

**USAID GLOBAL HEALTH  
SUPPLY CHAIN PROGRAM**

Procurement and Supply Management

Guidance:  
**Human resource  
planning for  
implementing  
health supply chain  
information systems**

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# Table of Contents

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<b>Executive summary</b>	<b>iii</b>
<b>List of abbreviations</b>	<b>iv</b>
<b>Introduction</b>	<b>5</b>
<b>Objectives of the guidance</b>	<b>6</b>
<b>The role of human resources</b>	<b>7</b>
<b>System Development Life Cycle Framework</b>	<b>8</b>
<b>Objectives and activities of each SDLC phase</b>	<b>9</b>
<b>System implementation methods</b>	<b>11</b>
<b>Teams needed throughout the software implementation lifecycle</b>	<b>12</b>
<b>Human resource engagement mechanisms</b>	<b>15</b>
<b>Key performance indicators used for SCIS Implementations</b>	<b>16</b>
<b>Conclusion and recommendations</b>	<b>18</b>
<b>Annex: Resources for further reference</b>	<b>19</b>

## Executive Summary

Digital transformation in health supply chains has the power to improve public health systems through the provision of tools to guide decision making, planning and data management. By focusing on aligning the skills of human resources alongside fast-evolving technology, countries can ensure the effective utilization of digital tools being implemented for supply chains. This guidance document provides recommendations to country governments and implementing partners to improve human resource capabilities for the management of supply chain information system (SCIS) implementations.

We introduce the System Development Life Cycle (SDLC) framework, adapted to the process of selecting and customizing software for supply chain information systems. This framework forms the basis of the activities and relevant teams involved in the process of implementing supply chain information systems. Through insights captured from data shared by supply chain partners working in countries, we share suggested ways of engaging human resources for SCIS implementation.

This guidance underscores the importance of establishing specific job roles with corresponding competencies for each phase of the SDLC, providing references to critical resources that countries can use to identify roles. The guidance highlights the need for process key performance indicators (KPIs) to be established and metrics to be tracked throughout the SDLC for SCIS implementations. By selecting and reporting performance metrics for SCIS implementations, organizations can foster a culture of data-driven decision-making for more effective software implementations.

## List of abbreviations

<b>ARC OSTK</b>	Africa Resource Centre's Outsourcing Toolkit
<b>COTS</b>	Commercial off the shelf
<b>eLMIS</b>	Electronic logistic management information systems
<b>GHSC-PSM</b>	Global Health Supply Chain-Procurement and Supply Management
<b>HR</b>	Human resources
<b>HRM</b>	Human resource management
<b>IaaS</b>	Infrastructure as a service
<b>ISG</b>	Interagency Supply Chain Group
<b>KPIs</b>	Key performance indicators
<b>LMIC</b>	Lower- and middle-income country
<b>M&amp;E</b>	Monitoring and evaluation
<b>MIS</b>	Management information systems
<b>MoH</b>	Ministry of Health
<b>PaaS</b>	Platform as a service
<b>PtD</b>	People that Deliver
<b>QA</b>	Quality assurance
<b>RFP</b>	Request for proposal
<b>SaaS</b>	Software as a service
<b>SCIS</b>	Supply chain information systems
<b>SCM</b>	Supply chain management
<b>SDLC</b>	System development life cycle
<b>TSS</b>	Target software standards
<b>UAT</b>	User acceptance tests
<b>USAID</b>	United States Agency for International Development
<b>WMS</b>	Warehouse management system



## Introduction

**Digital transformation, or the use of technology to enhance and optimize supply chain processes, represents a significant opportunity to strengthen public health supply chains.**

Digital technologies such as electronic logistic management information systems (eLMIS) and warehouse management systems (WMS) are critical tools to guide decision-making, optimize performance and quickly respond to changing demands. While traditional supply chains are often bogged down by a lack of actionable information, digital supply chains are empowered by a stream of real-time data. Digital tools enable national actors and supply chain professionals within ministries of health (MoH) to effectively plan, manage and adapt each step of the health commodity supply chain management process, from procurement to delivery.

Collaborative efforts have been launched by supply chain stakeholders in partnership with private sector technology organizations to develop and deploy sustainable solutions for data collection, visibility, and use, thereby establishing the infrastructure for a digital health system.

USAID is currently providing support for the implementation of management information systems in more than 30 low- and middle-income countries (LMICs). The average expenditure of these initiatives is over USD 1 million in each country.

Healthcare technology is also seeing advancements in product functionality and is adopting improved standards and approaches to system interoperability. In August 2023, the Interagency Supply Chain Group (ISG) published the newest Target Software Standards (TSS) to consolidate functional requirements for digital tools for supply chain processes. These requirements are “intended to be used by (a) software vendors to match their offerings more effectively to the needs of this community, and (b) country governments to better enable the building of RFP requirements and scoring mechanisms to match the requirement definitions presented.”

Management information systems (MIS) implemented for healthcare operations will also incorporate integration and interoperability with supply chain information systems to create nationwide digital health systems. Technology for healthcare, however, represents just one piece of the supply chain infrastructure. Human resources (HR) are an equally important factor and serve as the enabler to unlock the benefits of these digital tools. Advancements in technology underscore the need to develop human resource competencies to adapt to the shifting digital landscape.

A stronger emphasis on skills development and capacity enhancement will ensure that human resources keep pace with advancements in digital tools for health system strengthening. By highlighting the benefits of aligning human resources with the evolving landscape of digital technology development, this guidance seeks to shine a light on the skills, roles, and teams critical for the deployment of digital supply chain and eHealth information systems.

1. <https://isghealth.org/2023-target-software-standards/>

## 02.



## Objectives of the guidance

This practical guidance has been developed by the People that Deliver coalition (PtD) and the United States Agency for International Development (USAID)-funded Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project, in collaboration with the Commodity Security and Logistics Division of the Office of Population and Reproductive Health of USAID.

to overcome potential bottlenecks in the health supply chain.

It provides a repository of best practices pertaining to human resources within digital health supply chain information system implementations and can be used to support robust capacity development endeavors. Whereas the new software standards (the aforementioned TSS) shares guidance on technical features and standards for supply chain information systems, this guidance focuses on the human resources requirements that are needed to identify and develop information technology systems to implement supply chain systems.

The guidance will equip country governments with the requisite knowledge of system implementation while working with implementing partners and technology consultants and enable a greater sense of ownership and involvement in the implementation process. The guidance complements the [PtD Building human resources for supply](#)

[chain management theory of change](#) and the [PtD Supply chain management \(SCM\) professionalization framework](#)



See the [annex](#) for these resources.

In this document, we outline human resource engagement mechanisms, the required roles, and requisite skills and competencies – focusing primarily on aspects of software selection, acquisition, customization, development, and deployment that need to be completed before a digital system becomes operational. We highlight the job roles and associated competencies that can help country governments, implementing partners, and service providers working on supply chain information systems (SCIS) implementations to identify and develop program processes and functional requirements for software, as well as tools

## 03.



## The role of human resources

**Human resources play a vital role in ensuring the successful implementation of information systems. Adequate and accurate HR planning is crucial to ensuring that the project has the right people with the right skills and expertise at each stage.**

Insufficient HR planning can lead to significant challenges and impacts, including delays, budget overages, inefficiencies, and suboptimal project outcomes.

Supply chain information system projects require a diverse range of skills and roles throughout its lifecycle, from software selection and requirement gathering to system design, development, testing and deployment. Each phase demands specific expertise and knowledge. HR planning ensures that these roles are appropriately staffed, enabling seamless project execution and successful outcomes. Insufficient HR planning can result in several challenges and impacts, including:

**Delays:** Inadequate staffing and resource allocation can lead to project delays. Without the right people in place at the right time, tasks may not be completed within the expected timelines, impeding project progress.

**Inefficiencies:** Improper HR planning can result in inefficiencies in project execution.

If roles are not adequately staffed or if individuals lack the necessary skills, it can lead to the suboptimal use of resources and increased project costs.

**Skills gaps:** Insufficient HR planning may result in skills gaps within the project team. If the required skills and expertise are not available, it can hinder the successful implementation of the SC IS and compromise the quality of the final product.

**Poor project outcomes:** Inadequate HR planning can have a direct impact on project outcomes. Without the right people in key roles, the project may not meet its objectives, fail to deliver the expected functionality, or result in a system that does not meet user requirements.

**Increased costs:** Inefficient HR planning can lead to increased project costs. For example, if skilled resources need to be brought in at a later stage owing to inadequate initial planning, it may result

in additional expenses and budget overspending.

To mitigate these challenges and impacts, organizations should invest time and effort in comprehensive HR planning. This includes identifying the key teams needed throughout the software implementation lifecycle, defining the required roles and the necessary skills and competencies, and ensuring appropriate resource allocation at each stage of the project.



# System Development Life Cycle Framework

We recommend the use of the System Development Life Cycle (SDLC) framework, an industry best practice for developing and implementing information systems throughout the project life cycle of project planning, acquisition, management and execution.

[here](#)) is based on the lessons learned and experiences gathered from more than 30 GHSC-PSM countries.

It can be tailored to meet a project's operational requirement. The diagram below illustrates a sample SDLC framework that was developed by the GHSC-PSM project to establish standard operations for managing MIS projects.

Nine phases are outlined throughout the project lifecycle, and activities for each phase are identified in the diagram below. It is critical that human resource capacity is matched to each activity listed below. The content of the framework (see

**FIGURE I.** System Development Life Cycle (SDLC) Framework for MIS Implementation

System Development Life Cycle (SDLC) Framework for MIS Implementation									
Phases	0 Initiation	1 Acquisition	2 Planning	3 Analysis	4 Customization/Development	5 Verification	6 Support/Maintenance	7 Closeout	
Key Activities	Asses MIS Status	Evaluate Solutions (Demo)	Develop Project Management Plan	Analyze System Requirement Specification	Configure/Design System	Develop Application (Build)	Deliver Training	Perform System Support & Maintenance	Develop Transition Plan
	Identify User & Operational Requirement	Develop RFP	Develop Change Control Process	Develop Use Cases	Develop System Test Plan	Conduct System Integration Test (SIT)	Conduct User Acceptance Test	Conduct User Satisfaction Survey	Executive Transition Plan
	Identify Sustainment Plan	Evaluate Proposal and Select Vendor	Develop Project Schedule	Develop Requirement Traceability Matrix	Develop Implementation Plan	Develop Training Material	Execute Implementation/ Plan and Test	Conduct User Operational Assessment	Develop Closure Plan
	Develop Business Case	Define Service Level Agreement SOW	Develop Risk Management Plan	Identify Operational Hardware Needs	Develop Training Plan	Develop System Administrator Manual		Gather Lessons Learned	
	Develop Project Charter	Develop Detailed Budget	Develop Communication Plan			Develop Acceptance Plan/Test Cases		Perform Change Control Operation	
	Approval from all stake holders/Add to work plan	Sign Contract Agreement				Execute Communication Plan (Organisational Change Management)			
					Routine Project Progress and Status Review				



## Objectives and activities of each SDLC phase

- 

**0. Initiation**  
This phase marks the beginning of the software implementation journey by identifying program needs. Project stakeholders identify the designated team to lead and manage the project and assign roles and responsibilities of the resource. In addition, stakeholders and the designated project team shall define the scope of the digital intervention, develop functional requirements, and determine the acquisition method and plan.
- 

**1. Acquisition**  
In this phase, the project identifies and selects the solution and/or vendor through a request for proposal (RFP) bidding process. Through the acquisition process, the project shall determine the best suitable implementation method, to buy an existing commercial off the shelf (COTS) solution or to build a system from scratch (refer to the system implementation method section for a detailed description and pros and cons). It involves understanding vendor capabilities, assessing product functionality, negotiating contracts, and establishing partnerships.
- 

**2. Planning**  
This phase involves the development of detailed project plans in collaboration with software vendors. It includes scheduling, resource allocation, risk identification and determining the level of customization required if a COTS solution is selected. A project management plan and approach with various management teams (for example a project steering committee, technical working group or risk management team) should be formed with the authority and accountability for decision making.
- 

**3. Analysis**  
The analysis phase focuses on clarification and fine tuning of functional requirements, data needs and user experience design. This ensures that the new software aligns with user expectations and serves the intended objectives for operation.

- 
- 4. Development/configuration**
- Skilled developers and designers transform functional requirements into software features. They create tailored solutions based on project specifications. If a software as a service (SaaS) or a COTS solution is chosen, configuration and limited customization will be required.
- 
- 5. Verification**
- Testing, or verification, is crucial to ensure the software functions correctly and meets all functional requirements and business processes. Skilled quality assurance (QA) engineers in collaboration with the software vendor and project team are critical for this phase. User acceptance tests (UAT) led by the project team shall be organized and executed to simulate real-time operations to assess product usability and gather feedback regarding operability.
- Upon a successful UAT, a deployment plan should be developed to ensure the smooth rollout of the software to users. Communication and change management plans shall be defined in advance and executed accordingly to encourage users to embrace the new software and use it as intended.
- 
- 6. Support and maintenance**
- Support and maintenance activities ensure the software remains reliable and secure. Technical experts monitor, troubleshoot, and provide assistance to users to sustain operational continuity. A centralized help desk operation shall be established to report, manage, and resolve system issues in a systematic and controllable approach. Evaluating operational performance in terms of resource and system capabilities is crucial for continuous improvement to achieve business objectives and goals.
- 
- 7. Closeout**
- The closeout phase concludes the project. It involves the transition of the project to a new designated entity or termination of the software system from operation owing to outdated capability and technology. Relevant documentation such as contract agreements, final technical documentation and lessons learned are filed for the project records.



## System implementation methods

There are two primary methods for implementing a SCIS project:

- 1) Buy an existing commercial-off-the-shelf (COTS) solution
- 2) Build a system from scratch or leverage an existing solution

### 1. Buy approach

#### Commercial off-the-shelf (COTS)

**solutions:** This approach involves purchasing a pre-built software solution from a vendor that can be customized to fit the specific needs of the organization. COTS solutions are developed by vendors based on industry best practices and provide a ready-to-use solution to be tailored and configured to align with organizations' needs. As it is the intellectual property of the vendor, contract and licensing agreements are required. The following are options of leveraging COTS products for development:

– **Software as a service (SaaS):** In this approach, a third-party provider hosts its proprietary software on the cloud and makes it accessible to users over the internet. SaaS platforms are owned and supported by the system provider who licenses the software to users. The hosting environment of the software can be a private or commercial cloud or local data centers.

#### – Infrastructure as a service (IaaS):

This model allows users to rent and access computing resources, such as servers, storage, networking, and other infrastructure components, from a third-party provider via the internet. Organizations can leverage IaaS to obtain the necessary infrastructure resources without the need for extensive hardware investments. Users have control over the operating systems, applications, and data within the provided infrastructure.

#### – Platform as a service (PaaS):

This approach provides a complete development environment hosted in the cloud. It includes an operating system, programming language, database and web server provided by a third party. PaaS enables developers to focus on application development without worrying about the underlying infrastructure. It offers a scalable platform for building, deploying, and managing applications efficiently.

### 2. Build approach

The build approach refers to developing the software system in accordance with the specific needs and requirements of the organization. An internal resource or external software vendor can be engaged for the development. If an internal resource is used for the development, the team should have sufficient technical capability for future support and maintenance of the system. Below are the two options for building an organization-specific system.

– **Open-source software:** This refers to software that is developed by individuals, groups or organizations and made available to the general public. The source code of the software is openly published, allowing the public to modify and customize it according to their requirements.

– **Development:** This refers to developing the software system from scratch in accordance with the business processes and requirements of the organization.

## 07.



## Teams needed throughout the software implementation lifecycle

Various teams play a crucial role and are needed for the successful execution of activities throughout the software implementation lifecycle.

The specific roles, recommended competencies (skills, knowledge and abilities) and links to the SCM Professionalization Framework for each team are outlined in Table I below. The Collection of Roles and Job

Descriptions for Health Supply Chains component of the SCM Professionalization Framework provides a systematic way to build job descriptions, considering all the SCM roles that exist in health supply chain management. It provides an example

set of SCM job descriptions. Table I also provides job titles and job serial numbers associated with the teams and roles listed in this guidance and can be found in the SCM Professionalization Framework.

**TABLE I.**  
Teams needed throughout the software implementation lifecycle

Team	Role	Recommended competencies	Link to SCM Professionalization Framework: Collection of Roles and JDs for Health SC		
			Competency Level	Job Role	Serial No.
Project management	Oversee the entire project, from planning to execution, monitoring and control	Project management expertise, leadership skills, communication, and collaboration abilities	Strategic	Lead – Planning and Performance	5-51-55-65-5
Project steering committee	Provide strategic direction, approve project charters, and ensure alignment with organizational objectives	Senior management experience, decision-making skills, and risk mitigation expertise	Strategic	Director – Public Health Supply Chain	5-553-51-5
			Strategic	Lead – SC Governance	5-532-64-4
Project technical	Bring technical expertise to ensure the successful execution of the project	Technical knowledge relevant to the project, and problem-solving abilities	Strategic	Lead – SCM Unit	3-31- 34-4
Procurement	Procure hardware, software, and equipment throughout the project	Procurement expertise, market research skills, negotiation abilities	Managerial	Manager – Procurement	2-21-11- 4
			Managerial	Manager – Finance and Administration	5-56-64- 4
			Operational	Officer– Procurement	2-21-22- 2

Team	Role	Recommended competencies	Link to SCM Professionalization Framework: Collection of Roles and JDs for Health SC		
			Competency Level	Job Role	Serial No.
Contract management	Finalize contract agreements with external parties	Contract management knowledge, legal understanding, and negotiation skills	Managerial	Manager – Contracts and Agreements	2-242- 23-3
			Operational	Officer – Contracts	2-242-64-2
Human resources management (HRM)	Manage resources and ensure their retention, development, and well-being throughout the project	HR management expertise, organizational skills, and team-building abilities	Managerial	Manager – HR/ Workforce Development	5-571-572-573-4
Change management	Act as a bridge between stakeholders and effectively communicate project changes	Change management knowledge, stakeholder engagement skills and communication abilities	Managerial	Lead - Partners Integration	5-55-66- 4
Change control board	Oversee and evaluate change requests related to scope changes within the project	Subject matter expertise, analytical skills, and decision-making abilities	Managerial	Manager – Performance Management	5-531- 532-3
Development	Lead the system/software development process	Software development expertise, programming skills and collaboration capabilities	Managerial	Manager – Engineering*	–
			Operational	Software Development Engineer*	–
Training	Provide training to users on how to effectively use the system	Training and instructional design knowledge, presentation skills, patience, and empathy	Operational	Officer - Human Resources Specialist	5-571- 572-2
User acceptance testing (UAT)	Lead operational testing to ensure system requirements are met	Testing expertise, attention to detail, and analytical and problem-solving skills	Operational	Officer – UI/UX Designer*	–
Helpdesk support	Provide assistance and support to users	Technical support knowledge, troubleshooting skills and customer service focus	Operational	Officer – Data and Use	7-71-55-76-2
Operational evaluation, including monitoring & evaluation (M&E)	Monitor the system's performance and provide feedback for improvement	Monitoring and evaluation expertise, analytical abilities, and reporting skills	Managerial	Manager – Data and Use	7-79-76-551-4
			Operational	Officer – Data Management	7-71-76-2
Transition/ closeout	Execute the project's closeout phase and ensure a smooth transition	Project management skills, organizational abilities, and attention to detail	Managerial	Lead - Partners Integration	5-55-66- 4

\* No direct roles have been outlined for these activities in the Collection of Roles and Job Descriptions for Health Supply Chains. However, the suggested competency level and job titles may be used when forming teams.



## 08.



## Human resource engagement mechanisms

Once the roles and responsibilities of the project teams are defined throughout the software implementation life cycle, it is critical to determine the suitable HR engagement mechanisms (referring to the ways human resources for information systems are planned, coordinated, and remunerated) to be adopted by considering such factors as staff competency, budget, and schedules.

development, system roll-out and help desk support, appropriate processes are necessary to manage the supplier relationship. Before staffing is outsourced, it is important to assess outsourcing objectives and evaluate whether to outsource activities.

Table 2 below provides the recommended HR engagement mechanisms as per the lessons learned and survey data gathered from more than 25 countries in which the GHSC-PSM project has worked on supply chain information

systems implementations. One or multiple HR engagement mechanisms can be considered to form the teams for project execution.

Where staffing is outsourced to a third-party vendor, as is common in software

 See the [annex](#) for resources when considering outsourcing.

**TABLE 2.**  
Types of HR engagement mechanisms

HR engagement mechanisms	Description
MoH/IT organization	Staff from the ministry of health (MoH) or information technology (IT) organization to work on the project. These staff members are typically responsible for carrying out core IT functions to service the needs of the health system, whether it is public or private.
MoH secondments (implementing partners)	Staff is hired by the implementing partners or donors, who assign staff to the MoH or IT organization for a certain period to complement the skills and expertise of the project team.
Donors	Donors provide funding, expertise and other resources to support the development and implementation of the project.
Implementing partners (IPs)	Implementing partners are organizations that have been selected to implement the project on behalf of the donor or the MoH/IT organization. IT staff are assigned to support the MoH and other organizations on the project.
System development vendor (outsourced)	Depending on the technical competency of the MoH, a system development vendor is often contracted for the development task. The vendor is responsible for providing the necessary expertise, resources, and support to develop and deploy the system according to the specifications and requirements of the project.

## 09.



## Key performance indicators used for SCIS Implementations

Key performance indicators (KPIs) are measures that provide a quantitative metric of performance that can be analyzed over a period of time.

As the scope and requirements vary for software system implementation, the project teams will define specific KPIs that are relevant to the business needs

and operation of each SDLC phase in the three categories:

1. **Budget:** on and under budget
2. **Schedule:** on and within schedule

3. **Performance of task execution:** quality of deliverables, compliant to contract agreements, etc.

**TABLE 3.**

Recommended KPIs for each SDLC phase throughout the entire SCIS project life cycle

SDLC phase	Key performance indicator (KPI)
For acquisition phase	– On time proposal evaluation and contract establishment
For planning phase	– Number of stakeholders involved from government and private sectors – On time delivery of deliverable – Quality of deliverables
For analysis phase	– Time duration required for requirement gathering, review and finalization – On time completion of deliverable – Quality of deliverables – Budget review and trend analysis – Schedule review and trend analysis
For customization/ development phase	– On time delivery of deliverable – Quality of deliverables – Budget review and trend analysis – Schedule review and trend analysis
For verification phase	– On time delivery of deliverable – Quality of deliverables – Budget review and trend analysis – Schedule review and trend analysis – Issues/budget resolution timeline and trend analysis

SDLC phase	Key performance indicator (KPI)
<p>For support and maintenance phase</p> <p>** KPIs suggested in this phase are the indicators defined for the operational measurement for the eLMIS and WMS systems in the GHSC-PSM project, and should be used for reference only.</p>	<p><b>eLMIS KPIs: **</b></p> <ul style="list-style-type: none"> <li>– Ability of the MIS to meet supply chain operations (e.g. usage reporting rates—like PSM indicator or number of annual meetings held where MIS data is used in decision making)</li> <li>– User acceptance/satisfaction score (can be collected through a user satisfaction survey with questions scored from very dissatisfied to very satisfied on a range of different usage elements)</li> <li>– Help desk process and performance (e.g., percentage of helpdesk tickets resolved within a certain timeframe, or percentage of helpdesk enquiries that received confirmation emails within a certain timeframe)</li> <li>– System error and resolution rate (number of system errors reported and resolved per month)</li> <li>– Utilization and trends in user login and usage of the system</li> <li>– Capacity building of technical team for user support and maintenance (number of training sessions conducted annually for knowledge transfer)</li> <li>– On time delivery of deliverable</li> <li>– Quality of deliverables</li> <li>– Budget review and trend analysis</li> <li>– Schedule review and trend analysis</li> </ul> <p><b>WMS KPIs **:</b></p> <ul style="list-style-type: none"> <li>– Stock outs/stock availability: Percentage of products that were stocked out from a list of tracer products according to the monthly ending balance of the most recent logistics report for the central warehouse</li> <li>– Warehouse/inventory turns: Total cost (or value) of goods distributed from the central warehouse within the most recent complete year or 12-month period divided by the average value of the monthly inventory balance</li> </ul>
<p>For close out/transition phase</p>	<ul style="list-style-type: none"> <li>– On time delivery of deliverable</li> <li>– Quality of deliverables</li> <li>– Budget review and trend analysis</li> <li>– Schedule review and trend analysis</li> </ul>

### Decision-making using KPI data:

When used accurately, process based KPIs applied throughout the SDLC can highlight which HR engagement mechanism is performing best throughout SCIS implementations and can assist in enhanced decision-making. To ensure effective use of data from KPIs, it is important to analyze KPI data to identify trends, patterns and areas

requiring attention. Data from KPIs can subsequently be converted into actionable insights that can guide strategic and operational decisions, as well as encourage collaboration between departments to capture different perspectives in decision-making.

However, for data to be accurate, staff must be trained and equipped with the right skills

for data inputs and reporting, collection, and analysis. Creating a culture of data use across the organization, reviewing KPIs periodically and modifying them to match evolving goals, using visualization tools to simplify complex data and to present it in an easy-to-understand manner are all proven ways to enhance data-driven decision-making.



## Conclusion and recommendations

**Advancements in technology underscore the need to develop HR competencies to adapt to the shifting digital landscape. By highlighting the benefits of aligning HR with the evolving landscape, this guidance seeks to shine a light on the skills, roles, and teams critical for the deployment of digital supply chain information systems using the SDLC framework.**

Adequate resources – including human resources – are critical to execute activities effectively and efficiently. It is crucial to identify the required roles, and requisite skills and competencies, focusing on software selection, acquisition, customization, development, and deployment that need to be completed before a digital system becomes

operational. It is also essential to identify the various teams that are needed for the successful execution of activities throughout the software implementation lifecycle. Once the roles and responsibilities of the project teams are defined, it is important to determine the suitable HR engagement mechanisms, referring to the ways HR for information systems are

planned, coordinated, and remunerated, to be adopted by considering such factors as staff competency, budget, and schedules. The guidance also highlights the need for process KPIs to be established and metrics to be tracked throughout the SDLC for SCIS implementations. These KPIs can be applied throughout the SDLC and highlight which HR engagement mechanism is performing best and can assist in enhanced decision-making.

To summarize, the recommendations to country governments, implementing partners and service providers involved in SCIS implementations are centered on:

1. Identifying appropriate HR engagement mechanisms (referring to the ways HR for information systems are planned, coordinated, and remunerated) and types of organizations to support different phases of the SDLC
2. Establishing specific job roles with relevant competencies for each phase of the implementation process (when not outsourcing)
3. Establishing and measuring KPIs during all phases of the SDLC



# Annexes

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PHOTO CREDIT: Andi Gultom

## Annex: Resources for further reference

1. The [PtD Building human resources for supply chain management theory of change](#) provides a useful basis for strategic planning by providing a foundation for developing strategies to manage the quantity, type and capacity of human resources required to operate health supply chains. It analyses the conditions needed to ensure that workers at every level are enabled to perform optimally, to fulfil all the necessary functions of an effective supply chain system.
2. The [PtD Supply chain management \(SCM\) professionalization framework](#) is a set of global standards that align career path, education, and professional growth in health supply chain management. It centers on four resources:
  - a. **The library of competencies and designations** is a detailed framework that defines the knowledge, skills and attributes needed for people working in health supply chain management. It includes competencies for professionals involved in the procurement and implementation of supply chain information system projects.
  - b. **The collection of roles and job descriptions for health supply chains** is a collection of 93 job descriptions that can be tailored or adapted to any supply chain organization. Each job description includes technical and behavioral competencies, education requirements and key performance indicators, including job descriptions for professionals involved with supply chain information system projects.
  - c. **The mapping of education for health supply chains** details all available qualifications and certifications to equip health supply chain professionals with the relevant skills, including the available qualifications and certifications for supply chain information system implementation professionals. It includes more than 250 courses from around the world.
  - d. **The country implementation approach** sets out clear guidance on how to begin this journey of change.
3. The [Africa Resource Centre's Outsourcing Toolkit \(ARC OSTK\)](#) provides a useful framework meant as a 'decision-making resource for ministries of health and organizations affiliated to public health who are considering outsourcing as an option to improve supply chain performance.' The OSTK provides resources in the form of templates and examples for the evaluation of vendors and management of vendor activities ranging from information management and financial oversight to conflict management and performance monitoring.
4. The [PtD outsourcing toolkit](#) complements the OSTK and allows users to assess the maturity of their supply chain and their current people practices and defines the steps to be taken before outsourcing can be adopted. The roadmap builds on PtD's maturity model for human resources in supply chain management and Kotter's 8-step process for leading change.