ICT Project Guidance

Information Service User Roles

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## Description

This document outlines system roles to consider when planning for the design, development and delivery of information via information systems.

## Synopsis

Information Systems and their managed Information Resources require a default range of Roles to curate the information to remain current & valuable, while keeping the underlying development, delivery and deployment systems maintained, available and accessible for use.

## Introduction

Most enterprise systems expected to deliver service to end users can be classifiable as *Information Systems*: they manage and present Information Resources to end Users.

The key Information Resource capabilities expected by service providers from Information Systems include:

* Create Information resources
* Manage the information resources and their organisation
* Present the Information resources to service consumers

Depending on the use case:

* The information resources may be managed records (e.g.: Resources and/or Transaction records) or uploaded media (Word, PDF, images, etc.).
* The creation of information resources may be by automation (e.g., via monitoring, Automated Item Generation, etc.), or a manual process by authorised creator/contributor roles.
* Manual creation and consummation of presented information resources may be the same end user roles (e.g.: Instagram, TradeMe, etc.) or the information resources are developed by one group (a business service provider) publishing for another group (e.g.: business service consumers).
* Manual creation and management of information resources may be by one group (e.g., the service provider business users), or the creation be commissioned from external SMEs, for later ongoing management by internal users.
* The management of the information resources may be relatively simple, using only single role BREAD interfaces, or more complex, capable of enabling multiple roles (Creator, Contributor, Reviewer, Approver, etc.) to manage the information resource through a workflow of different states (e.g., Draft, For Review, Rejected, Accepted, Released, Merged, Replaced, Removed, Restored).
* The 3 information resource capabilities (Create, Manage, Present) may be available in the same system, or via the manual or automated integration of multiple systems (one to Create and Manage the development of information, and one to Present the information to end users.

Note:  
when procuring systems, the known benefits and issues of either approach require careful prior consideration.

## Issue

While business stakeholders can identify the roles of their service’s consumers, it is only natural that they don’t know as well the roles required to create, maintain the information presented to them, or the roles required to maintain the systems that users are accessing.

## Risk

If a system is only conceptualised to meet the capabilities and functionality required to provide information to service consumers, with poor to no planning for the ongoing creation, maintenance and curation of the information presented in the system, the information presented will not remain current, and will become a liability to the reputation of the service provider.

## Risk

In omitting these considerations, the risk is that the resulting solution does not sufficient ensure the following:

* The system is capable of:
  + assigning multiple roles to information resources
  + providing full lifecycle management, by enabling different roles to manage information resources through multiple states,
  + monitoring use and collecting user feedback on published resources, to better inform information management and curation activities.
* A system of agreed processes exists for users to use the system to manage, curate and improve the quality of the information available to end users.

## Resolution

This document outlines systems to consider when planning information service delivery.

## Information Service Component Systems

The individual systems required to successfully deliver an information service include the following:

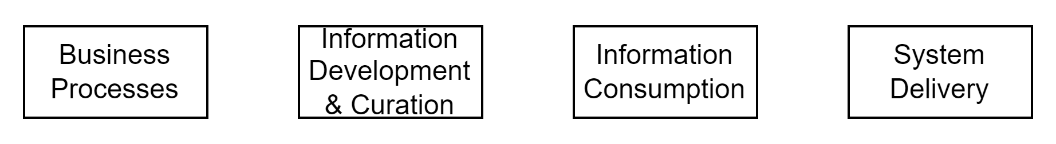


Figure : Service Sub-System Types

* + - 1. A system of business processes to develop and maintain *Resources*, using:
      2. An *information [resource] development system*, which are then published on:
      3. One or more user-facing information [delivery & consumption] systems:
      4. All deployed using one or more custom and context specific packaging installer systems,
      5. All made discoverable by consumers by publishing info on other systems (e.g.: media and links on corporate/group websites, WWW domain name registration services, technical services such as routing, etc.)

Efficiencies are gained by providing automation of and for each of the above systems, where possible, fundable and practical.

## System Omission

Omission of any of the above systems, irrespective of whether they are manual or automated using ICT, leads to degradation of the quality of service offered.

Simple examples of these impacts include:

* if a system of processes is not in place to periodically curate and update Resources before and after their release to the presentation system, the currency of the service will diminish its value and users will stop returning to the system.
* If a system to manage the development resources, inclusive of comments, approval and optionally endorsement does not exist, the operations to develop, contribute, comment, and approve them for publishing to the presentation system are so onerous that mistakes are not caught and/or rectified, leading to the same outcome (users stopping to use the service).
* If the service’s capabilities are not described and made discoverable from other services, the number of users who will discover the service by other means is severely constrained.
* If no presentation service is made available, users are severely constrained from access to the resources themselves.

## Service Roles

Logically, whether automated or not, each system requires its own set of Roles for system members to operate the systems processes.

While they often are referred to by business specific terms (“Teacher”, “Learner”, “Business Group Manager”, etc.), the Roles are often mappable to traditional RASCI role logic:

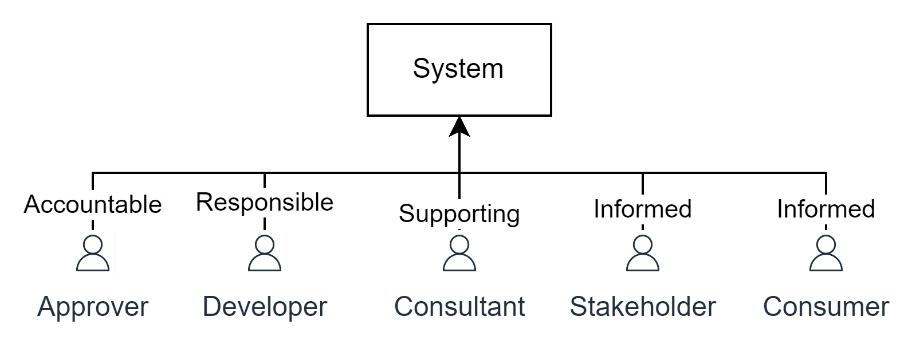


Figure : Service Roles are often RASCI in nature.

Whether the services are kept as standalone services or are combined as sub modules in a single system, the individual logical role sets remain necessary, although efficiencies and improvements in usability may be gained by combining some of them for easier allocation to individuals.

## Role Sharing

Depending on organisation size and/or resources available, it is common that different system Roles may be allocated to the same person.

## Invitations, Terms, Acceptances, Roles, Groups, Members, Permissions

Mature ICT systems invite *Users* by *Invitation* to *Accept* *versions* of the *Responsibilities* associated to the *Permissions* granted as part of a temporary (From/To) *Role* within a nestable *Group* of *Persons* -- but further description of these details is outside this document’s scope.

Note:  
the use of the abstract term “Service” -- instead of a project domain’s terms (e.g., “Teacher”, “Learner”, “Admin”, etc.) -- is deliberate to enforce the commonality that exists in between information systems, no matter the specific business case.

## Information System Capabilities

While it is understood custom developed information systems may not have every expected *capability* at the beginning, they are expected to rapidly mature to providing the following:

* + - * Base System capabilities repeated in each independent system, or reused under system modules:
  + Diagnostics Logging and Error record keeping and reviewing,
  + Immutable pre-deployment and mutable post-deployment System Configuration management,
  + Session Operation auditing and Session and control management,
  + Users and User Preference and User Security Profile management,
  + User Grouping, and associated User Group Role assignment,
  + System and System Resource Availability, Performance, Quality, etc. Reporting.
    - * Resource Management independent system or module:
  + Resource Management, inclusive of Resource Role assignment (Creator, Contributor, Reviewer, Approver, Maintainer), to permit Development, and Describing (with metadata), Curation and Route management (to improve Discoverability of the appropriate Version), and progression through Resource States (Developing/Draft, Reviewing, Publish, Replace, Remove or Archive).
    - * Resource Presentation system or module:
  + Resource publishing.
  + Rating, Commenting and Feedback by Service Consumers of resources and/or system itself.
  + Reporting on presentation module’s enrolment, consumption, progress, comments, etc.

## Modules

For optimal *information lifecycle* management, managing information through the various stages of conception, contribution, commenting, approving, releasing, replacing, merging, curating, and removing from circulation, it is recommended in most cases that a single common sub system is used for both the management and publishing groups of operations, unless there are other valid drivers.

Valid drivers for using two systems may include the following:

* + - * the management and/or presentation systems or modules are not cost effective or recommended to develop further, and development of their replacement should be done on vertical tranches on the side.
      * The same information resources could be reused for deployment to multiple presentation systems.
      * It is desired that the service’s available capabilities be expanded, but the development effort is not reasonable on the current subsystem, requiring a new subsystem/platform and replacement modules, sharing the same information resources, be developed in parallel, separately.

## Indicative Information System Roles

The following is a list that includes a suggestion of what roles the above information leads to considering when developing requirements. The list is indicative – due to the objectives and constraints of individual projects and contexts more or less roles may be required, in turn increasing complexity or vice versa limiting flexibility and/or improvement.

Table : Indicative Information System Roles

|  |  |  |
| --- | --- | --- |
| Type | Logical grouping | Description |
| Anonymous User | Information Presentation | Users of the system that are not authenticated. They should be able to see publicly accessible information such as a Home Page.   Note that most enterprise systems skip this functionality, and instead choose to direct non-authenticated users to an external site (e.g.: a dedicated subsite in the Enterprise’s public website).  Additionally, while Anonymous, they still should be associated to a Session, and their session specific Operations logged. |
| Service Consumer(s) | Information Presentation | Authenticated Users consuming the service.  For example, in an LMS, it would be the group of Learners, and optionally their Caretakers. In an SMS, this might be schoolteachers.  Service Consumers (that are not *Service Consumer Organisers*) may require multiple different Roles.  Service Consumers (and many other User Roles) may be invited to have *additional* context-specific (Group or Resource) Roles. For example, a user can be invited to a Chat Group in a Participating or Informed capacity, and invited to participate on a document as a Contributor, Commentor, Reviewer, etc.  **Important:** It is important to note there is an important difference between System Roles and Group/Resource Specific Roles. Simple enterprise systems do not often Group Specific Roles. This omission is often a common issue when a single organisation/enterprise system is rolled out to be used by users in external organisations. Group Roles are most often given business domain specific names (“Admin”, “Teacher”, “Learner”, “Parent”) for traditional RASCI (“Accountable, “Responsible”, “Informed”, “Supporting”, “Consulted”, etc.) roles. |
| Service Commentator | Information Presentation | Providers of Feedback. Not necessarily constrained to just the Service Consumers. Important: Arguably the users that provide the highest value to service providers, besides actually consuming and paying for access to a service’s information. |
| Service Consumers Organiser | Information Presentation | Service Consumer User(s) that organise Service Consumers by developing groups and inviting Users to accept group-specific roles within them.  For example, in an LMS these might be Teachers. In an SMS, this might be the Principal, and/or Principal *Designated* Person with the Permissions necessary to create Groups to best represent their organisation (School, Courses, Classes, Cohorts, etc.) and invite both Teachers and Learners to them.  *Service Consumer Organisers* may require different Roles in their own right (Teachers, Grounds people, etc).  Note the difference between *Service Consumer Organisers*, who are *Service Consumers* in their own right, and the *Service Providers* they interact with. |
| Service Provider | Presentation | User(s) that are part of the business organisation offering the service. They are usually tasked with promoting, provisioning the system for use by Service Consumer Organisers of other organisations (e.g.: service consuming schools) and inviting the first of the Service Consumer Organisers to use the service.  Any configuration and/or provisioning of individual *Service Consumer* Groups they do is distinct from System wide configuration that a System Operator may do.  A *Service Provider* may also be a *Service Resource Approver* or *Service Resource Maintainer*.  For example, this might be a government or enterprise department that is providing a SaaS based LMS and SMS service for consumption by the country’s multiple schools. |
| Service Resource Development Specialist | Resource Development | User(s) that are SMEs contracted to develop Resources for consumption by *Service Consumer Users*.  Whereas commercial systems (e.g., Amazon, Twitter/X) use their *Service Consumer*s to also create Resources (e.g., product descriptions, tweets, etc.) and others create them by automation (e.g., Google Search), many enterprises systems rely on SMEs – often 3rd party contractors – to develop media and/or resources in a system.  For example, in an education testing service, these will be 3rd party users contracted or commissioned to develop questions and answers.  In an LMS, they will be users contracted to develop learning material, and uploading it for approval by System Artefact Approvers.  In simpler systems, it may be that the role only provides a means of importing and uploading material, and in others the system provides editing and commenting capabilities.  Note that common states for Resources include one or more of the following: *Draft, Developing, Commenting, Rejected, Approved, Endorsed, Released, Removed, Retired, Archived, Restored*. |
| Service Resource Development Contributor | Resource Development | Alongside the Development Specialists Contributors support the development of Resources. |
| Service Resource Development Commentor | Resource Development | Resource Development reviewers, restricted to Reviewing and Commenting, but excluding Approving. |
| Service Resource Approver | Resource Development | User(s) that have Permission to Review and/or Approve media or record artefacts submitted by System Artefact Development Specialists.  For example, in a test taking service, this role may be given to specific persons in the Service Provider Role. |
| Service Resource Maintainer | Resource Development | User(s) required manage resources so that they are published, discoverable, organised, current and curated.  Common activities include publishing approved artefacts, improving discoverability by filling in resource classification metadata (Created By, Owned By, Tags, etc), developing reports of service consumers activities in regard to resources (to find what resources are no longer being referenced and accessed), and using that to inform decisions as to changing the state of Resources to Replaced, Removed, Archived, etc.  While it was best practice for when storage costs were more expensive, current design best practice is to not permit Maintainers or any other user to physically delete records, only change their state to Removed, Archived or similar. Note that the use of *logical* deletion as opposed to *physical* deletion is not in contravention of either EU GRDP or national Privacy and/or Archiving obligations and guidelines. |
| Service Resource Endorser | Resource Development | User(s) from independent trusted authorities authorised in the system to endorse an Approved and Published resource. Endorsements are specific to their organisation (e.g.: Endorsed by the Visually Impaired Society, etc.) |
| Service Resource Report Developer | Resource Development/ Presentation | User(s) that develop reports on resource usage patterns, ratings, comments, etc. to inform business service owners as to what resources require funding, organising further System Resource improvement.  In small systems the role may be given to the same person who has the System Artefact Maintainer role, but in larger systems, one would be more specialised in resource management, and one would be more skilled at conveying investment needs to business owner stakeholders. |
| System Security Specialist | Subsystem | User(s) who are tasked with setting up and responding to alerts of atypical user behaviour.  Once alerted they require the ability to search and list a session’s Operations to better understand a User’s sequence of actions, and the ability to disable a User and their active Sessions.  Functionality their role expects includes:   * + - * Providing queryable access to permanent logs of Sessions & Session Operations, to follow the sequences of operation during a user session,       * Providing functionality to disable system Users and terminate active their active Sessions,       * An ability to set up alerts based on patterns of abnormal activities.   Although desirable, few systems have the ability to export system session and operation information to a external common enterprise SIEMs, hence the need for an in-system role and associated functionality and views. |
| System Operator | Subsystem | User(s) who operate the system itself, improving its Usability, Discoverability, irrespective of the Users and business service functionality itself.  Example of functionality expected by the role include being able to list, view, update and/or reset current system wide settings.  Noting that current best practice is for configuration to be done via deployment pipelines, and not manually, system operations specialists perform system wide configuration of systems to make them more Discoverable by search engines, recognisable (Header banners), and Usable (organisation of resources).  The role requires access to a Systems Configuration Views and/or remotely accessible authenticated Configuration API. |
| System Maintainer | Subsystem | User(s) that maintain the system’s Availability, Performance by ensuring the service’s Domain Name registration and HTTPS certificates remains correct and current, develop alerts to monitor load to (automatically) manage infrastructure needs, etc. The role should be provided with User Interfaces and/or APIs functionality to provide Queryable access to:   * + - * Counters of Use, Performance, Errors,       * Rolling temporary Diagnostics logs, cleansed of PI[[1]](#footnote-1).       * Permanent Exception records, cleansed of PI. |
| Customer Supporter | Subsystem | The service that answers emails and phone calls, provides non-system-specific assistance (e.g.: resetting access credentials) or directing their call to Tier 2 assistance, provided by *Service Providers*, or Tier 3 assistance, via *System Operators.*  The smaller the organisation, and fewer the systems that customer support is supporting, the more in-system operations they may be expected to aid with instead of handing off to other roles. Hence the need for a *Customer Support* role that is distinct from System Operators. |
| System  Deployer | Deployment System | The role used by a system deployment pipeline to configure and provision a system after it has deployed it to target infrastructure in an environment (BT, DT, UT, PP, PROD, etc.).  This role often requires permissions similar to both System Operators and Maintainers. |

## Other Roles

The above list does not preclude other roles being added, based on a project or context’s needs.

## Functional and Transitional Requirements

The above list of User Roles is used to influence the process of querying Stakeholders for their particular User Requirements, which in turn feed into the development of the Functional Requirements required to meet the User requirements.

Quality Requirements, developed according to ISO-25010,12,22 remain a separate deliverable.

If the system is replacing a legacy system, the User Roles list also informs Transitional Requirements as to what data is required to be extracted for provisioning the new system to meet the expectations of Users.

## Relationship of Requirements to the use of User Stories

The combination of Functional, Quality and Transitional Requirements support contractual discussions and agreements.

Contractual definitions of expectations in turn inform the development of User Stories used for subsequent work item prioritisation.

Appendices

Appendix A – Document Information

### Images

[Figure 1: Service Sub-System Types 3](#_Toc146700087)

[Figure 2: Service Roles are often RASCI in nature. 5](#_Toc146700088)

### Tables

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### References

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### Audience

The document is technical in nature, but parts are expected to be read and/or validated by a non-technical audience.

### Structure

Where possible, the document structure is guided by either ISO-\* standards or best practice.

### Diagrams

Diagrams are developed for a wide audience. Unless specifically for a technical audience, where the use of industry standard diagram types (ArchiMate, UML, C4), is appropriate, diagrams are developed as simple “box & line” monochrome diagrams.

### Terms

##### Queryable

: means it the Request can be configured to define the paged, filtered by criteria, subset of the objects’ attributes to return, sequenced by one or more Ascending/Descending columns results to return.

##### RASCI

: acronym standing for “Responsible”, “Accountable”, “Supporting”, “Consulting”, “Informed”, used to guide the development of Group Roles. Other Group roles to consider may be “Ignored” and/or “Participating”.

##### Information Lifecycle

: the various stages that Information Resources go through. Depending on needs and service maturity may contain the following: Development (Conceived and/or Contributed to), Review (Commented on), Approval (Declined, Approved), Released, Replaced, Merged, Removed, Restored, Archived.

Refer to project Glossaries for other terms.

1. Personal Information [↑](#footnote-ref-1)