D5.1.2 - Core Public Service Vocabulary specification

Deliverable

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Authors	*Phil Archer – W3C/ERCIM* *Stijn Goedertier – PwC EU Services* *Nikolaos Loutas – Pwc EU Services*
Reviewed by	*João Rodrigues Frade – PwC EU Services*
Approved by	

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1. Introduction

1.1. About the ISA Programme

The Core Public Service vocabulary has been created as part of Action 1.1 [A1.1] of the Interoperability solutions for European public administrations (ISA) programme of the European Commission (EC). This programme funds initiatives to foster the efficient and effective cross-border electronic interactions between European public administrations. Action 1.1 of this programme is targeted towards improving the semantic interoperability of European e-Government systems. It addresses these by encouraging the sharing and reuse of semantic assets. As part of Action 1.1, the ISA Programme intends to build consensus on a number of e-Government Core Vocabularies for public sector information exchange.

1.2. Terminology

This document uses the following terminology:

Semantic interoperability is defined as the ability of information and communication technology (ICT) systems and the business processes they support to exchange data and to enable the sharing of information and knowledge: *Semantic Interoperability enables systems to combine received information with other information resources and to process it in a meaningful manner* [EIF2]. It aims at the mental representations that human beings have of the meaning of any given data.

A **Core Vocabulary** is a simplified, reusable, and extensible data model that captures the fundamental characteristics of an entity in a context-neutral fashion [EGOV-CV]. Well known examples of existing Core Vocabularies include the Dublin Core Metadata Set [DC]. Such Core Vocabularies are the starting point for agreeing on new semantic interoperability assets and defining mappings between existing assets. Semantic interoperability assets that map to or extend such Core Vocabularies are the *minimum required* to guarantee a level of cross-domain and cross-border interoperability that can be attained by public administrations.

1.3. Objectives

The Core Public Service Vocabulary (CPSV) is designed to make it easy to exchange basic information about the functions carried out by the public sector and the services in which those functions are carried out. By using the vocabulary, almost certainly augmented with sector-specific information, organisations publishing data about their services will enable:

- easier discovery of those services with and between countries;

- easier discovery of the legislation and policies that underpin service provision;
- easier recognition of how services provided by a single organisation interrelate and are used either by other services or external users;
- easier comparison of similar services provided by different organisations.

1.4. Scope

Any description of a public service will fit into a broader data set; for example: service users, metrics, outcomes, incidents and reports are all concepts likely to impinge on a service. In order to complete the current work in timely fashion, it is necessary to limit the scope and focus specifically on the core aspects of a service, recognising that it must fit in with existing and future vocabularies. That said, the CPSV must be broad enough so that it provides a framework for publishing data that is immediately useful and does not automatically require the addition of terms that would need to be defined in future work.

At its simplest, a public service is the capacity to carry out a procedure and exists whether it is used or not. It is a set of deeds and acts performed by or on behalf of a public agency for the benefit of a citizen, a business or another public agency. Public services operate according to rules that are derived from some combination of legislation and policy which can be set at local, national or supranational level. We further stipulate that a public service:

- is atomic, meaning that its use can be triggered by businesses, citizens or other public administrations;
- usually requires information that is checked before the public administration issues an official decision that is registered in a system (in an automatic or manual way).

2. Motivation

The **metadata** and **reference data** used in electronic public services across Europe most often has a very specific context. Attaining consensus on common metadata and reference data for these electronic services is a *critical* step towards semantic interoperability. Unfortunately, consensus building is hindered by the diverse cultural, multi-lingual, legal, and organisational contexts of these e-Government services. To alleviate this problem, consensus building should start at a higher level of abstraction that surpasses the contexts of individual electronic public services, and thus the cultural, lingual, legal, and organisational differences of individual countries. In particular, consensus can be more easily attained on the semantics of a *small* set of fundamental concepts, for which less divergent opinions exist [EGOV-CV]. These concepts are what we describe as Core Vocabularies.

2.1. Use cases

The Core Public Service Vocabulary is designed to meet the use cases described below. These use cases have been co-developed and agreed with the members of the Working Group.

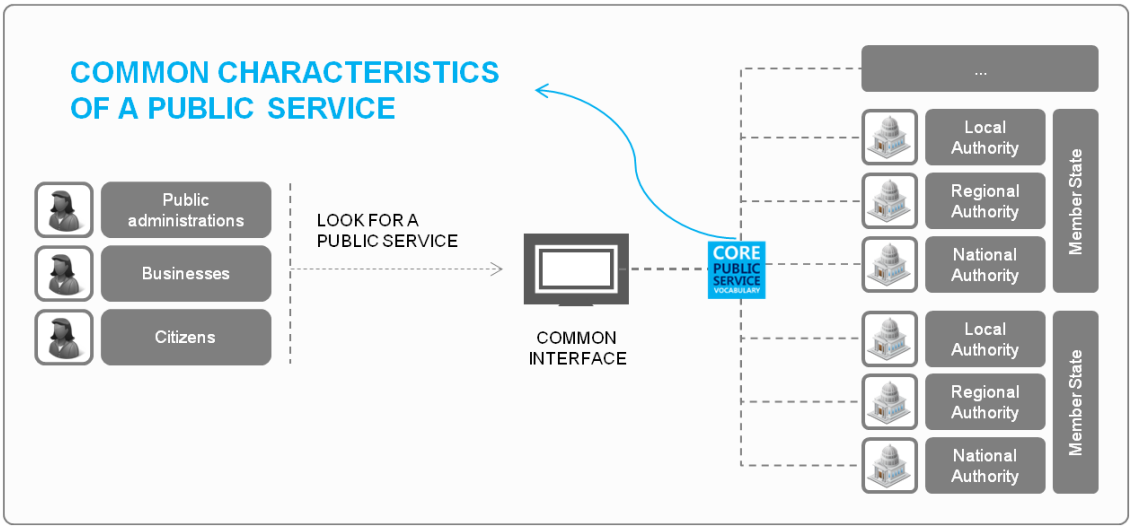
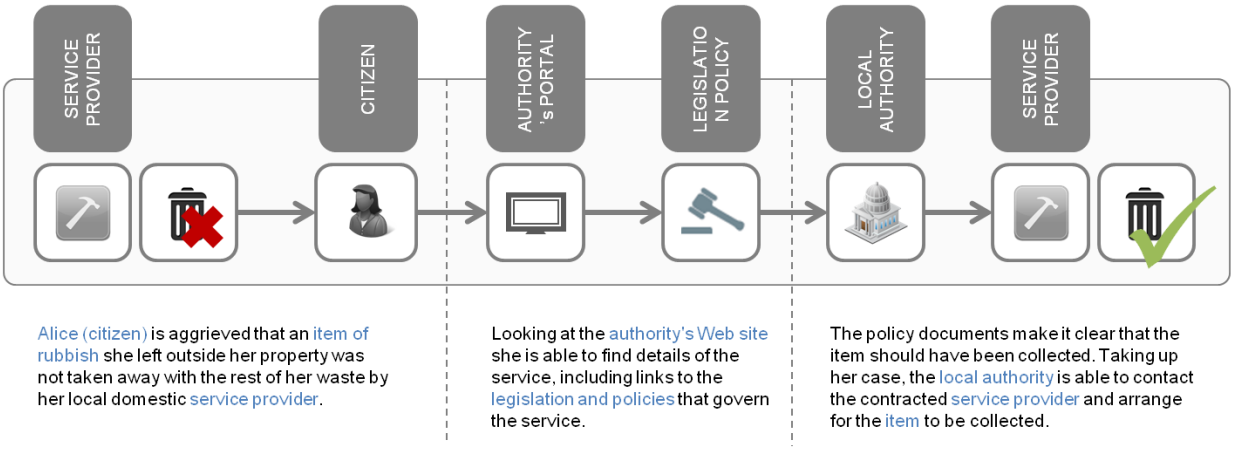


Figure 1 A diagrammatic summary of the use cases for the Core Public Service Vocabulary

2.1.1. Use Case 1

Alice is aggrieved that an item of rubbish she left outside her property was not taken away with the rest of her waste by her local domestic refuse collection service. Looking at the authority's Web site she is **able to find details of the service**, including links to the legislation and policies that govern the service. The policy documents make it clear that the item should have been collected. Taking up her case, the local authority is able to contact the contracted service

provider and arrange for the item to be collected.



2.1.2. Use Case 2

Bob is considering how his department is going to fulfil the obligations put on it by new legislation concerning adult social care. To help him formulate a proposal, he wants to see how similar issues are handled in **other countries**. Referring to a controlled vocabulary of services performed by local governments in several European Member States, he is able to quickly identify and locate descriptions of the relevant services and so begin his comparative study.

2.1.3. Use Case 3

Clair is studying the impact of road traffic accidents in her area. She is collating data on which services are involved and what the function of each one is. As well as the emergency services, she notes that many accidents lead to assessments of the accident site by departments concerned with highway maintenance, landscaping and health and safety. Since each service is described in a common manner, she is **quickly able to identify** not only the **services** concerned with each road traffic accident but the **functions performed** by those services. It is this commonality that reveals the significant duplication of effort. Clair is therefore able to propose a new, more efficient service, that carries out the duplicated functions just once on behalf of multiple services.

2.1.4. Use Case 4

Daniel is suffering from macular degeneration and is understandably concerned about what services will be available to him as his eyesight deteriorates. Since his local authority's services are described in a common machine readable manner, he is able to **easily query the service directory** for services tailored for blind or partially sighted people.

2.1.5. Use Case 5

Elena is conducting a review of the impact on schools of legislation passed in the last 5 years. The work is being carried out as part of a review of education policy under a previous administration. Taking the **legislation** itself as a **starting point**, she is quickly able to see that different education authorities have assigned different functions arising from it to different services. She is then able to group education authorities according to broad categorisations based on their implementations and from there look for any significant differences in outcome and effectiveness and so inform the policy development process.

2.1.6. Use Case 6

Franco works in the environmental protection department of his local authority and needs to find out what help might be available that would help him encourage residents in a troubled housing estate to take greater care of a nearby water course. Consulting the **services directory** he is quickly able to identify the relevant services and the departments responsible for running them.

2.1.7. Use Case 7

Gicela wants to hold a street party so that she and her neighbours can take part in a national celebration in 8 months' time. Clearly doing this requires permission to close off the street to traffic and may also impact on issues such as health and safety, waste disposal, noise control and so on. Putting on the event will require the permission and cooperation of multiple agencies at multiple levels of government: local, regional and possibly national. What Gicela needs is a directory of services that **cuts across administrative boundaries** so that she can direct her enquiries accordingly.

2.1.8. Use Case 8

Hans is a developer who would like to build a Web application that allows users to **match** their **needs against available public services**, irrespective of the administration that provides them. The application queries each authority's data and presents it to the user. Hans' task is made substantially easier as he knows what data is likely to be available and that it will be consistent between multiple sources.

2.2. Related work

Before embarking on the development of the CPSV, the working group notes, and in many cases draws directly upon, several existing initiatives.

- The UK Public Sector Concept Model [PSCM] and ESD Toolkit's Local Government Business Model [LGBM] offer well developed models that include Public Services.
- A number of service registries already exist, including DG DIGIT's Catalogue of Services [ISA13], Vocabulario de trámites y servicios públicos [VTSP], the Greek Interoperability Centre Service Registry [ELSR], the government service catalogue portal in Brazil [BR].
- The German "Nationale Prozessbibliothek" project is centred around a library of services and defines reference data for public services [NP].
- A number of controlled vocabularies exist in this space including ESD Toolkit's Service list [SL4]. In Denmark there is one for state administrations Fælles Offentlig Referance Model (Common Public Administration Reference Model) [FORM] and another for municipalities KL Emnesystematik (LGDK Subject System) [KLE].
- OASIS's Transformational Government Framework [TGF] is a comprehensive effort to advance an overall framework for using information technology to improve the delivery of public services.
- The Government Enterprise Architecture [GEA] is a set of data and process models to describe public service and public service provision. It has been used for describing public services in a number of different EU Member States including Greece and Cyprus.
- In Spain, the City of Saragossa has published data about all their public services using a basic RDF model, and the government of Andalucia has also modelled part of their service provision likewise using the same vocabulary [CTIC].
- A detailed academic study of the effect of ICT on service provisioning is provided by Jian Yu *et al* [YU 2011].
- Other relevant work includes the W3C eGov Common Service Model use case [UC] and the Rural Inclusion Project [RI].

A detailed review of eGovernment service models and specifications is available in [PERT].

3. Conformance Statement

A data interchange, however that interchange occurs, is conformant with the Core Public Service Vocabulary if:

- it uses the terms (classes and properties) in a way consistent with their semantics as declared in this specification;
- it does not use terms from other vocabularies instead of ones defined in this vocabulary that could reasonably be used.

A conforming data interchange:

- may include terms from other vocabularies;
- may use only a subset of Core Public Service Vocabulary terms.

A CPSV application profile is a specification for data interchange that adds additional constraints. Such additional constraints in a profile may include:

- a minimum set of required terms;
- classes and properties for additional terms not covered in the Core Public Service Vocabulary;
- controlled vocabularies or URI sets as acceptable values for properties;

The Core Public Service Vocabulary is technology-neutral and a publisher may use any of the terms defined in this document encoded in any technology although RDF and XML are preferred.

4. Core Public Service Conceptual Model

4.1. Domain model

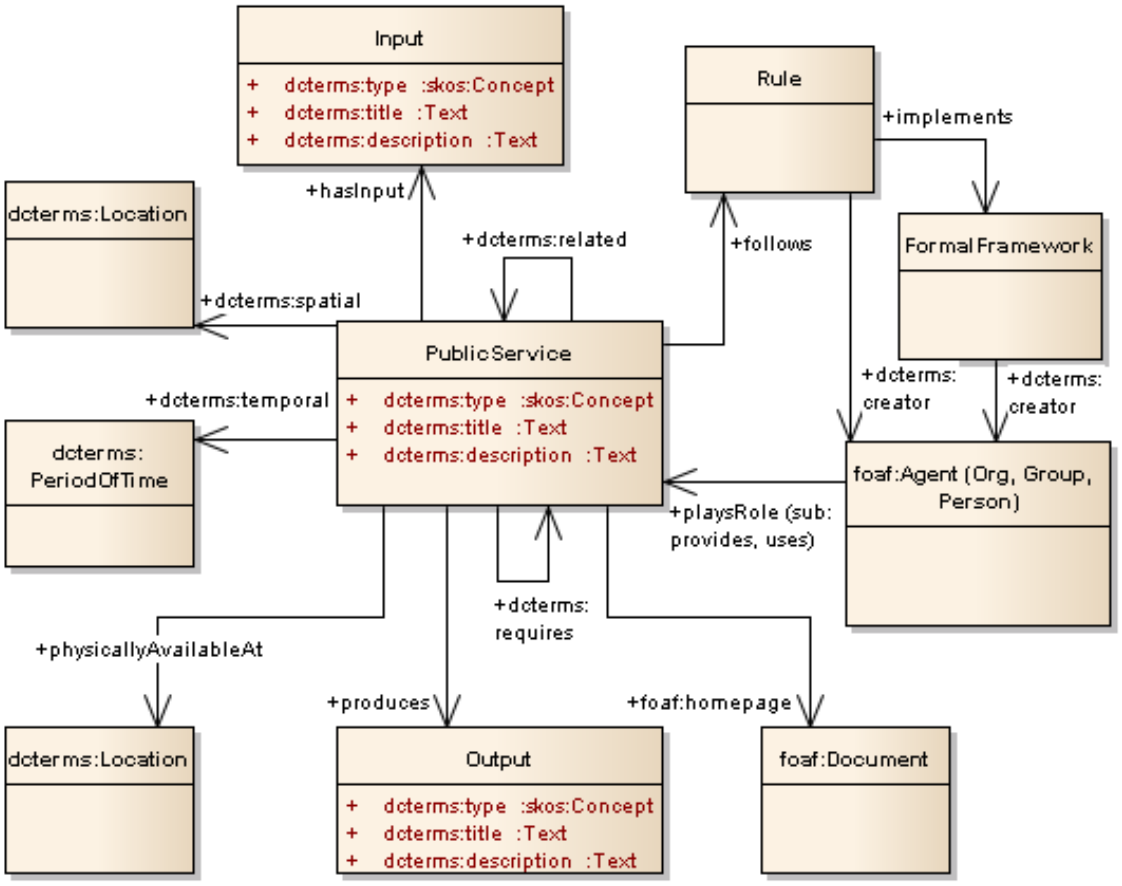


Figure 2 UML diagram for the Core Public Service Vocabulary. All classes and properties are in the CPSV namespace unless otherwise indicated.

The model presented in Figure 2 is independent of any technology that may be used to represent it although it uses RDF vocabularies to convey semantics. It describes the minimal set of classes, relationships and properties necessary to describe a public service. All classes and properties are in the CPSV namespace unless otherwise indicated.

At the heart of the model is the public service itself. This will very likely have a name, a description and, in many cases, will be of a specific type. For greatest interoperability, service types should be given as values from a list such as the service list used in many EU countries [SL4]. The service may be available online at the URL given as the value for the foaf:homepage property, and/or at one or more physical locations, given as the value for the physicallyAvailableAt property. Details of the location can be given using the Location Core Vocabulary [LOCN] or similar.

A service will usually require some sort of input. In the case of issuing a driving licence this will be evidence that driving test has been passed; many services will require some sort of proof of ID and so on. Likewise, the output will vary depending on the specific service but there will usually be a document or other artefact that is the output. This is not the same as the *outcome*. Drawing on the definitions used in StratML [StratML], if the service controls all of the necessary inputs and processes, the desired result is an out*put*. Likewise, the GEA Public Service Model, distinguishes between public service outcome, output and effect [PER, LOU1]. For example, a driving licence is an output. The outcome (or effect in GEA) is that the new licence holder can drive a vehicle on the public highway. How they do that, which vehicle they drive etc. is beyond the service's remit.

Public services are regulated by a set of rules. These will typically be set by a single organisation and will implement combination of legislation and policy, i.e. within a Formal Framework, that may be decided at any level from local to supranational by any number of bodies. The creator(s) of the rules and formal framework are the bodies responsible for their creation, not the individuals who wrote them. It is also notable that the Rule and Formal Framework classes are both sub classes of the FRBR class Expression [FRBR].

An individual service may be related to another in some way, in which case the two services can be linked using dcterms:related. If the relationship is such that one service *requires* another then the dcterms:requires relationship should be used.

The dcterms:Agent class represents any individual, group or organisation that plays any role in the service. These include but are not limited to:

- the public administration responsible for providing the service;
- the public administration that defines the rules that regulate the service;
- the organisation(s) that deliver the service on behalf of the responsible public body;
- the public body responsible for passing the legislation or setting the policy or policies from which the rules are derived;
- the person, organisation or group that uses the service.

The basic roles are 'provides' and 'uses' and specific object properties are provided for these as shortcuts. However there are any number of roles that may be played in the provision or use of a service. Therefore a 'has role' super property is provided.

Details of the specific role played by an Agent can be provided using the Role and Membership classes. These are defined in the Organization Ontology [ORG] which in turn derived them from FOAF [FOAF]. It allows for the roles to be defined separately from the agents that fulfil those roles and for any number of agents to be associated with any number of roles.

[Illustrative example(s) to be added here based on test implementations]

Finally the service is likely to be available within a defined area and/or time frame. These limits are recorded using the Dublin Core relationships dcterms:spatial and dcterms:temporal together with their respective classes.

4.2. The Public Service Class

This class represents the service itself. As noted in the scope (section 1.4), a public service is the capacity to carry out a procedure and exists whether it is used or not. It is a set of deeds and acts performed by or on behalf of a public agency for the benefit of a citizen, a business or another public agency.

The following subsections define the properties of the Public Service class.

4.2.1. dcterms:title (data type)

Property	Data Type
name	Text

The name of the service. Language identifiers are particularly important in multilingual contexts where a Service may have more than one name (see section 4.7)

4.2.2. dcterms:description (data type)

Property	Data Type
description	Text

A free text description of the service. Language identifiers are particularly important in multilingual contexts where a Service may be described in multiple languages.

4.2.3. dcterms:type (object type)

Property	Range
dcterms:type	skos:Concept

The type of service as described in a controlled vocabulary, encoded as a SKOS Concept

Scheme, such as ESD Toolkit's Service List [SL4].

4.2.4. foaf:homepage (object type)

Property	Range
foaf:homepage	URL

The Web page through which the service is available. This may be, but in many cases will not be, the homepage of the service provider.

It is noteworthy that online access to public services is itself likely to be subject to a variety of policies that typically cut across many departments. Accessibility issues are usually part of such frameworks as well as metadata provision, site structure and so on. These features are an important part of a public authority's online provision but are out of scope of the Core Public Service Vocabulary. The object of the foaf:homepage property would be the subject of a description of the online features as opposed to the Public Service itself.

4.2.5. physicallyAvailableAt (object type)

Property	Range
physicallyAvailableAt	dcterms:Location

A physical location at which a user may interact with the Public Service.

The location itself can be described, for example, using the Location Core Vocabulary [LOCN] and may also include details such as office opening hours, accessibility information about the site etc.

4.2.6. dcterms:requires (object type)

Property	Range
dcterms:requires	Not defined by DCMI

One public service may require or in some way make use of another. The nature of the requirement will be described in the associated Rule.

4.2.7. hasInput (object type)

Property	Range
hasInput	Input

The hasInput property links a Public Service to one or more instances of the Input class (see below). A specific service may require the presence of certain inputs or combinations of inputs in order to operate. These should be described in an application profile for a given service.

4.2.8. produces (object type)

Property	Range
produces	Output

The produces property links a Public Service to one or more instances of the Output class (see below).

4.2.9. follows (object type)

Property	Range
follows	Rule

The follows property links a Public Service to the Rule(s) under which it operates. In a typical case, the public authority that *provides* the service (section 4.6.1) will also define the Rules that will implement its own policies that will have been set within the broader legislative framework but the model is flexible to allow for significant variation in such a scenario.

4.2.10. dcterms:spatial, dcterms:temporal (object type)

Property	Range
dcterms:spatial	dcterms:Location
dcterms:temporal	dcterms:PeriodOfTime

A service is likely to be available only within a given area, typically the area covered by a particular public authority; and/or within certain time periods such as the winter months. These limits on the availability of the service are described using the establish Dublin Core properties and classes.

N.B. These restrictions are not meant to be used to describe eligibility. That aspect will be covered by the Rule.

Note: The working group considered minting a new property to link a Public Service to the Dublin Core class of Jurisdiction (surprisingly, no such property exists within the Dublin Core Metadata Set although the class does). After much discussion it was felt that this was unnecessary since spatial/Location will be sufficient. The WG is particularly keen to receive feedback on this issue, i.e. are there Public Services whose coverage is limited by jurisdiction in a way that is not easily conveyed by describing a geographic area.

4.3. The Input and Output Classes

Inputs and outputs can by any resource - document, artefact - anything. In a specific context it is likely to be useful to either define a sub class or declare the particular resource to also be of another type as well. A general case might be a foaf:Document but where possible, it is better to refer to a controlled vocabulary of types. dcterms:type should be used to use to provide this

information and, in RDF implementations, it should link to a SKOS Concept [SKOS].

4.4. The Rule Class

The Rule class represents the specific rules, guidelines or procedures that the Public Service follows. Instances of the Rule class are FRBR Expressions, that is, a concrete expression, such as a document, of the more abstract concept of the rules themselves [FRBR]. Rules are used for validating the input required by the service, deciding on the eligibility of the user, steering the service process and defining the dependencies/relationships between services [LOU1, LOU2].

Rules should be linked to the organisation that is responsible for them via the usual dcterms:creator property.

4.4.1. implements (object type)

Property	Range
implements	FormalFramework

The implements property links a Rule to relevant legislation or policy documents i.e. the formal framework under which the Rules are defined - see below.

4.5. The FormalFramework Class

This class represents the legislation, policy or policies that lie behind the rules that govern the service. As with the Rule class, the Formal Framework class is a sub class of frbr:Expression, i.e. instances of the class are concrete expressions of the more abstract concept of the piece of legislation or policy itself.

The European Council's invitation to introduce the European Legislation Identifier [ELI] and portals such as legislation.gov.uk are relevant in this context. Adding '/data.xml' or /data.rdf' to any legislation URI on legislation.gov.uk will reveal how this can be done, for example http://www.legislation.gov.uk/uksi/2012/3170/contents/made{/data.rdf or /data.xml}. Dublin Core provides the necessary properties for describing the legislation or policy, including dcterms:creator to link it to the public body responsible for it.

4.6. The Agent Class

The Agent class, defined Dublin Core and FOAF, is any resource that acts or has the power to act. Its well known sub classes are foaf:Person, foaf:Group and foaf:Organization. The latter is re-used in the Organization Ontology [ORG] which provides further sub classes.

4.6.1. playsRole, provides, uses (object type)

Property	Range
playsRole provides uses	Public Service

This very general property links an Agent to a Public Service in which it plays some role. Both 'provides' and 'uses' are sub properties of playsRole with specific semantics.

The 'provides' property links an Agent to a Public Service for which it is responsible. Whether it provides the service directly or outsources it is not relevant, the Agent that provides the service is the one that is ultimately responsible for its provision.

The 'uses' property links an Agent to a Public Service in which it plays the specific role of user, meaning that it provides the input and receives the output but does not play any direct role in providing the service. This will typically be an individual citizen or an outside organisation.

Other simple relationships between an Agent and a Public Service can be described using sub properties of these three. Where n-ary relationships exist between Agents, Public Services and Roles, the Organization Ontology's Membership and Role classes can be used to provide more detail [ORG].

4.7. The Text Data Type

The text data type is a combination of a string and a language identifier. It is useful for names and descriptions that are available in multiple languages. Where this is so, each version of the data should be included and each one associated with the relevant language identifier. RFC 3066 [RFC 5646] provides a commonly used set of identifiers for natural languages. This is the set recognised by UN/CEFACT and XML Schema.

Languages are represented by two character codes, optionally followed by a locale definition such as "de" meaning German and "de-at" meaning "German as spoken in Austria."

5. Evaluation of Use Cases

Section 2.1 sets out a number of use cases. Here, we examine whether those use cases have been met by the vocabulary.

Use case 1 centres on discovering who is responsible for a particular service. The user is able to discover who is responsible for a service as the cpsv:provides property links the relevant Agent to the service. Furthermore, the relevant legislation is also discoverable which was also important in this use case.

Use case 2 concerns discovering existing public services of a particular type. The vocabulary's recommendation to use a controlled service type list is the key to meeting this use case and is fully supported.

Use case 3 goes beyond the scope of the Core Public Service Vocabulary, however, the basic function of being able to identify the relevant services is supported and it is this discoverability that is at the heart of the use case.

Use case 4 concerns access to services for people with disabilities. As discussed in section 4.2.4 online services are very often covered by policies that apply to online communications irrespective of the nature of those communications and the Web interface for a Public Service will be governed by those policies. Likewise, accessibility of physical locations at which a Public Service is available is a feature of the location, not of the service. This is highlighted in section 4.2.5. Taking these factors into account, use case 4 is not directly met by the CPSV but efforts have been made nonetheless to ensure that users of the CPSV include a description of the accessibility features of a given public service.

Use case 5 takes legislation as the starting point and then discovers the public services that implement it. The links between a Public Service and one or more pieces of relevant legislation are well represented in the vocabulary.

Use case 6 is focussed on a specific area. The geographic coverage of Public Services can be recorded using the CPSV and this would be helpful in this use case. As with use case 1, however, the key element though is the service type. It is this that is most likely to be helpful in use case 6.

Use case 7 is covered squarely since the CPSV facilitates the development of exactly the kind of services directory envisaged.

Use case 8 requires the same kind of data used in use case 7 but for it to be machine readable rather than presented to an end user on a screen so that software applications can do more of the work. The CPSV provides the necessary framework for the provision of such machine readable data.

6. Core Public Service Vocabulary in RDF

6.1. Namespace

The namespace for the Core Public Service Vocabulary is `http://purl.org/vocab/cpsv#` and the preferred prefix is `cpsv`.

6.2. RDF Schema

The Turtle serialisation of the RDF schema for the vocabulary is included below (namespace declarations have been omitted for clarity).

```
cpsv:PublicService a rdfs:Class, owl:Class;
  rdfs:label "Public Service"@en;
  rdfs:comment "This class represents the service itself. As noted in
the scope (section 1.4), a public service is the capacity to carry out
a procedure and exists whether it is used or not. It is a set of deeds
and acts performed by or on behalf of a public agency for the benefit
of a citizen, a business or another public agency."@en.

cpsv:Input a rdfs:Class, owl:Class;
  rdfs:label "Input"@en;
  rdfs:comment "Inputs can by any resource - document, artefact -
anything. In a specific context it is likely to be useful to either
define a sub class or declare the particular resource to also be of
another type as well. A general case might be a foaf:Document but
where possible, it is better to refer to a controlled vocabulary of
types. dcterms:type should be used to use to provide this information
linking to a SKOS Concept."@en.

cpsv:Output a rdfs:Class, owl:Class;
  rdfs:label "Output"@en;
  rdfs:comment "Outputs can by any resource - document, artefact -
anything. In a specific context it is likely to be useful to either
define a sub class or declare the particular resource to also be of
another type as well. A general case might be a foaf:Document but
where possible, it is better to refer to a controlled vocabulary of
types. dcterms:type should be used to use to provide this information
linking to a SKOS Concept."@en.

cpsv:Rule a rdfs:Class, owl:Class;
  rdfs:subClassOf frbr:Expression;
  rdfs:label "Rule"@en;
  rdfs:comment "The Rule class represents the specific rules,
guidelines or procedures that the Public Service follows. Instances of
the Rule class are FRBR Expressions, that is, a concrete expression,
```

```
such as a document, of the more abstract concept of the rules
themselves."@en.

cpsv:FormalFramework a rdfs:Class, owl:Class;
  rdfs:subClassOf frbr:Expression;
  rdfs:label "This class represents the legislation, policy or
policies that lie behind the rules that govern the service. As with
the Rule class, the Formal Framework class is a sub class of
frbr:Expression, i.e. instances of the class are concrete expressions
of the more abstract concept of the piece of legislation or policy
itself."@en.

# properties (all of which are object type properties)

cpsv:physicallyAvailableAt a rdf:Property, owl:ObjectProperty;
  rdfs:label "physically available at"@en;
  rdfs:comment "A physical location at which a user may interact with
the Public Service."@en;
  rdfs:domain cpsv:PublicService;
  rdfs:range dcterms:Location.

cpsv:hasInput a rdf:Property, owl:ObjectProperty;
  rdfs:label "has input"@en;
  rdfs:comment "The hasInput property links a Public Service to one or
more instances of the Input class (see below). A specific service may
require the presence of certain inputs or combinations of inputs in
order to operate. These should be described in an application profile
for a given service."@en;
  rdfs:range cpsv:Input.
  # No domain defined as this would hinder re-use of the property
unnecessarily.

cpsv:produces a rdf:Property, owl:ObjectProperty;
  rdfs:label "produces"@en;
  rdfs:comment "The produces property links a Public Service to one or
more instances of the Output class which is its range."@en;
  rdfs:range cpsv:Output.
  # No domain defined

cpsv:implements a rdf:Property, owl:ObjectProperty;
  rdfs:label "implements"@en;
  rdfs:comment "The implements property links a Rule to relevant
legislation or policy documents i.e. the formal framework under which
the Rules are defined."@en;
  rdfs:domain cpsv:Rule;
  rdfs:range cpsv:FormalFramework.
```

```
cpsv:hasRole a rdf:Property, owl:ObjectProperty;
  rdfs:label "has role"@en;
  rdfs:comment "This very general property links an Agent to a Public
Service in which it plays some role. Both 'provides' and 'uses' are
sub properties of playsRole with specific semantics."@en;
  rdfs:domain dcterms:Agent;
  rdfs:range cpsv:PublicService.

cpsv:provides a rdf:Property, owl:ObjectProperty;
  rdfs:label "provides"@en;
  rdfs:comment "The provides property links an Agent to a Public
Service for which it is responsible. Whether it provides the service
directly or outsources it is not relevant, the Agent that provides the
service is the one that is ultimately responsible for its
provision."@en;
  rdfs:subPropertyOf cpsv:hasRole.

cpsv:uses a rdf:Property, owl:ObjectProperty;
  rdfs:label "uses"@en;
  rdfs:comment "The uses property links an Agent to a Public Service
in which it plays the specific role of user, meaning that it provides
the input and receives the output but does not play any direct role in
providing the service. This will typically be an individual citizen or
an outside organisation."@en;
  rdfs:subPropertyOf cpsv:hasRole.

cpsv:follows a rdf:Property, owl:ObjectProperty;
  rdfs:label "follows"@en;
  rdfs:comment "The follows property links a Public Service to the
Rule(s) under which it operates."@en;
  rdfs:domain cpsv:PublicService;
  rdfs:range cpsv:Rule.
```

7. Approach & Community

The process and methodology followed in the development is set out in detail in the Process and Methodology for Developing Core Vocabularies [PMDCV].

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Working group chair:
Thodoris Papadopoulos, Informatics Development Agency Ministry of Administrative Reform and eGovernance

WG members and contributors:

- Martín Álvarez-Espinar, CTIC
- Own Ambur, AIIM StratML Committee
- Miguel A. Amutio Gómezm, DG for Administrative Modernization, Procedures and Promotion of eGovernment
- Phil Archer, W3C
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- Giorgia Lodi, Interoperability Service Unit at Agency for Digital Italy
- Ángel Lopez Alós, JRC/INSPIRE
- Nikos Loutas, PwC
- Michael Lutz, JRC/INSPIRE
- Antonio Maccioni, Interoperability Service Unit at Agency for Digital Italy
- Ricardo Marques
- Fergal Marrinan, Consultant at European Business Registry
- Marios Meimaris, NTUA

- Vassilis Michalitsis, Informatics Development Agency Ministry of Administrative Reform and eGovernance
- Nadežda Nikšová, eGovernment Department - Information Society Division - Ministry of Finance of the Slovak Republic
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7.1. Change Control

The Core Public Sector Vocabulary is published by the ISA Programme. Review comments and requests for changes can be made via the mailing list which is archived at http://joinup.ec.europa.eu/mailman/archives/core_public_service/.

7.2. Future work

A number of pilots/test implementations are planned in the near future. Feedback from these activities may, of course, lead to revisions of the vocabulary.

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