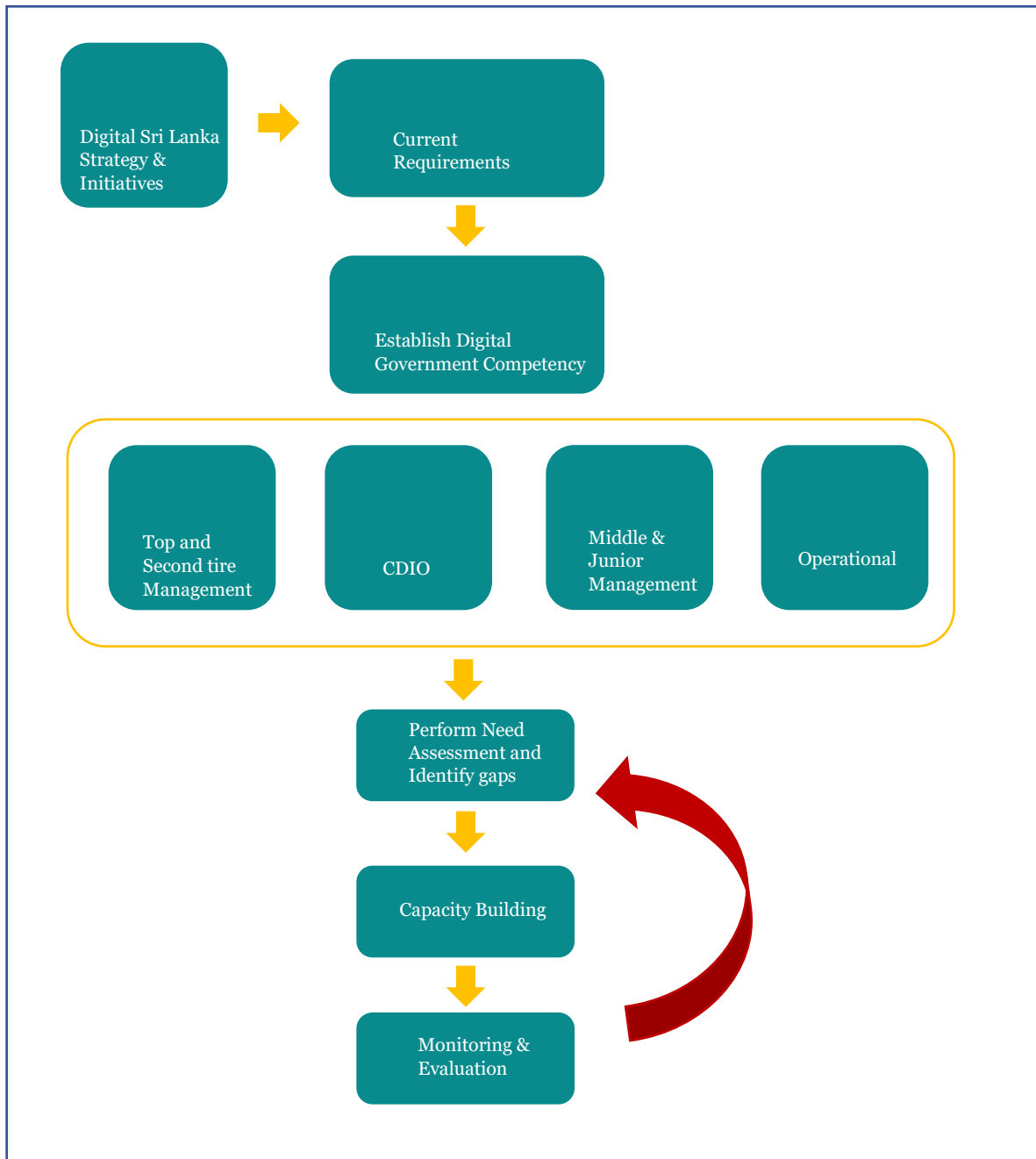


Figure 3: Establish Digital Government Competency Framework

4.4 Focus Areas

The structure of the Digital Government Competency Framework consists of 3 key focus areas. In line with the focus areas, competency areas, competencies are structured and defined.

Key Focus Area	Definition
ICT	Required knowledge and skills in ICT to enable more efficient, cost-effective, and participatory government, facilitate more convenient government services, allow greater public access to information, and make government more accountable to citizens.
Digital Government	Required knowledge and capabilities to drive an ICT-enabled transformation of the public sector. And making it possible to carry out the public sector’s tasks more efficiently and effectively.
Management	Are the skills, habits, motives, knowledge, and attitudes necessary to successfully manage people or the knowledge and skills that contribute to workplace productivity.

Table 3: Focus Areas

4.5 Stakeholder Layers

Having reviewed all the factors in the alignment of the internationally used relevant frameworks in digital government, the competencies are identified for the below-mentioned four layers for the GoSL.

Top & 2nd Tier Management	Personnel who direct and control an organization at the highest level. Who holds authority, resources, and decision-making power regarding changes at the company.
	Eg: Senior - Executive Level (Secretary, Additional Secretary, Director General, etc.) – Top and 2nd in command
Chief Digital Information Officers	A person who is responsible for facilitating providing strategic direction and promoting digital transformation initiatives.

Middle & Junior Management	Subordinate to the top and 2nd tier management and responsible for team leading. Middle management is indirectly (through line management) responsible for junior staff performance and productivity
	Eg: Directors, Assistant Directors, etc.
Operational Staff	Staff executing the strategy which is developed by the organizational leaders.
	Eg: Development Officer, Technical Officer, Management Service Officer, Staff Officers, Administrative Officer, ICT Officer, etc.

Table 4: Stakeholder Layers

4.6 Snapshot of the Framework

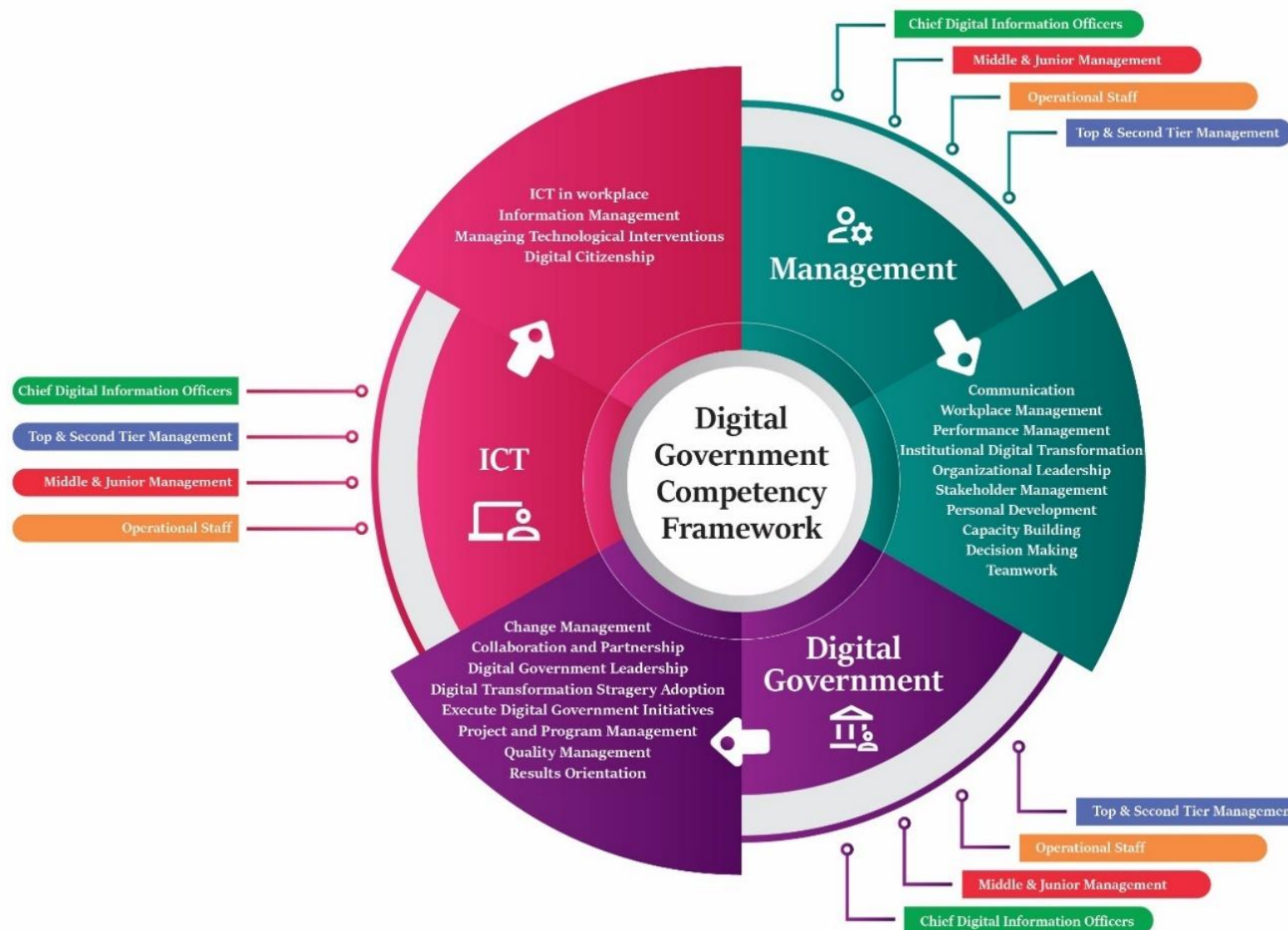


Figure 4: Snapshot of the Framework



Digital Government Competency Framework

https://docs.google.com/spreadsheets/d/1UI-dkGqEq5YlQHnuDiYC2T_UK5wMGsKvNkTvdDibvw/edit?usp=sharing

4.7 Top & 2nd Tier Management – Competencies

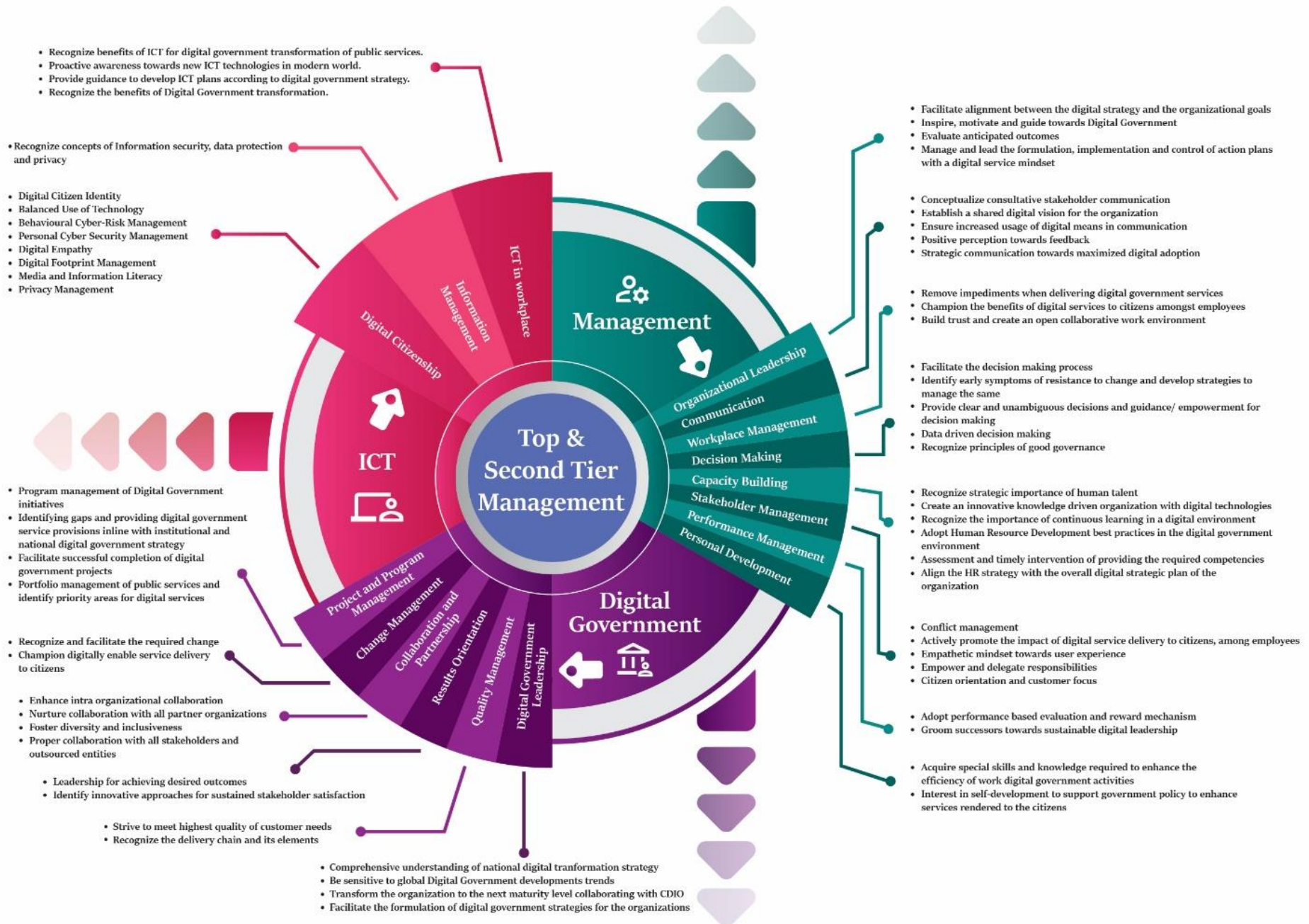


Figure 5: Competencies - Top & 2nd Tier Management

4.8 CDIO – Competencies

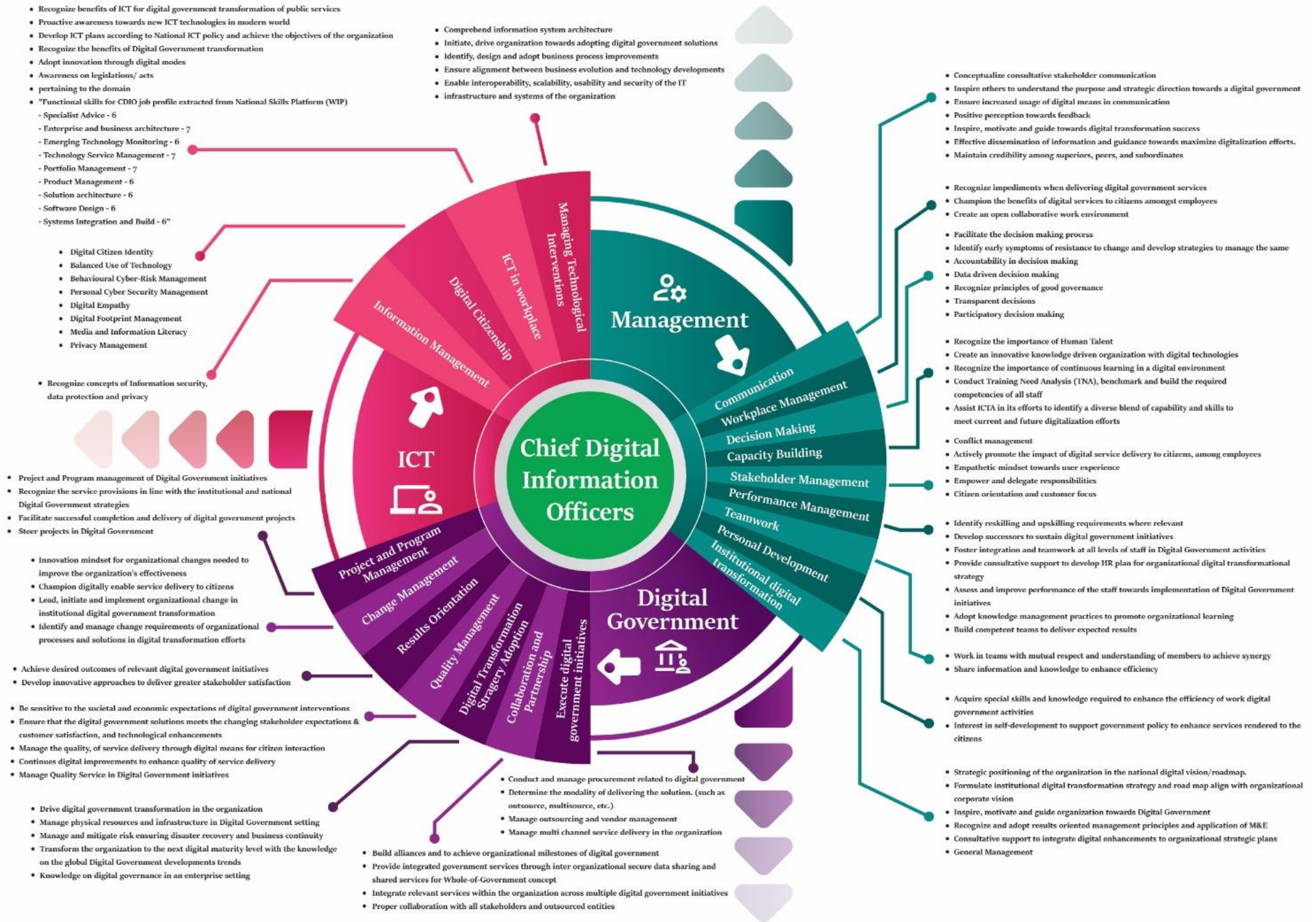


Figure 6: CDIO – Competencies

4.9 Middle & Junior Management – Competencies

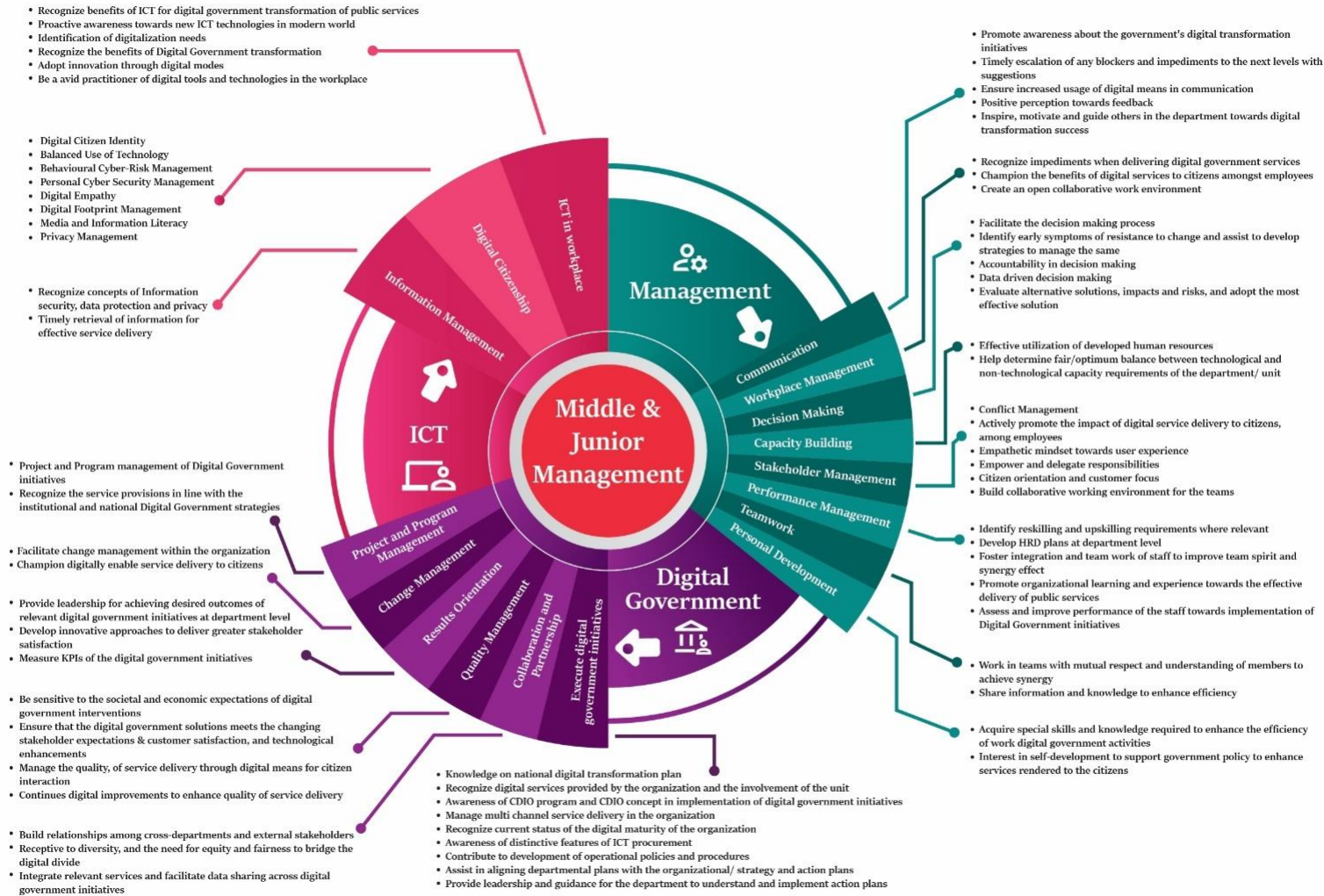


Figure 7: Middle & Junior Management - Competencies

4.10 Operational – Competencies

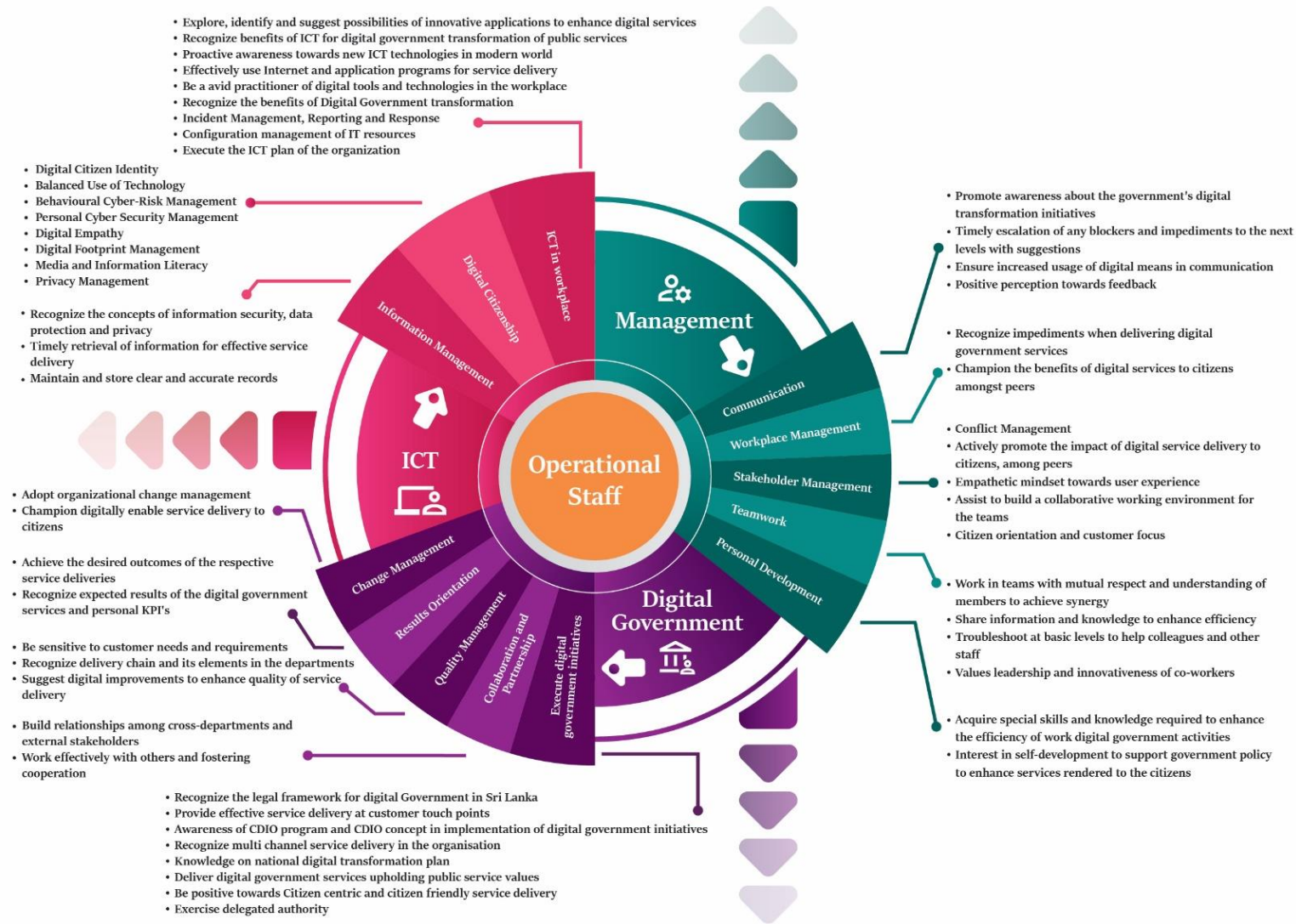


Figure 8: Competencies - Operational Staff

4.11 Need Assessment Toolkit

The Need Assessment Toolkit will be used to determine the competency gap for each Focus Area and Competency Area.

The employee's assessment will be based on the Stakeholder Layer to which he or she is assigned.

The image shows a screenshot of a web-based self-assessment form. At the top left, it says "Section 1 of 4". The main title is "Digital Capability Self Assessment - ICT (Middle & Junior Management)". Below the title is a descriptive paragraph: "Required knowledge and skills to enable more efficient, cost-effective, and participatory government, facilitate more convenient government services, allow greater public access to information, and make government more accountable to citizens." The form contains five input fields, each with a red asterisk indicating it is required: "Email *", "Name *", "Organization *", "Designation *", and "Contact Number *". Each field has a "Short answer text" label and a dotted line for input. Below the email field, there is a note: "This form is collecting emails. [Change settings](#)".

Figure 9: Need Assessment Tool Kit (Page 01)

Section 2 of 4

Competency Area: ICT in Workplace

Competency Area Description: Productively perform tasks in the workplace by using ICT skills and knowledge in a digital government setting.

1) Identify the benefits of ICT for transformation in public services ? (Choose the incorrect answer) *

- a) Digital Transformation will improve customer/ citizen satisfaction
- b) Understanding of digital tools & techniques, practices will not help to increase efficiency
- c) Usage of digital means will help to increase productivity
- d) With right attitude you will be able to transform your department to a digitally inclusive organization

2) What are the new ICT technologies which can help the digital transformation of your organization?.(A) - Data Science .(B) - Process automation techniques .(C) - NFC/ RFID .(D) - Internet of Things (IoT) *

- a) A Only
- b) A & B
- c) B, C and D
- d) All of the above

3) Select the most important factor for your organization? *

- a) Most important is the digital roadmap
- b) Identification of digitalization needs my your department
- c) Email collaboration and communication tools
- d) All of the above

Figure 10: Need Assessment Tool Kit (Page 02)

4.12 Reports

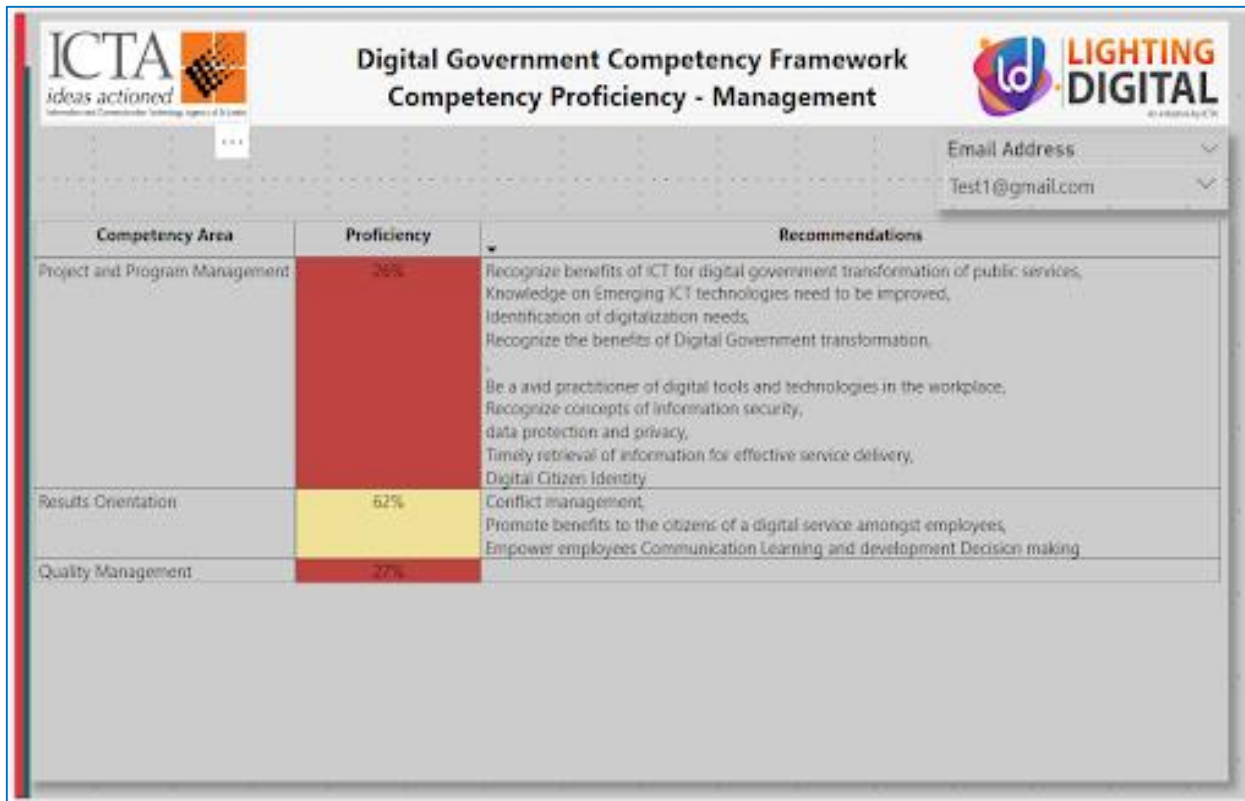


Figure 11: Focus Area-wise Competency Gap

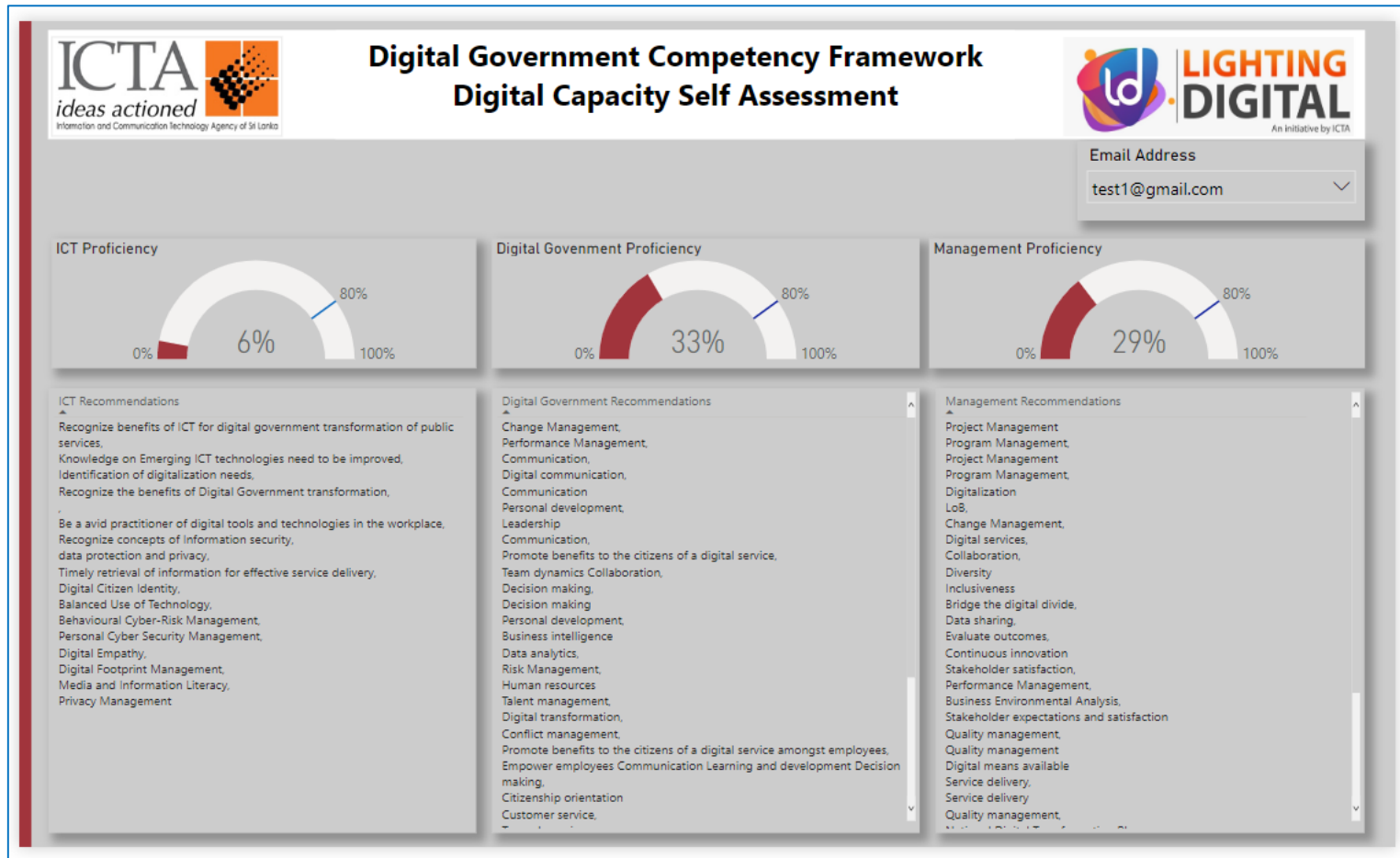


Figure 12: Competency Gap

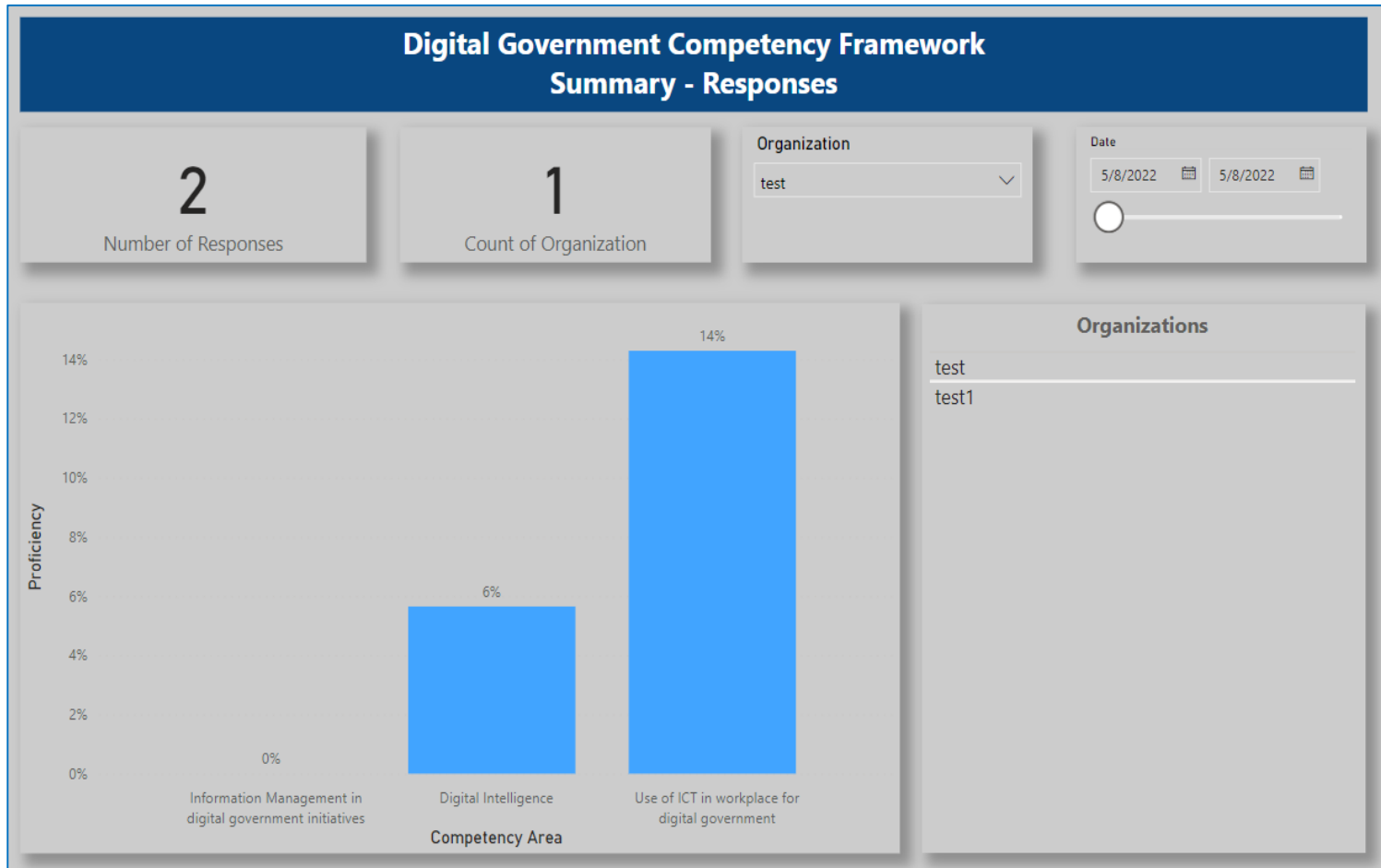


Figure 13: Summary of Assessments

4.13 Benefits of having a Competency Framework for the Government

Adoption of a fully-fledged Digital Government Framework reaps multiple benefits. Some of which are:

- With clear performance and competency expectations established, GoSL employees can be guided on how to adopt and reinforce behaviors that are consistent with the organization's mission, culture, and goals for digital transformation.
- A shared language is developed to communicate what is required and anticipated in the workplace, ensuring consistent and high-quality performance delivery within the organization.
- Simplify and improve human resource operations in public organizations (human resource planning, recruitment, learning and development, and performance management).
- Skills gaps are addressed, strengths are enhanced, and criteria for professional advancement are clear for the public employees.
- Benchmarking an individual's digital literacy skills.
- Describing skills relevant to the organization and employment to GoSL.
- Supporting the moderation and validation of digital literacy.

Competencies give GoSL employees a clear understanding/ path toward making them capacitated of the behavior change that is displayed and the anticipated levels of performance to achieve the government's organizational objectives. In addition, the public sector will learn the types of behaviors and acts that will be recognized, acknowledged, and rewarded.

Using a competence framework enables, GoSL to successfully connect its employees' skills, capabilities, and knowledge with the aims of digital transformation, leading to a digitally capable workforce, advancement in capabilities, and efficiency.

As a result, to fulfill GoSL's goals under its mission and mandate necessitates a well-structured and well-defined competency framework.

5. Implementation Approach

It is recommended the proposed competency frameworks should not be used as stand-alone, but rather as part of a holistic approach that includes preparatory recommendations and follow-up processes. (UNICEF, 2019)

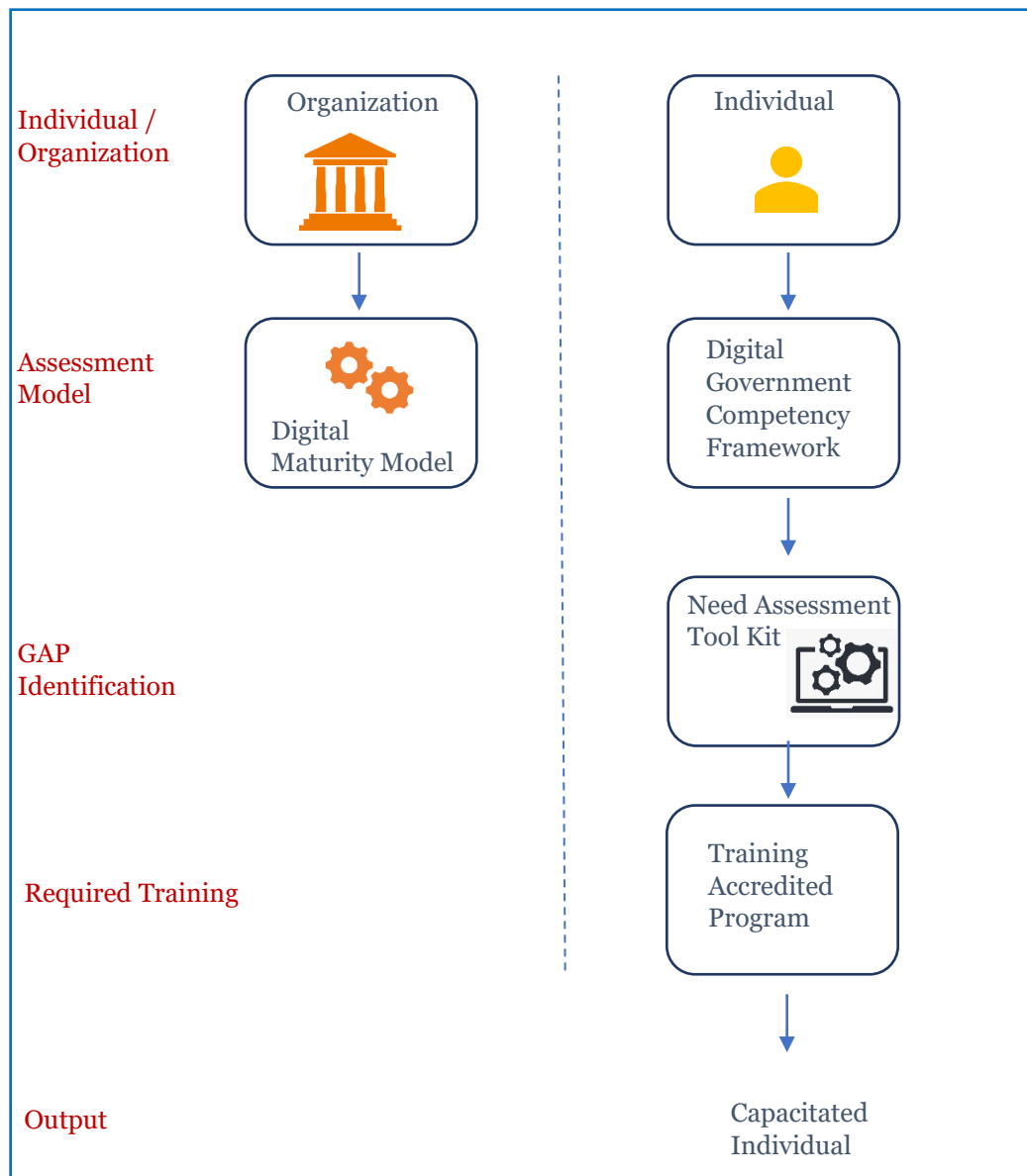


Figure 14: Implementation Approach

To ensure that the process continues in the future, ICTA will perform the following activities.

- Each government organization shall assess the training needs for all levels of staff to address organizational ICT requirements on an annual basis, and the organization's ICT plan should include relevant capacity-building training for employees.
- ICTA will enable discussions, evaluations, and adjustments to the competencies to ensure that they are relevant to GoSL's needs and technical and functional developments. As specialized knowledge and skill requirements evolve, functional competencies will evolve. Periodic evaluations will be carried out to ensure that the content remains relevant.
- The competency standard framework is used to determine the training programs for each set of stakeholders. Management and technical training are also included in these training programs. Training will be conducted using a combination of theory, practice, and workplace applications. However, implementing these training programs by doing individual needs assessments for each training program using a training need checklist is critical. This strategy is crucial to prevent providing non-required training to competent individuals. The respective organization of the person engaging in training will conduct an individual need assessment.
- Implement suitable incentive and rewarding schemes for staff that are proficient in ICT and/or obtain relevant qualifications in ICT.
- All staff in government organizations should be encouraged to obtain relevant approved qualifications.
- To implement proper digital government capacity-building programs for government organizations the capacity-building framework and the training programs are to be developed by ICTA.
- ICTA provides the annual training plan for the capacity-building program in digital governance, for which the individual organizations should nominate the relevant employees for the training program and ensure participation in training.
- ICTA will conduct periodic reviews of the performance of training according to the annual training plan and report the progress to the steering committee on digital governance.

6. List of Contributors

- **Mr. Aminda James**

Mr. Aminda James is a Senior Manager at ICTA working on ensuring equity and equality in education through digital mediation. He has over 15 years of experience in various fields including engineering, business development, and capacity building. He has a bachelor's in Electrical Engineering and a master's in Business Administration.

- **Dr. Anuradha Jayakodi**

Dr. Anuradha Jayakodi is an assistant professor at the Sri Lanka Institute of Information Technology. He has over 28+ years of experience in the field of ICT. Ph.D.in Electrical and Computer Engineering from Curtin University of Technology, Australia, M. Phil (Statistics and Computer Science.) from the University of Peradeniya, Sri Lanka, MSc from Sri Lanka Institute of Information Technology Sri Lanka, and BSc (Computing) (UK Greenwich). He is a chartered engineer CEng (UK) and he is a member of many professional bodies (CITP MBCS (UK) SMIEEE (USE), MIET(UK), MCP, CCAI, MACM(USA))

- **Mrs. Chanaki Mallikarachchi**

Mrs. Chanaki Mallikarachchi is working as the Deputy Director at the Information & Communication Technology Unit, Presidential Secretariat. She has been in the government sector since 2006 as System Integration Engineer, Assistant Director. Before that, she was in the private sector serving as a Program Manager and QA Engineer at ICBT Campus and Virtusa (Pvt) Ltd. respectively. She has obtained Master's degrees in IT and eGovernment from the University of Colombo and PIM respectively. Also, she has a Special (Hons) degree in IT and a B.Sc. degree in Computer Studies from SLIIT and Curtin University of Australia. She also holds memberships of BCS and CSSL.

- **Mr. Chamendra Perera**

Mr. Chamendra Perera has more than 18+ years of experience in the IT field and currently succeeding as a senior manager at ICTA. He is an MBA holder and has special postgraduate qualifications in Project management and his initial degree in Bachelor of Information Technology (BIT). Further, he is a qualified Scrum master and has experience in Project Management, development, customer support, mentoring, coaching, and diverse soft skills in relation to communication and teamwork in a multinational environment. He is a qualified Microsoft trainer and certified in Microsoft Software Development (MCSO). He also holds a Certificate in Web Mastering Currently (CIW) and is certified in Microsoft Project Management Specialized. He is a member of the Regional Scrum gathering review committee. He was a Microsoft Certified Trainer till 2012.

- **Mr. D L A Wijenayake**

Mr. D L A Wijenayake has more than 30 years of experience in the field of financial management in the public sector. He also holds the following degrees: HNDA, DPFM, Diploma in IT, CompTIA A+, CA (Final), MAAT, MPA (e-Government), PIM-University of Sri Jayewardenepura, PGD (Accounts & Finance), and MAAT. Additionally, he has demonstrated excellence in project finance, procurement management, public financial management, and e-government services and has foreign exposure in the United Kingdom, Malaysia, Thailand, and India.

- **Mrs. Erandi Liyanage**

Mrs. Erandi Liyanage has been employed by the Sri Lanka Accountant service as an accountant Since 2015. She has also held positions with the Ministry of Public Administration, Ministry of Education, and Kotte Municipal Council. She graduated from the University of Colombo with a Master's in Business Management and a Bachelor's in Labor Education. She is an AAT member and a Certified Business Accountant (ICASL).

- **Ms. Kanishka Withana**

Ms. Kanishka Withana has over 11 years of experience working in the private sector and presently holds the position of Manager at ICTA. Her background is diverse and includes project management, business analysis, solution designing, system implementation, post-implementation reviews, and business process reengineering disciplines. She is a certified business analyst and a project manager. She holds a master's degree in business administration and a bachelor's degree in information technology. She is also a member of PMI.

- **Mr. Lalith Waduge**

Mr. Lalith Waduge currently works as the director of information and communication technology for the Ministry of Education. He has over 25 years of experience working in the IT field in the public sector, and he has made significant contributions to the promotion of e-government and serves as a consultant for numerous IT projects in public organizations. He has a Master of Science in Computer Science, an MBA in eGovernment from Moratuwa University, and an MPA (e-Government), PIM-University of Sri Jayewardenepura. In addition, he is an MCT professional who is also a member of BCS and CSSL. He also participates in focus groups for national ICT projects carried out by ICTA, technical evaluation, and procurement committees, as well as for the focus group that develops policies for digital education.

- **Dr. Madu Fernando**

Dr. Madhu Fernando is a well-known Project Management Professional, Management Consultant, and trainer with 20+ years of experience. She is qualified with a Doctor of Business Administration from Swinburne University and a Master of Telecommunications Engineering from RMIT University. She is also the initiator of the PMI Colombo Chapter, Chairperson of the Institute of Project Management Education and Research, CEO of Innova Strategies, and Head of Project Management at VizuaMatix - an innovative IT company. After studying and working in Australia she returned to Sri Lanka to serve her motherland with her knowledge and experience and has been achieving that goal by working with many universities and government institutions.

- **Mrs. Nadeesha Jayamaha**

Mrs. Nadeesha Jayamaha is currently working as the Director of Human Resources at ICTA. She has over 15 years of professional experience in Human Resources Management in the IT and Insurance industries. She obtained her basic degree in Human Resources Management from the University of Sri Jayewardenepura and her Master's from the Post Graduate Institute of Management.

- **Mr. Ranjan Nishantha**

Mr. Ranjan Nishantha is currently working as an Assistant Director (ICT), in the Elections Commission. He has over 17 years of experience in government. He advocates eGovernment and specializes in system development. He holds a PGD in eGovernance, MPA (e-Government), PIM-University of Sri Jayewardenepura, and a BSc. In Management and Information Technology from the University of Kelaniya.

- **Ms. Samathi Senanayake**

Ms. Samanthi Senanayake is a Senior Consultant at the Sri Lanka Institute of Development Administration and a Grade 1 officer in the Sri Lanka Administrative Service. Within her 19 years in the public sector, her continuous involvement in eGovernment and Digital Government initiatives are significant. She is a holder of an MIS Degree from the University of Melbourne Australia, an MSc in Information Management from SLIIT, a Diploma in eGovernment from PIM, and a BSc from the University of Kelaniya.

- **Mr. Sameera Jayawardana**

Mr. Sameera Jayawardana is a Digital Transformation Evangelist, Strategist, Adoption specialist, and Results driven Consultant with over 15 years of experience in digitization Portfolio with program and Project Management on digital technologies, Transformation Strategy & Policy, Digital education, HR Capacity Building and digital government transformation, who is currently working as the Associate Chief Digital Economy Officer as ICTA. He leads large-scale national-level digital transformation and capacity-building initiatives including the formulation and adoption of the Digital Government Policy and Strategy of Sri Lanka from 2010 to 2014. He holds an MSc in Management, BSc in Information Systems, and he is also a certified Project Manager (PMP), and a Member of CSSL, PMI, ISO Global, SLEVA, and also a Board Member of the National ICT Skills Council.

- **Mr. Suranga Batepola**

Mr. Suranga Batepola is an officer in the Sri Lanka planning service with 13 years of experience working in development planning in the government sector. He has been a Director (Planning) in the Ministry of Sports and Youth Affairs since 2019. Before that, he was responsible for implementing the e-Grama Niladhari project at the Ministry of Digital Infrastructure. He graduated from the University of Kelaniya in the science stream and completed his master's studies in regional development and planning at the University of Colombo.

- **Mr. Udesch Senevirathne**

Mr. Udesch I W Seneviratna having 23+ experience in public service is currently working as the Senior Assistant Secretary (Development) at the Prime Minister's Office of Sri Lanka. During his career in Sri Lanka Administrative Service (SLAS) he has worked in the Presidential Secretariat, Ministry of Foreign Affairs, and Ministry of Industry, Tourism & Investment Promotion in various capacities. Udesch obtained his bachelor's degree in Physical Sciences from the University of Colombo. His academic qualifications further include three Post Graduate Diplomas in the fields of International Relations, Economics, and Public Management and also a master's degree in Management and Information Sciences with Summa cum Laude from Japan. Apart from being an Executive Committee Member of CSSL, his voluntary work includes holding positions of First Secretary, Alumni Organization of the University of Colombo, Assistant Treasurer, Alumni Association of Sri Lanka Institute of Development Administration, and Deputy Secretary of the Sri Lanka Administrative Service Association (SASA).

- **Mrs. Upekha Ukuwela**

Mrs. Upekha Ukuwela is an HR professional with over 10 years of experience in translating business vision into HR initiatives that improvise performance, profitability, and employee engagement, particularly in private sector conglomerates. Spearheaded projects that delivered exceptional employee experiences through trusted cultures. Her forte is in skill-building and Talent Management. To complement her industry experience, she possesses a Bachelor of Science degree in Human Resource Management and a Master of Business Administration. She is also a Member of the Society for Human Resource Management (SHRM).

- **Mrs. Vishaka Nanayakkara**

Mrs. Vishaka Nanayakkara is working as Senior Lecturer at the Department of Computer Science and Engineering at the University of Moratuwa and the Director of the University's Centre for Open and Distance Learning. Having graduated from the University of Moratuwa, with the first class in Computer Science and Engineering and the Gold medal for the best student in 1994, she then obtained her Technical Licentiate in Computer Engineering from the Chalmers University of Technology, Sweden in 2002. Her research interests are in network performance modeling and analysis, Technology-based teaching, learning and assessment in education, E-learning & mobile learning and its implications on developing nations, and ICT for development. She was also instrumental in setting up the Faculty of Business at the University of Moratuwa and introducing the new degree in Bachelor of Business Science. Conducting ICT and English competency-building programs and common testing for all universities was one of her achievements. While working as the deputy project director for the Ministry of Higher Education. At present she spearheads the University's outreach program - open.uom.lk on providing free online ICT training for the Sri Lankan youth which has over 100,000 registered users.

- **Mr. Waruna Sri Danapala**

Mr. Waruna Sri Dhanapala is a Special Grade Officer of Sri Lanka Administrative Service with over 22 years of service, and currently serving in the Ministry of Public Administration, Home Affairs, Provincial Councils & Local Govt. as the Additional Secretary (Regional Administration Reforms). He also served in the Ministry of Defence and the Ministry in charge of Digital Infrastructure as the Additional Secretary (Development), initiating and coordinating several digitalization and e-Government policies, programs, and projects. His other postings include Senior Assistant Secretary to the President and Director of Natural Resources Management at the Ministry of Environment. As the Minister Counsellor at the Permanent Mission of Sri Lanka to the UN in New York during 2012-2014, Mr. Dhanapala contributed to the formulation of Sustainable Development Goals. He holds two Master's Degrees (International Development Studies from Japan and Public Administration from the Postgraduate Institute of Management (PIM) and a BSc (Special) Degree in Geology and Computer Science from the University of Peradeniya. He is a Professional Member of CSSL.

- **Mrs. Gayani Wijesinghe**

Mrs. Gayani Wijesinghe has completed 16 years of service in the Sri Lanka Administrative Service, she is at present serving in the Ministry of Public Security in the capacity of Senior Assistant Secretary (Development). After completing her first degree in B.Sc. (Business Administration) from the University of Sri Jayewardenepura, she has further studied Master of Arts from the University of Kelaniya. She has also got the opportunity to enhance her knowledge in ICT development and e-government system while crafting her capacity in the fields such as new management strategies and skills through the training programs followed by several countries such as China, Canada, and South Korea. ICT development, System transformation, and e-government could be mentioned as her most interested areas.

7. References

- APCICT. (2016). *Brirfing on ICT Competency Standards*. Incheon: UN-APCICT.
- Carretero, S., Vuorikari, R., & Punie, Y. (2017). *DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use*. Publications Office of the European Union.
- CEDEFOP. (2011). *Quality in education and training*. Luxembourg: Publications Office of the European Union.
- ILO. (2015). *Regional Model Competency Standards: Core Competencies*. Bangkok: ILO.
- ITU. (2018). *Digital Skills Toolkit*. ITU.
- ITU. (2020). *Digital Skills Assessment Guidebook*. ITU Publications;.
- Kluzer, S., & Pujol Priego, L. (2018). *DigComp into action - Get inspired, make it happen. A user guide to the European Digital Competence Framework. (JRC Science for Policy Report)*. Publications Office of the European Union.
- Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). *A Global framework of reference on digital literacy skills for Indicator 4.4.2*. UNESCO Institute for Statistics (UIS).
- Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). *A Global framework of reference on digital literacy skills for Indicator 4.4.2*. UNESCO Institute for Statistics (UIS).
- London School of Economics . (n.d.). *London School of Economics DiSTO Project: From digital skills to tangible outcomes. London School of Economics and Political Science (LSE)*. Retrieved 03 20, 2020, from <https://www.lse.ac.uk/media-and-communications/research/research-projects/disto/home.aspx>
- OCED. (2020). *Future of e-government*. Paris: OCED.
- Skorková, Z. (2016). 3rd International Conference on New Challenges in Management and Organization: Organization: Competency models in public sector. *Procedia - Social and Behavioral Sciences*, 230(2016), 226-234.
- UN-APCICT. (2010). *The Quest for Competence*. UN-APCICT.
- UN-APCICT. (2015). *ICT Competency Standards for Public Sector. Outcome report for iSEED programme*.
- UNESCO. (2018). *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2*. Montreal: UNESCO Institute for Statistics.
- UNICEF. (2019). *UNICEF - Global Insight digital literacy scoping paper*. New York: United Nations Children's Fund (UNICEF).
- Van Deursen, A., van Dijk, J., & Peters, O. (2012). Proposing a survey instrument for measuring operational, formal, information, and strategic Internet skills. *International Journal of Human-Computer Interaction*, 28(12), 827-837.

8. Annexure 01

8.1 Target segments for ICT competency standards

Typically, ICT competency standards have the following target segments.

- Government or public officials:
ICT skill levels for the workers of the government, to enable digital-government processes.
- General workforce/population:
Basic digital literacy for everyone in the population, and especially for preparing or upgrading the skills of the workforce.
- Core ICT industry:
Skills for ICT professionals within the core ICT industry in the country, including telecommunications, software development, systems management, IT architecture and project management, etc.
- ICT professionals across sectors:
Skills defined for a broad variety of industries beyond the core ICT sector above.

(APCICT, 2016)

8.2 What is known as Competency?

Competence is described as a combination of context-specific knowledge, abilities, and attitudes. Competence denotes the capacity to apply learning outcomes appropriately in a specific environment (education, work, personal or professional development, etc.). It also includes functional features (such as technical abilities), interpersonal characteristics (such as social or organizational skills), and ethical principles. (CEDEFOP, 2011)

People cannot grasp the competencies that employees should have for their employee level or detect the gap based on competencies alone. As a result, numerous studies indicate a wide range of competencies, and it was necessary to develop a framework for monitoring and measuring actions.

8.3 How are competencies being used

Competencies are determined by occupational responsibilities and obligations, as well as the complexity of work indicated in job descriptions. It can be useful in the following contexts.

- **Planning:** Competencies are used to determine job content, and the requirements to perform the job. Competencies in this context ensure that the abilities, talents, and behaviors required to reach the highest performance standards for a certain position are established.
- **Recruitment:** Competencies are an essential component of the selection process, helping the evaluation of candidates to establish their appropriateness for a specific job.
- **Performance management:** Competencies aid in the setting of performance criteria against which employees will be evaluated, as well as the identification of individual and government-wide capacity-building initiatives.

9. Annexure 02

Competencies and the competency areas of a few of the most prominent frameworks are urgently sure.

9.1.1 DigComp 2.0

Competence area	Competences
1. Information and data literacy	1.1 Browsing, searching, and filtering data, information, and digital content 1.2 Evaluating data, information, and digital content 1.3 Managing data, information, and digital content
2. Communication and collaboration	2.1 Interacting through digital technologies 2.2 Sharing through digital technologies 2.3 Engaging in citizenship through digital technologies 2.4 Collaborating through digital technologies 2.5 Netiquette 2.6 Managing digital identity
3. Digital content creation	3.1 Developing digital content 3.2 Integrating and re-elaborating digital content 3.3 Copyright and licenses 3.4 Programming
4. Safety	4.1 Protecting devices 4.2 Protecting personal data and privacy 4.3 Protecting health and well-being 4.4 Protecting the environment
5. Problem solving	5.1 Solving technical problems 5.2 Identifying needs and technological responses

	5.3 Creatively using digital technologies
	5.4 Identifying digital competence gaps

Table 1: DigComp 2.0 competence areas and competences

(UNESCO, 2018)

9.1.2 Digital Literacy Global Framework

Competence Areas	Competencies
0. Devices and software operations	0.1 Physical operations of digital devices 0.2 Software operations in digital devices
1. Information and data literacy	1.1 Browsing, searching and filtering data, information and digital content 1.2 Evaluating data, information and digital content 1.3 Managing data, information and digital content
2. Communication and collaboration	2.1 Interacting through digital technologies 2.2 Sharing through digital technologies 2.3 Engaging in citizenship through digital technologies 2.4 Collaborating through digital technologies 2.5 Netiquette 2.6 Managing digital identity
3. Digital content creation	3.1 Developing digital content 3.2 Integrating and re-elaborating digital content 3.3 Copyright and licences 3.4 Programming
4. Safety	4.1 Protecting devices 4.2 Protecting personal data and privacy 4.3 Protecting health and well-being

	4.4 Protecting the environment
5. Problem-solving	5.1 Solving technical problems 5.2 Identifying needs and technological responses 5.3 Creatively using digital technologies 5.4 Identifying digital competence gaps 5.5 Computational thinking
6. Career-related competences	6.1 Operating specialized digital technologies for a particular field 6.2 Interpreting and manipulating data, information and digital content for a particular field

Table 2: Proposed competence areas and competencies for the Digital Literacy Global Framework

(UNESCO, 2018)