

---

# CES – Software Requirement Specifications Document

---

<b>Last Modified Date</b>	April 6, 2010
<b>Document Owner</b>	CTIS
<b>Version No.</b>	1.0
<b>Approved By</b>	
<b>Approved Date</b>	[Date of approval (Month DD, YYYY)]

**PRODUCED BY CTIS, INC.**





# Table of Contents

**RECORD OF CHANGES..... 1**

**1 INTRODUCTION..... 3**

    1.1 PURPOSE..... 3

    1.2 SCOPE..... 3

    1.3 SYSTEM ARCHITECTURE OVERVIEW..... 3

    1.4 DEFINITIONS, ACRONYMS AND ABBREVIATIONS..... 4

    1.5 REFERENCES..... 4

**2 FUNCTIONAL REQUIREMENTS..... 5**

    2.1 PERSON SERVICE..... 5

        Operation: Get Person information by Identifier..... 5

        Operation: Get HealthCareProvider by Player Identifier..... 6

        Operation: Get ClinicalResearchStaff by Player Identifier..... 7

        Operation: Get HealthCareProvider by Role Identifier..... 8

        Operation: Get IdentifiedPerson by Person Identifier..... 9

    2.2 ORGANIZATION SERVICE..... 10

        Operation: Get Organization information by Identifier..... 11

        Operation: Get HealthCareFacility by Identifier..... 12

        Operation: Get ResearchOrganization by Identifier..... 13

    2.3 PUBLISH-SUBSCRIBE MODULE FOR POSTING MESSAGES (NOT REQUIRED FOR SILVER-COMPATIBILITY REVIEW)..... 14

        Person updates..... 14

        Organization updates..... 15

**3 NON-FUNCTIONAL REQUIREMENTS..... 16**

    3.1 DOCUMENTATION REQUIREMENTS..... 16

    3.2 PERFORMANCE REQUIREMENTS..... 16

        Reliability Requirements..... 16

        Availability Requirements..... 16

    3.3 OPERATIONAL REQUIREMENTS..... 16

        Hardware Requirements..... 16

        Software Requirements..... 16

        Product Support Requirements..... 17

    3.4 SECURITY REQUIREMENTS..... 17

        External Application Security Requirements..... 17

        Applicable Standards..... 17

**4 ARCHITECTURAL REQUIREMENTS ..... 17**

    4.1 PROJECT DEPENDENCY LIST..... 17

**APPENDIX A (NOT REQUIRED FOR SILVER-COMPATIBILITY REVIEW) ..... 17**

**APPENDIX B..... 21**

**APPENDIX C..... 23**

# 1 Introduction

Applications within the clinical trials arena stand on two supports – the persons conducting the research and the organizations sponsoring and supporting the research. Each application contains its own design and store of this data, leading to duplicate and inconsistent data, unnecessary burdens to a variety of teams that support data quality, and additional maintenance efforts across applications. Creating a common, canonical, authoritative source of persons and organizations supports a long-term cost and effort savings when shared across applications.

## 1.1 Purpose

The purpose of this document is to collect, analyze, and define high-level needs and features of CTEP Enterprise Services (CES). Users of CES will primarily be external applications, which access the data through services and interfaces provided.

## 1.2 Scope

The document describes the functional and nonfunctional requirement of the person and organization services.

## 1.3 System Architecture Overview

The following diagram depicts the three major components of CES and how they relate to each other to provide a complete solution for Person and Organization Services to external applications such as COPPA PO application. The CES Client submits a request for Person or Organization information to the CES application. The CES validates the request for processing and accesses the CTEPESYS data source to get enterprise information and then transforms it into an object (Compliance with BRIDG 2.1/ COPPA model), and finally returns a response. The JMS publish/subscribe module notifies external applications of any changes to person and organization information by publishing messages to CES Topic. External applications may choose to subscribe to the CES topic.

# CES System Diagram

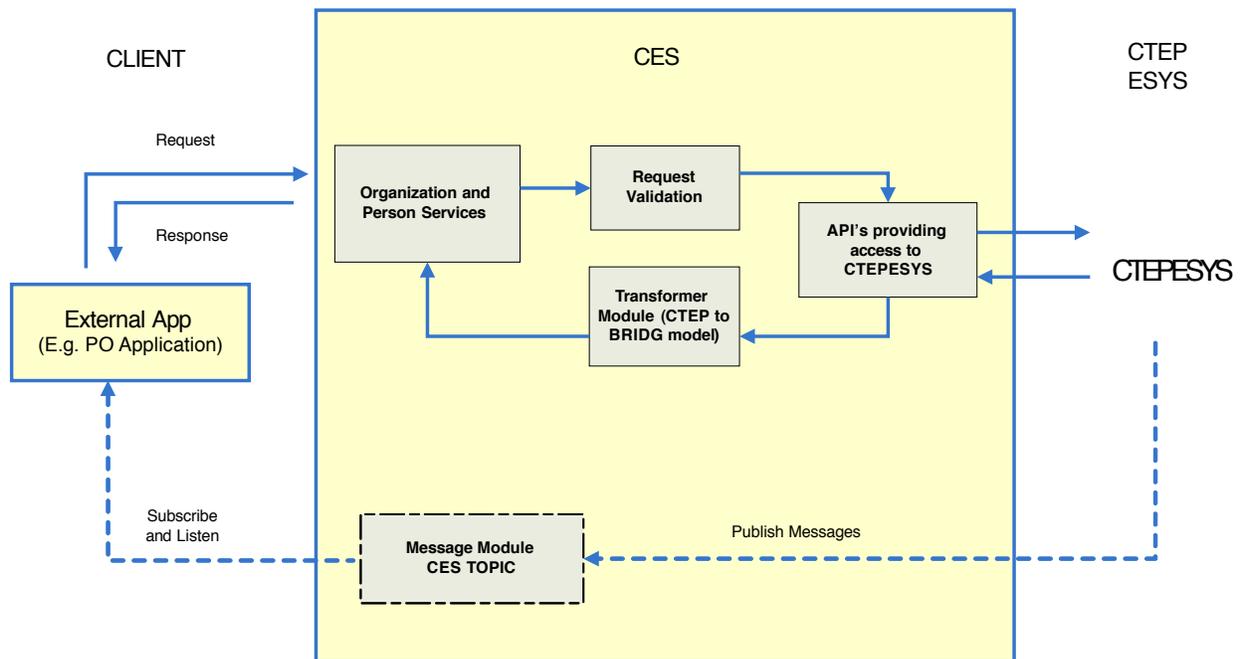


Figure 1-CES Application System Diagram

## 1.4 Definitions, Acronyms and Abbreviations

- BRIDG – The Biomedical Research Integrated Domain Group
- caBIG - cancer Biomedical Informatics Grid
- CBIIT - Center for Biomedical Informatics and Information Technology
- CES – CTEP Enterprise Services
- COPPA - Correlation Organization Person and Protocol Abstraction
- CTEP – Cancer Therapy Evaluation Program
- CTEPESYS – CTEP Enterprise Systems
- CTRP – Clinical Trials Reporting Program
- HL7 – Health Level 7.
- NCI – National cancer institute
- NCICB - The NCI Center for Bioinformatics
- NES – NCI Enterprise Services
- PO – Persons and Organizations Curation Portal

## 1.5 References

The following files/links can be referred for more on BRIDG/HL7 information –

- [NCICB GForge: COPPA: SCM Repository](#)
- [HL7-Data Types - Abstract Specification1](#)

[HL7-Data Types - Abstract Specification 2](#)

[BRIDG MODEL 2.1](#)

## 2 Functional Requirements

### 2.1 Person Service

These features describe the essential functions required to obtain person information from the CTEP enterprise system.

For overall person service flow, please refer to [Appendix B](#) (Figure 2-Person Service Sequence Diagram).

For person service use cases, please refer to [Appendix C](#) (Figure 4-Person Service Use Case Diagram).

The APIs fetch only active person records. The following two types of Person records are shared by CES

1. Investigator (HealthCareProvider), address and contact information on the primary FDA 1572 registration.
2. Associate (ClinicalResearchStaff) and his/her office address and office contact.
3. Messaging APIs are used to communicate: the creation of a new person record, updates to an existing person record, or nullification of a person.
4. Wild cards are not allowed; a complete ID must be provided. For e.g., 1223% is not a valid input, 1223334 is a valid input.

#### Operation: Get Person information by Identifier

<b>Description</b>	Initiated by an external system or a data quality curator, this use case allows person information to be acquired by providing an identifier. The output message must be BRIDG compliant.	
<b>Method</b>	getPersonById(..)	
<b>Pre Conditions</b>	Security requirements are satisfied. The Person to be retrieved is active.	
<b>Inputs</b>	IdentifiedPerson.assignedIdentifier.extension (Identifier Name = "CTEP person entity identifier" Identifier Root = "Cancer Therapy Evaluation Program Person Identifier")	
<b>Outputs</b>	A constrained BRIDG PersonDTO object	
	Attributes	ISO Data type
	Identifier	II
	Name	EN.PN
	PostalAddress	AD
	TelecomAddress	DSET<TEL>
	statusCode	CD
<b>Post Conditions</b>	Consumer has constrained BRIDG PersonDTO object	

	<p>For investigators, active 1572 address and contact information are provided.                  Associates’ office addresses and contact information are provided.                  The information for person type CPL, NHU, and OTH are not provided.</p>
<b>Exception Conditions</b>	<p>Messages are part of the CTEP Enterprise Exception thrown by the API.                  The following exception message is returned if no identifier was provided: “<b>No II.extension provided to retrieve the Person details.</b>”                  The following exception message is returned if no person was found with the provided CTEP ID: “<b>No Person record found for Person Id.</b>”                  For any other errors encountered on the server side, an exception is raised with the following message: “<b>Internal problem encountered. Please try again later.</b>”                  The client failed the security requirements.</p>

**Operation: Get HealthCareProvider by Player Identifier.**

**HealthCareProvider:** This corresponds to an Investigator in CTEPESYS. This service returns information on an Investigator’s association to the organization to which his/her FDA 1572 is attached. The details of the information provided are in the OUTPUTS section below.

1. Organization (and address) tied to the 1572 address of org-to-investigator relationship for person type “IVR” is returned.
2. From a business perspective, an Investigator has multiple “Org-to-Investigator” relationships, but only one 1572 address.

<b>Description</b>	<p>Initiated by an external system or a data quality curator. This use case allows the Investigator’s name and address information to be acquired by providing a person identifier.</p>									
<b>Method</b>	<p>getHealthCareProviderByPlayerId(..)</p>									
<b>Pre Conditions</b>	<p>Security requirements are satisfied.                  The HealthCareProvider to be retrieved is active.</p>									
<b>Inputs</b>	<p>IdentifiedPerson.assignedIdentifier.extension                  (Identifier Name = “CTEP person entity identifier”                  Identifier Root = “Cancer Therapy Evaluation Program Person Identifier”)</p>									
<b>Outputs</b>	<p>A constrained BRIDG HealthCareProviderDTO object</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Attributes</th> <th style="width: 50%;">ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>DSET&lt;II&gt;</td> </tr> <tr> <td>postalAddress</td> <td>DSET&lt;AD&gt;</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> </tbody> </table>		Attributes	ISO Data type	identifier	DSET<II>	postalAddress	DSET<AD>	statusCode	CD
Attributes	ISO Data type									
identifier	DSET<II>									
postalAddress	DSET<AD>									
statusCode	CD									

	telecomAddress	DSET<TEL>
<b>Post Conditions</b>	Consumer has constrained BRIDG HealthCareProviderDTO object.	
<b>Exception Conditions</b>	<p>Messages are part of the CTEP Enterprise Exception thrown by the API.</p> <p>The following exception message is returned if no identifier was provided: <b>“No identifier provided to retrieve the Person details.”</b></p> <p>The following exception message is returned if no person was found with the provided Person ID: <b>“No HealthCareProvider record found for Person Id.”</b></p> <p>For any other errors encountered on the server side an exception is raised with the following message: <b>“Internal problem encountered. Please try again later.”</b></p> <p>The client failed the security requirements.</p>	

**Operation: Get ClinicalResearchStaff by Player Identifier.**

**ClinicalResearchStaff:** This corresponds to an Associate in the CTEP schema. This service returns information on the Person’s association to the organization at which she/he maintains an office. The details of the information provided are in the OUTPUTS section below.

1. Clinical research staff is currently restricted to “Associate” only.
2. Details of only Organization to Associate records are sent.

<b>Description</b>	Initiated by an external system or a data quality curator. This use case allows Associate names and address information to be acquired by providing a person identifier.										
<b>Method</b>	getClinicalResearchStaffByPlayerId(..)										
<b>Pre Conditions</b>	Security requirements are satisfied. The ClinicalResearchStaff to be retrieved is active.										
<b>Inputs</b>	IdentifiedPerson.assignedIdentifier.extension (Identifier Name = “CTEP person entity identifier” Identifier Root = “Cancer Therapy Evaluation Program Person Identifier”)										
<b>Outputs</b>	A constrained BRIDG ClinicalResearchStaffDTO object  <table border="1"> <thead> <tr> <th>Attributes</th> <th>ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>DSET&lt;II&gt;</td> </tr> <tr> <td>postalAddress</td> <td>DSET&lt;AD&gt;</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> <tr> <td>telecomAddress</td> <td>DSET&lt;TEL&gt;</td> </tr> </tbody> </table>	Attributes	ISO Data type	identifier	DSET<II>	postalAddress	DSET<AD>	statusCode	CD	telecomAddress	DSET<TEL>
Attributes	ISO Data type										
identifier	DSET<II>										
postalAddress	DSET<AD>										
statusCode	CD										
telecomAddress	DSET<TEL>										
<b>Post Conditions</b>	Consumer has a constrained BRIDG ClinicalResearchStaffDTO object.										
<b>Exception Conditions</b>	Messages will be part of the CTEP Enterprise Exception thrown by the API The following exception message is returned if no identifier was provided: “ <b>No Identifier extension provided to retrieve the Person details.</b> ” The following exception message is returned if no person was found with the provided Person ID: “ <b>No ClinicalResearchStaff record found for Person Id.</b> ” For any other errors encountered on the server side, an exception is raised with the following message: “ <b>Internal problem encountered. Please try again later.</b> ” The client failed the security requirements “ <b>Internal problem encountered. Please try again later.</b> ” The client failed the security requirements										

**Operation: Get HealthCareProvider by Role Identifier.**

**HealthCareProvider:** This corresponds to an Investigator in CTEP-ESYS. This service will return information on Investigator’s association to the organization to which his FDA 1572 is attached. The details of the information provided are in the OUTPUTS section below.

1. Organization (and address) tied to the 1572 address of org-to-investigator relationship for person type ‘IVR’ is returned.

<b>Description</b>	Initiated by an external system or a data quality curator, this use case allows Investigators’ organization association information to be acquired by providing a person identifier.
--------------------	--

<b>Method</b>	getHealthCareProviderByRoleId(..)										
<b>Pre Conditions</b>	Security requirements are satisfied. The HealthCareProvider to be retrieved is active.										
<b>Inputs</b>	IdentifiedPerson.assignedIdentifier.extension  (Identifier Name = “CTEP person entity identifier” Identifier Root = “Cancer Therapy Evaluation Program Person Identifier”)										
<b>Outputs</b>	A constrained BRIDG HealthCareProviderDTO object  <table border="1"> <thead> <tr> <th>Attributes</th> <th>ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>DSET&lt;II&gt;</td> </tr> <tr> <td>postalAddress</td> <td>DSET&lt;AD&gt;</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> <tr> <td>telecomAddress</td> <td>DSET&lt;TEL&gt;</td> </tr> </tbody> </table>	Attributes	ISO Data type	identifier	DSET<II>	postalAddress	DSET<AD>	statusCode	CD	telecomAddress	DSET<TEL>
Attributes	ISO Data type										
identifier	DSET<II>										
postalAddress	DSET<AD>										
statusCode	CD										
telecomAddress	DSET<TEL>										
<b>Post Conditions</b>	Consumer has a constrained BRIDG HealthCareProviderDTO object.										
<b>Exception Conditions</b>	Messages will be part of the CTEP Enterprise Exception thrown by the API The following exception message is sent back to the user if no identifier was provided: “ <b>No Identifier provided to retrieve the association details</b> ” The following exception message is sent back to the user if no person was found with the provided Person ID: “ <b>No HealthCareProvider record found for Role Id:</b> ” For any other errors encountered on the server side an exception is raised with the following message: “ <b>Internal problem encountered. Please try again later.</b> ” The client failed the security requirements.										

**Operation: Get IdentifiedPerson by Person Identifier.**

This service is to provide the additional identifiers that CTEP maintains for Investigator (HEALTHCAREPROVIDER) and Associate (CLINICALRESEARCHSTAFF). The service accepts a person identifier and returns an IDENTIFIEDPERSON object with Person ID along with the NCI Investigator number for type “IVR” and UIN for type “Associate.”

<b>Description</b>	Initiated by an external system or a data quality curator. This use case allows additional person identifiers to be acquired by providing the ID of the person record.
<b>Method</b>	getIdentifiedPersonById(..)
<b>Pre Conditions</b>	Security requirements are satisfied. The Person record to be retrieved is active.
<b>Inputs</b>	IdentifiedPerson.assignedIdentifier.extension  (Identifier Name = “CTEP person entity identifier” Identifier Root = “Cancer Therapy Evaluation Program Person Identifier”)
<b>Outputs</b>	IdentifiedPersonDTO object

	<table border="1"> <thead> <tr> <th>Attributes</th> <th>ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>DSET&lt;II&gt;</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> <tr> <td>assignedIdentifier</td> <td>II</td> </tr> </tbody> </table>	Attributes	ISO Data type	identifier	DSET<II>	statusCode	CD	assignedIdentifier	II
Attributes	ISO Data type								
identifier	DSET<II>								
statusCode	CD								
assignedIdentifier	II								
<b>Post Conditions</b>	Consumer has an IdentifiedPersonDTO object with the details shown above.								
<b>Exception Conditions</b>	<p>Messages are part of the CTEP Enterprise Exception thrown by the API.</p> <p>The following exception message is sent back to the user if no identifier was provided: “<b>No II.extension provided to retrieve the person details.</b>”</p> <p>The following exception message is sent back to the user if no person was found with the provided Person ID: “<b>No Person record found for Identifier.</b>”</p> <p>For any other errors encountered on the server side, an exception is raised with the following message: “<b>Internal problem encountered. Please try again later.</b>”</p> <p>The client failed the security requirements.</p>								

## 2.2 Organization Service

These features describe the essential functions required to obtain, create, and manage organization information from the system.

For overall organization service flow, please refer to [Appendix B](#) (Figure 3-Organization Service Sequence Diagram).

For organization service use cases, please refer to [Appendix C](#) (Figure 5-Organization Service Use Case Diagram).

1. CBIIT has classified the organization types in the following groups:
  - a. **ResearchOrganization:** This corresponds to the following types in CTEP schema
    - i. Cancer Center (CCR), Cooperative Group ( CGP), Clinical Center (CLC), CCOP (COP), Institutional Review Board (IRB), Laboratory (LAB), NCI/CTEP (NCP), Network (NWK), Research Base (RSB). Drug Company (DCY), Consortium (CSM).
  - b. **HealthCareFacility:** This corresponds to Institution (ITN) in the CTEP schema.
2. The following organization types are excluded from all types of organization services
  - a. Other Organization (OOG)
  - b. Ordering Group (OGP)
  - c. Repository (REP)
3. Only “Active” records are fetched by the organization services.

4. Messaging APIs communicate on: creation of a new organization record, updates to an existing organization record, merging of two organizations, and when an organization is nullified. In a merge scenario, a DUPLICATE\_OF information is provided to indicate the organization into which the nullified organization was merged.
5. Wild cards are not allowed; a complete CTEP ID must be provided. For e.g., CT% is not a valid input, CTIS is a valid input.
6. At the time of release CTEP does not capture contact information.

**Operation: Get Organization information by Identifier.**

<b>Description</b>	Initiated by an external system or a data quality curator. This use case allows organization information to be acquired by providing an identifier. The output message is BRIDG compliant.												
<b>Method</b>	getOrganizationById(..)												
<b>Pre Conditions</b>	Security requirements are satisfied. The Organization to be retrieved is active. CTEP Identifier is provided.												
<b>Inputs</b>	IdentifiedOrganization.assignedIdentifier.extension: (Identifier Name = “Cancer Therapy Evaluation Program Organization Identifier”, Identifier Root = “2.16.840.1.113883.3.26.6.2”)  This is the CTEP Site Code of an Organization. E.g., CTEP, PIO, PMB												
<b>Outputs</b>	A constrained BRIDG OrganizationDTO Object  <table border="1"> <thead> <tr> <th>Attributes</th> <th>ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>II</td> </tr> <tr> <td>Name</td> <td>EN.ON</td> </tr> <tr> <td>postalAddress</td> <td>AD</td> </tr> <tr> <td>telecomAddress</td> <td>DSET&lt;TEL&gt;</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> </tbody> </table>	Attributes	ISO Data type	identifier	II	Name	EN.ON	postalAddress	AD	telecomAddress	DSET<TEL>	statusCode	CD
Attributes	ISO Data type												
identifier	II												
Name	EN.ON												
postalAddress	AD												
telecomAddress	DSET<TEL>												
statusCode	CD												
<b>Post Conditions</b>	Consumer has constrained BRIDG OrganizationDTO Object												
<b>Exception Conditions</b>	Messages will be part of the CTEP Enterprise Exception thrown by the API. If no organization is found for the given CTEP ID, an exception is thrown with the message “ <b>There was no organization found for the given CTEP ID.</b> ” The following exception message is returned if no identifier was provided: “ <b>No Ii.extension provided to retrieve the Organization.</b> ” The following exception message is returned if no organization was found with the provided CTEP ID: “ <b>No Organization found for CTEP Id.</b> ” For any other errors encountered on the server side,												

	<p>an exception is raised with the following message:  <b>“Internal problem encountered. Please try again later.”</b>                  The client failed the security requirements.</p>
--	---

**Operation: Get HealthCareFacility by Identifier.**

<b>Description</b>	<p>Initiated by an external system or a data quality curator. This use case allows organization (of type = “Institution) information to be acquired by providing an identifier.</p>												
<b>Method</b>	getHealthCareFacility(...)												
<b>Pre Conditions</b>	<p>Security requirements are satisfied.                  The HealthCareFacility to be retrieved is active.</p>												
<b>Inputs</b>	<p>IdentifiedOrganization.assignedIdentifier.extension:                  (Identifier Name = “Cancer Therapy Evaluation Program Organization Identifier”, Identifier Root = “2.16.840.1.113883.3.26.6.2” )</p> <p>This is the CTEP Site Code of an Organization.                  E.g., CTEP, PIO, PMB</p>												
<b>Outputs</b>	<p>A constrained BRIDG HealthCareFacilityDTO object</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Attributes</th> <th style="background-color: #cccccc;">ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>DSET&lt;II&gt;</td> </tr> <tr> <td>name</td> <td>EN.ON</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> <tr> <td>postalAddress</td> <td>DSET&lt;AD&gt;</td> </tr> <tr> <td>telecomAddress</td> <td>DSET&lt;TEL&gt;</td> </tr> </tbody> </table>	Attributes	ISO Data type	identifier	DSET<II>	name	EN.ON	statusCode	CD	postalAddress	DSET<AD>	telecomAddress	DSET<TEL>
Attributes	ISO Data type												
identifier	DSET<II>												
name	EN.ON												
statusCode	CD												
postalAddress	DSET<AD>												
telecomAddress	DSET<TEL>												
<b>Post Conditions</b>	<p>Consumer has a constrained BRIDG HealthCareFacilityDTO object with the details shown above.</p>												
<b>Exception Conditions</b>	<p>Messages are part of the CTEP Enterprise Exception thrown by the API.                  The following exception message is returned if no identifier was provided: <b>“No Identifier extension provided to retrieve the Organization.”</b>                  The following exception message is returned if no organization was found with the provided CTEP ID: <b>“No Organization found for CTEP Id.”</b>                  The following exception message is returned if an organization was found but was not of type HealthCareFacility: <b>“Not a HealthCareFacility.”</b>                  For any other errors encountered on the server side, an exception is raised with the following message:</p>												

	<p><b>“Internal problem encountered. Please try again later.”</b> The client failed the security requirements.</p>
--	--

**Operation: Get ResearchOrganization by Identifier.**

<b>Description</b>	Initiated by an external system or a data quality curator. This use case allows organization (type other than Institution) information to be acquired by providing an identifier.																
<b>Method</b>	getResearchOrganization(..)																
<b>Pre Conditions</b>	Security requirements are satisfied. The ResearchOrganization to be retrieved is active.																
<b>Inputs</b>	<p>IdentifiedOrganization.assignedIdentifier.extension: (Identifier Name = “Cancer Therapy Evaluation Program Organization Identifier”, Identifier Root = “2.16.840.1.113883.3.26.6.2” )</p> <p>This is the CTEP Site Code of an Organization. E.g., CTEP, PIO, PMB</p>																
<b>Outputs</b>	<p>A constrained BRIDG ResearchOrganizationDTO object</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Attributes</th> <th style="background-color: #cccccc;">ISO Data type</th> </tr> </thead> <tbody> <tr> <td>identifier</td> <td>DSET&lt;II&gt;</td> </tr> <tr> <td>name</td> <td>EN.ON</td> </tr> <tr> <td>statusCode</td> <td>CD</td> </tr> <tr> <td>fundingMechanism</td> <td>CD</td> </tr> <tr> <td>typeCode</td> <td>CD</td> </tr> <tr> <td>postalAddress</td> <td>DSET&lt;AD&gt;</td> </tr> <tr> <td>telecomAddress</td> <td>DSET&lt;TEL&gt;</td> </tr> </tbody> </table>	Attributes	ISO Data type	identifier	DSET<II>	name	EN.ON	statusCode	CD	fundingMechanism	CD	typeCode	CD	postalAddress	DSET<AD>	telecomAddress	DSET<TEL>
Attributes	ISO Data type																
identifier	DSET<II>																
name	EN.ON																
statusCode	CD																
fundingMechanism	CD																
typeCode	CD																
postalAddress	DSET<AD>																
telecomAddress	DSET<TEL>																
<b>Post Conditions</b>	Consumer has a constrained BRIDG ResearchOrganizationDTO object with the details shown above.																
<b>Exception Conditions</b>	<p>Messages are part of the CTEP Enterprise Exception thrown by the API.</p> <p>The following exception message is returned if no identifier was provided: <b>“No Identifier provided to retrieve the Organization.”</b></p> <p>The following exception message is returned if no organization was found with the provided CTEP ID: <b>“No Organization found for CTEP Id.”</b></p> <p>The following exception message is returned if an organization was found but is of type ITN (HealthCareFacility): <b>“Not a Research Organization.”</b></p> <p>For any other errors encountered on the server side, an exception is raised with the following message: <b>“Internal problem encountered. Please try again later.”</b></p>																

	<b>later.”</b> The client failed the security requirements.
--	--

### 2.3 Publish-Subscribe module for posting messages (not required for Silver-Compatibility review)

The system has implemented a JMS publish/subscribe module to communicate with external applications regarding any changes to Person and Organization information. External applications must subscribe to the CTEP topic to which the messages are published. Please refer to [Appendix C](#) (Figure 6- Inter System Activity Use Case Diagram).

The message contains a text in the following generic format:

```
<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE></TRANSACTION_TYPE>
    <RECORD_TYPE> </RECORD_TYPE>
    <RECORD_ID></RECORD_ID>
    <OBJECT_TYPE></OBJECT_TYPE>
  </ROW>
</ROWSET>
```

Where

<TRANSACTION\_TYPE></TRANSACTION\_TYPE> can be INSERT / UPDATE / NULLIFY / DELETE  
 <RECORD\_TYPE> </RECORD\_TYPE> can be PERSON / PERSON\_CONTACT / PERSON\_ADDRESS / ORGANIZATION / ORGANIZATION\_CONTACT / ORGANIZATION\_ADDRESS  
 <RECORD\_ID></RECORD\_ID> can be the identifier of the organization or the person  
 < OBJECT\_TYPE></OBJECT\_TYPE> can be ResearchOrganization and HealthCareFacility for organization type and HealthCareProvider and ClinicalResearchStaff for person type  
 Please refer to [Appendix A](#) for a detailed list of messages.

### Person updates

CTEPESYS monitors the following person information attributes and posts a message, on modification, to any of these attributes.

1. The system communicates updates to Investigator or Associates only.
2. The system broadcasts a message when a new person record is created.
3. The system broadcasts a message when any of the following Person information (for Investigator or Associate) changes:
  - a. Name details (First Name, Last Name, Middle Name, Prefix, Suffix)
  - b. Office Address (Associate) / 1572 Address (Investigator)
  - c. Contacts (Mail, Office Phone, Office Fax)
  - d. Inactivation of a Person (Investigator or Associate)

**Organization updates**

CTEPESYS monitors the following scenarios for an organization. Messages are broadcast for each and every scenario.

1. On creation of a new Organization
2. Inactivating an Organization
3. Merging of two Organizations
4. The system broadcasts a message when any of the following Organization information changes:
  - a. Updates to Organization name
  - b. Updates to Organization address (Office): Internal Office, Street, Street2, City, State, Zip/Postal Code and Country.
  - c. Updates to funding mechanisms of an organization

## 3 Non-Functional Requirements

### 3.1 Documentation Requirements

For each major or minor release of CES, information indicating which features are included, bugs fixed (by bug number), and any ancillary notes should be included as a part of the release notes.

### 3.2 Performance Requirements

#### Reliability Requirements

The reliance on the system's availability is critical to the client applications that get and send data to enterprise and depend on the service interface to perform functions on their behalf.

#### Availability Requirements

The external systems will be closely coupled and rely on CTEP Enterprise services for Person, Organization data. The application design must support near-constant uptime capacity requirements.

The system should be available 99% of the time, except for scheduled, pre-published maintenance windows. It is essential to note that CES system cannot have maintenance downtime separate from that of its client external applications. If CES is down, its services are not available to its client applications. Therefore, coordination of downtime among CES and its clients is critical.

### 3.3 Operational Requirements

#### Hardware Requirements

The system has the following Hardware Requirements:

Web Server: Twin CPU Processor with 4 GB RAM  
Database Server: Twin CPU Processor with 4GB RAM  
Interface: HTTP Protocol, RMI protocol  
Platform: Windows

#### Software Requirements

Java 2 Enterprise Edition 1.4  
Java SE 1.5.0\_10  
JMS1.1  
EJB 3.0  
Hibernate 3.2

Quartz Scheduler  
Oracle Application Server 10g / Oracle SOA Suite 10g  
Oracle Enterprise Database 10g

### Product Support Requirements

The system shall provide error logging wherever applicable.  
The system shall report errors wherever applicable.

## 3.4 Security Requirements

### External Application Security Requirements

The JMS topic provided by CES is durable and secured, and currently available only in the NCI/NIH network. The subscriber must authenticate using CES provided credentials for the JMS topic.

### Applicable Standards

caBIG standard  
Compliance with BRIDG 2.1/COPPA model.

- Compliance to COPPA semantics (model, data structures, etc.)
- Compliance to the RIM State Transitions for Entity and Role as defined in COPPA

Compliance to ISO data types

## 4 Architectural Requirements

Service oriented architecture principles must be followed in designing the application architectures.

RE-USE should be the main objective when service interfaces are designed.

The NCI Enterprise services are used to fetch Person and Organization information.

### 4.1 Project Dependency List

CES depends on the CTEP Enterprise core module to support curation activities of the organization information received from PO.

CES depends on the CTEPESYS data source and its various applications to capture Person and Organization information.

Any updates to Person and Organization data abstraction by any of enterprise systems impacts the information exchanged by CES.

CES depends on the caBIG PO application to receive Person and Organization information from CTRP.

## Appendix A (Not required for Silver-Compatibility review)

### Message on Creating an Organization

```
<?xml version = '1.0' encoding = 'utf-8'?>
```

```

<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>ORGANIZATION</RECORD_TYPE>
    <RECORD_ID>03013</RECORD_ID>
    <ORGANIZATION_TYPE>HealthCareFacility </ORGANIZATION_TYPE>
  </ROW>
</ROWSET>

```

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>ORGANIZATION_ADDRESS</RECORD_TYPE>
    <RECORD_ID>03013</RECORD_ID>
    <ORGANIZATION_TYPE>HealthCareFacility</ORGANIZATION_TYPE>
  </ROW>
</ROWSET>

```

### **Message on Updating an Organization Address**

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>DELETE</TRANSACTION_TYPE>
    <RECORD_TYPE>ORGANIZATION_ADDRESS</RECORD_TYPE>
    <RECORD_ID>03013</RECORD_ID>
    <ORGANIZATION_TYPE>HealthCareFacility</ORGANIZATION_TYPE>
  </ROW>
</ROWSET>

```

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>ORGANIZATION_ADDRESS</RECORD_TYPE>
    <RECORD_ID>03013</RECORD_ID>
    <ORGANIZATION_TYPE>HealthCareFacility</ORGANIZATION_TYPE>
  </ROW>
</ROWSET>

```

### **Message on updating an Organization's name**

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>UPDATE</TRANSACTION_TYPE>
    <RECORD_TYPE>ORGANIZATION</RECORD_TYPE>
    <RECORD_ID>03013</RECORD_ID>
    <ORGANIZATION_TYPE>HealthCareFacility </ORGANIZATION_TYPE>
  </ROW>
</ROWSET>

```

### **Message on merging two Organizations**

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>NULLIFY</TRANSACTION_TYPE>
    <RECORD_TYPE>ORGANIZATION</RECORD_TYPE>
  </ROW>
</ROWSET>

```

```

    <RECORD_ID>03013</RECORD_ID>
    <ORGANIZATION_TYPE>HealthCareFacility </ORGANIZATION_TYPE>
    <DUPLICATE_OF>MD017</DUPLICATE_OF>
  </ROW>
</ROWSET>

```

### **Message on Creating a Person**

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON_ADDRESS</RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>

```

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON_CONTACT</RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>

```

### **Message on Updating Person (First Name, Last Name, Middle Name, Prefix, Suffix)**

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>UPDATE</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON </RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>

```

### **Message on Updating Person Address**

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>DELETE</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON_ADDRESS</RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>

```

```

<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON_ADDRESS</RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>

```

```
</ROW>
</ROWSET>
```

### **Message on Updating Person Contact**

```
<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>DELETE</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON_CONTACT</RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>
```

```
<?xml version = '1.0' encoding = 'utf-8'?>
<ROWSET>
  <ROW num="1">
    <TRANSACTION_TYPE>INSERT</TRANSACTION_TYPE>
    <RECORD_TYPE>PERSON_CONTACT</RECORD_TYPE>
    <RECORD_ID>42</RECORD_ID>
    <PERSON_TYPE>HealthCareProvider</PERSON_TYPE>
  </ROW>
</ROWSET>
```

# Appendix B

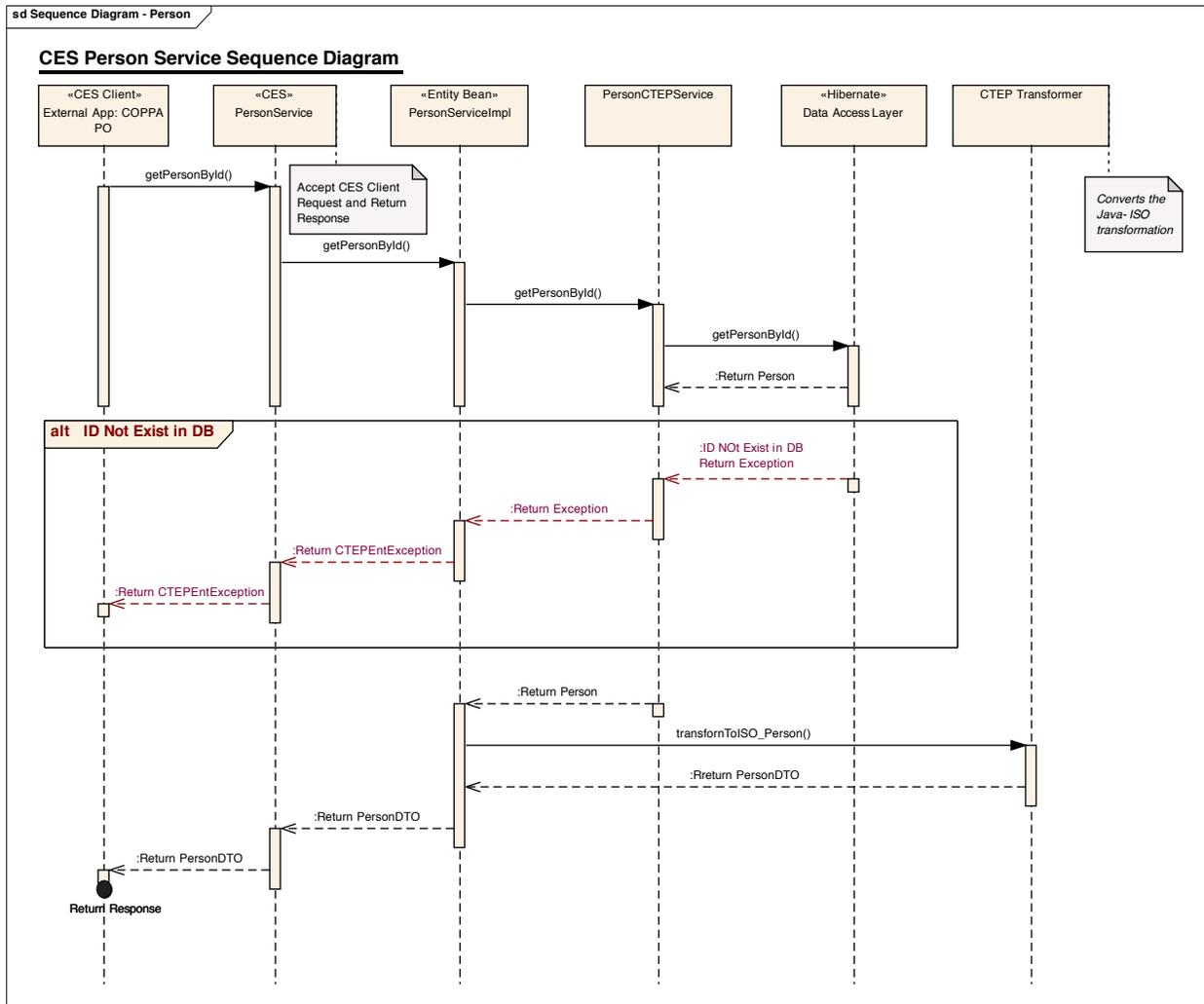


Figure 2-Person Service Sequence Diagram

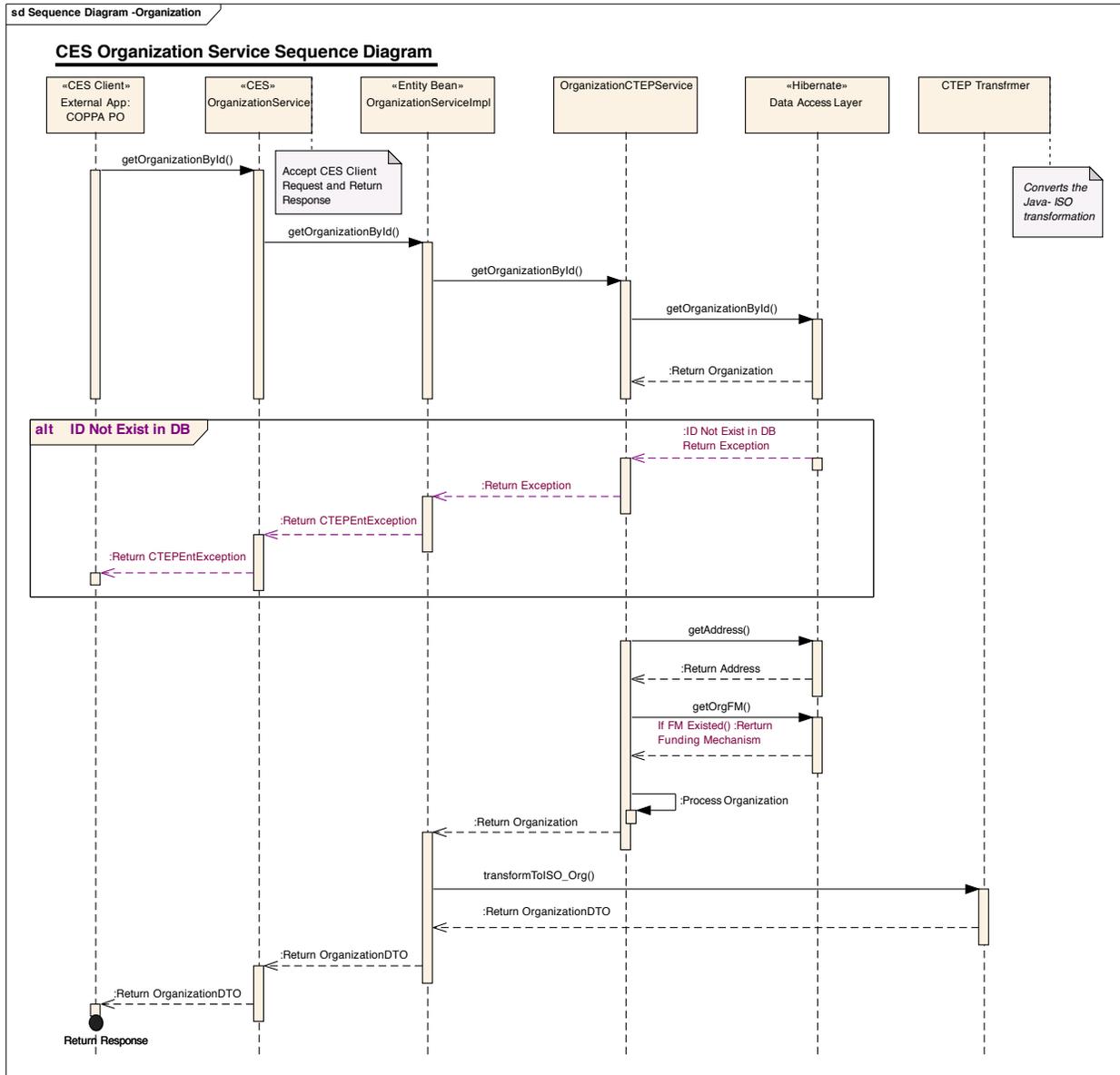


Figure 3-Organization Service Sequence Diagram

## Appendix C

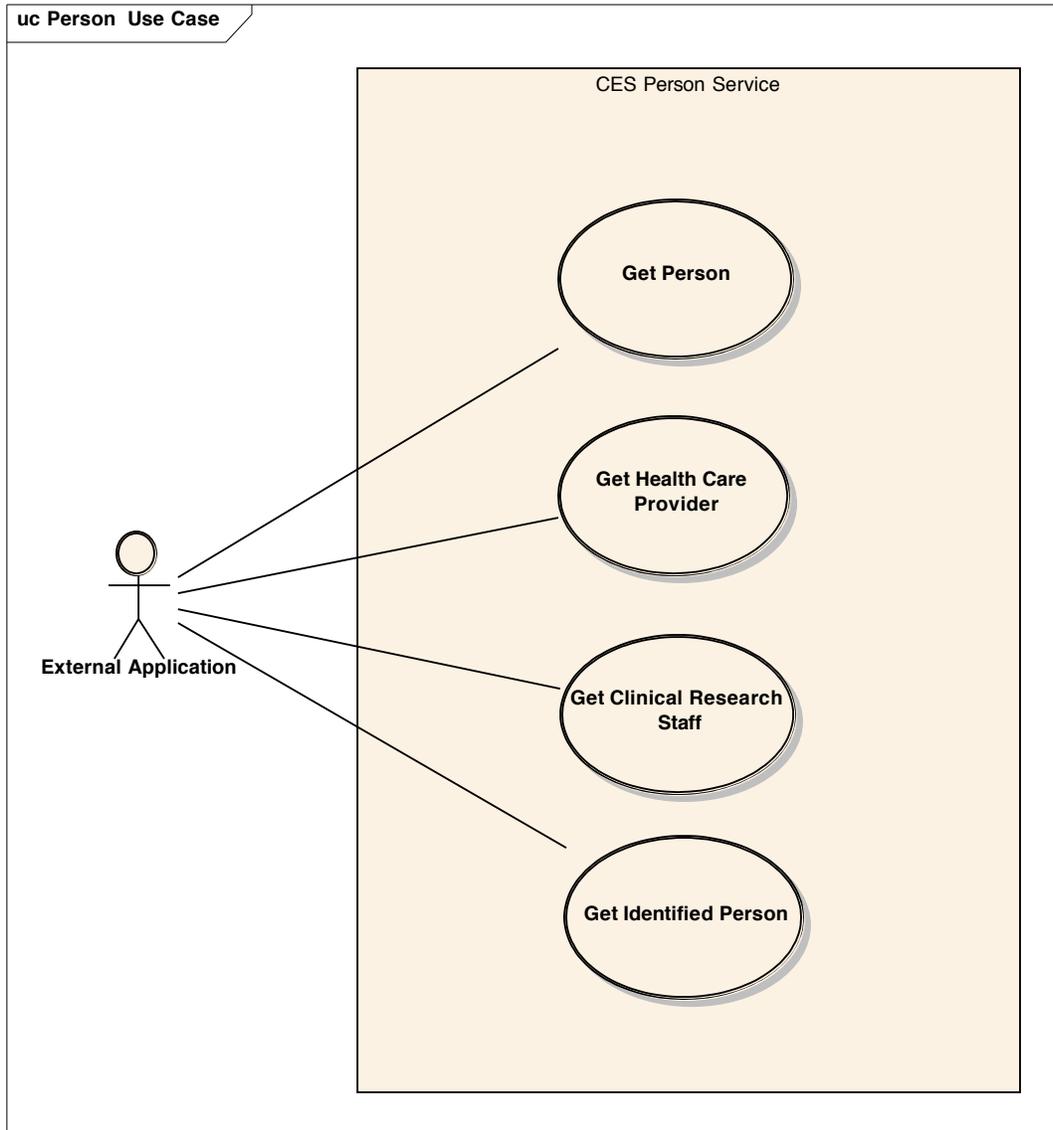


Figure 4-Person Service Use Case Diagram

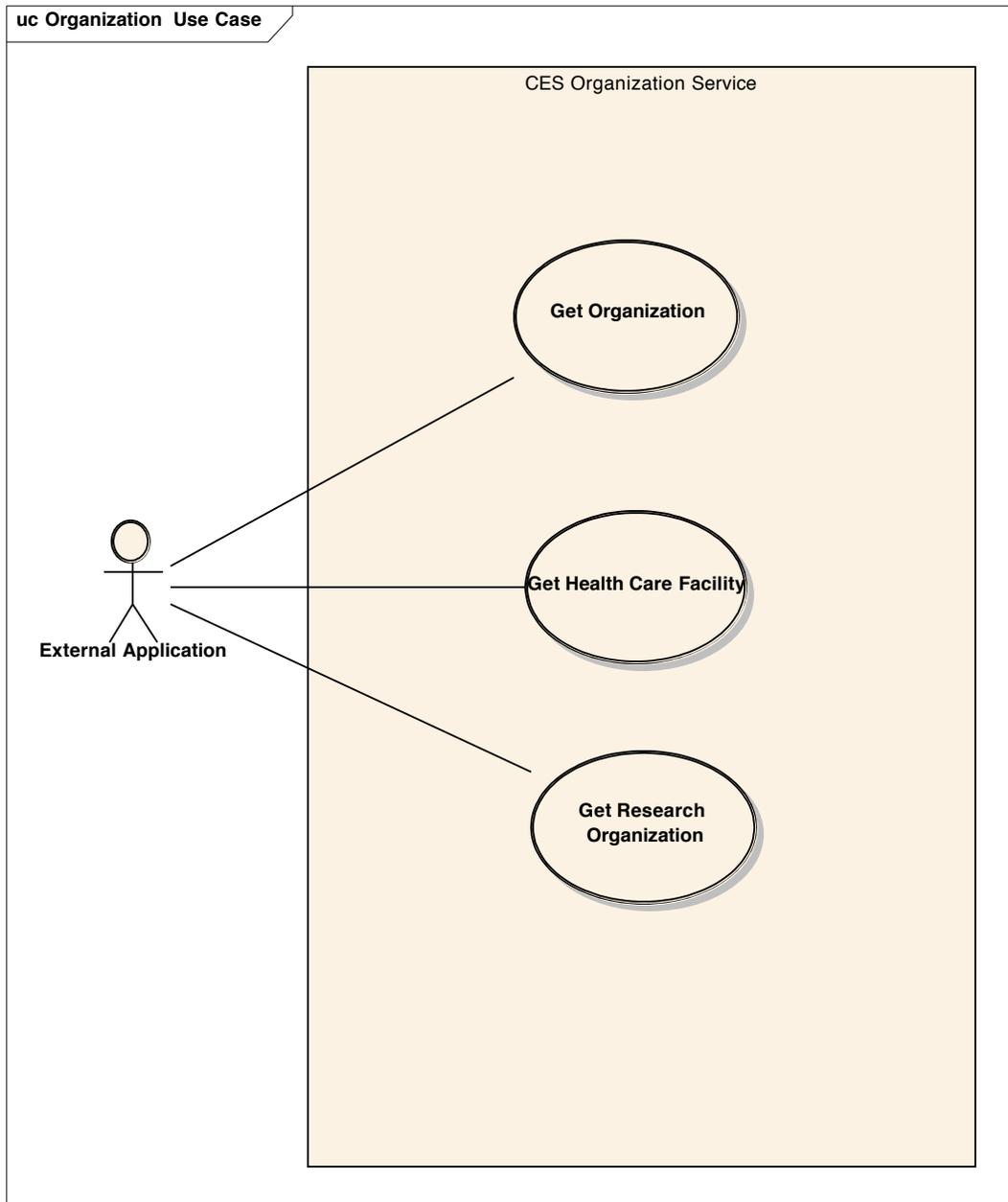


Figure 5-Organization Service Use Case Diagram

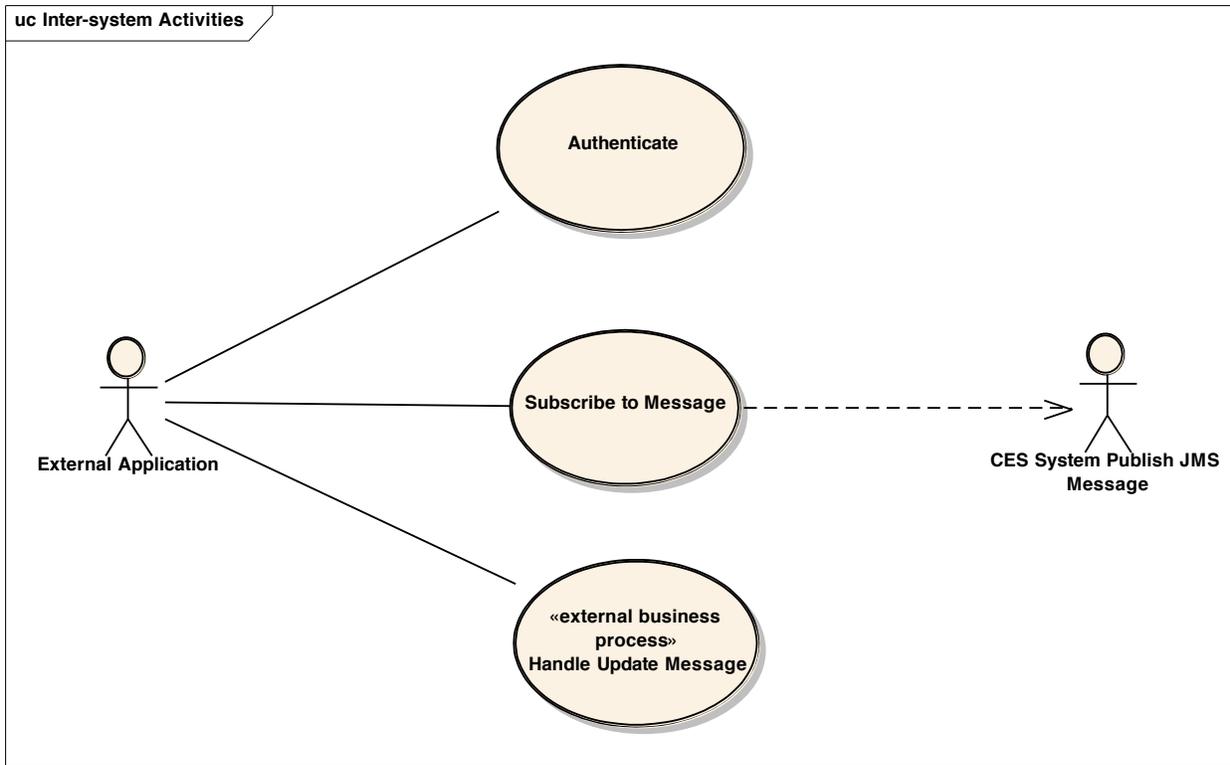


Figure 6- Inter System Activity Use Case Diagram