OWNER:	ISSUE DATE:	VERSION:
DG TAXUD	13/01/2009	1.11

TAXATION AND CUSTOMS UNION DG
ITSM

SUBJECT:

DG TAXUD Information Systems Architecture

ITS-IRPT-ARD-001

FRAMEWORK CONTRACT # TAXUD/2007/CC/088
SPECIFIC CONTRACT02

DOCUMENT HISTORY

Edi.	Rev.	Date	Description	Action (*)	Pages
0	01	29/02/2008	Master document created	I	All
0	02	29/05/2008	Internal QA Review	I	All
0	03	02/06/2008	Submitted for Review	R	All
1	00	09/07/2008	Submitted for Acceptance	R	All
1	01	19/11/2008	Taxation thread added	I	Chpt. 4
1	02	24/11/2008	Internal QA Review	I	Chpt. 4
1	03	25/11/2008	After Internal Review. Submitted for Review	R	Chpt. 4
1	10	17/12/2008	Submitted for Acceptance	R	All
1	11	13/01/2009	Changes after review by DG TAXUD. Submitted for Acceptance	R	Chpt. 4

(*) Action: I = Insert R = Replace

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1 Introduction

1.1 Purpose of this document

In DG TAXUD, Trans-European Systems (TES) and applications have been specified, developed and/or operated for many years, using various technologies and architectural models.

Therefore, a careful documentation of the existing assets is necessary for the effective IT governance. In particular, the cartography of the existing architectural models and patterns provides the stakeholders with a tool to share the legacy knowledge, to clearly specify requirements and constraints, and to plan evolutions with more acuity.

Moreover, DG TAXUD, as the "sponsor" of the trans-European IT systems, typically conducts the definition and the specification of those systems. Therefore, it has to provide necessarily its partners with a coherent and unambiguous definition of the architectural models typically driving the design and the development of systems.

This document takes part in the DG TAXUD IT governance by providing the architectural aspects of the information systems delivering the computerisation of the various DG TAXUD business procedures.

The identification and the definition of the architectural models presented in this document are the result of the analysis of the existing IT systems, currently supported and/or operated by DG TAXUD. Therefore, it does not address directly recommendations regarding possible technical evolutions. However, it could be used to identify places where improvements can be considered in the context of future developments.

1.2 Field of application

This is the Deliverable 8.4.1.1.1 "DG TAXUD Information Systems Architecture" identified in Specific Contract 02 to Framework Contract TAXUD/2007/CC/C088.

The contract defines this Work Package as a service with the scope defined as:

- **WP 8.4.1** .Application architecture, application framework and standard (and ditto for trans-European systems)
- **WP 8.4.1.1** Production and maintenance of the architecture/framework/standard of reference for all future applications and Trans European systems to be managed by the contractor (including ITSM tools), building up a convergence path from legacy which is sustainable for the Commission and its Multi-sourcing base, under the management of the CSIP**.**

1.3 Scope of this document

This document describes the reference architectural models currently applied by DG TAXUD for the development of trans-European systems.

It complements the existing Trans-European Systems Reference Manual [R01] and the Technological Infrastructure Plan (TIP) [R05] by addressing the "Application Perspective", as defined in the Commission Enterprise IT Architecture Framework (CEAF) [R02], from the point of view of IT system architecture modelling.

1.4 Intended readership of the document

The document is intended to everyone involved, directly or indirectly, in the DG TAXUD IT governance, in particular regarding the definition, the development and the operation of DG TAXUD trans-European systems.

1.5 Structure of this document

The present document is structured as follows:

- **Chapter 1: Introduction**

  This section introduces the purpose and the scope of this document as well as the acronyms, the reference documents and the formalism used in following sections.

- **Chapter 2: Reference Architectures**

  This section provides the identification and the description of models driving the design of DG TAXUD systems and applications.

- **Chapter 3: Overview of Architectural Models**

  This section provides the overviews of the identified architectural models for the Trans-European Systems.

- **Chapter 4: Cartography**

  This section includes the mapping of analysed systems and applications with the reference architectures.

- **Appendix A: Detailed analysis**

  This appendix provides the detailed gathered information about the analysed systems and applications. It is provided in a separate document.

- **Appendix B: Architectural Models (Visio format)**

  This appendix provides the detailed gathered information about the analysed systems and applications. It is provided in a separate document.

- **Appendix C: Technological Infrastructure Plan (TIP)**

  This appendix includes the DG TAXUD Technological Infrastructure Plan.

1.6 Abbreviations and Acronyms

Acronym	Description
ACL	Access Control List
DBMS	DataBase Management System
CCN	Common Communication Network
COL	Customs Office List
CSI	Common Service Interface
DG	Directorate General
DoR	Domain of Responsibility
EC	European Community
G2C	Government-to-Citizen
G2G	Government-to-Government
IT	Information Technology
ITSM	IT Service Management
LAN	Local Area Network
NA	National Administration
SOA	Service Oriented Architecture
TES	Trans-European System
TIP	Technological Infrastructure Plan
TRM	Technical Reference Model
UML	Unified Modeling Language™
VAS	Value Added Services

Table 1: Abbreviations and Acronyms

1.7 Reference Documents

Ref.	Title.	Version	Date
R01	Trans-European Systems Reference Manual	0.10	10/03/2008
R02	The Commission Enterprise IT Architecture Framework (CEAF)	1.1	29/03/2006
R03	Semantic Interoperability in pan-European eGovernments Services		06/07/2006
R04	European Interoperability Framework for pan-European eGovernment services	1.0	Nov 2004
R05	Technological Infrastructure Plan (TIP)	0.20	

R06	OASIS ebXML Business Process Specification Schema	1.01	11/05/2001
R07	Federal Enterprise Architecture (FEA) Consolidated Reference Model Document	2.3	Oct 2007

Table 2: Reference Documents

1.8 Formalism

The present document adopts the following conventions for the codification and the representation of introduced elements.

Definition

Indicates a reference definition, denoting an "it is…" description answering a "what is" question. Such an element is referred to in the rest of the document using hyperlinks, providing navigation facilities.

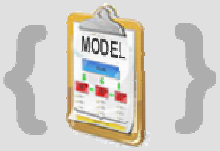
For example: **« System »**

Classification

Indicates a reference classification, denoting an "it is a kind of…" description answering a "What kind of…" question. Such an element is referred to in the rest of the document using hyperlinks, providing navigation facilities.

For example: **[Customs]**

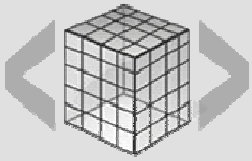
Model



Indicates a reference model, denoting an "it behaves…" description answering a "how does it work" question. Such an element is referred to in the rest of the document using hyperlinks, providing navigation facilities.

For example: **{Trans-European System}**

Cartography



Indicates a reference element in the application of a multi-perspective mapping, called cartography. It represents an existing instance of a model that can be categorised according to reference classifications. In the current document, it mainly refers to a business function, a business process, an IT system or an application. Such an element is referred in the rest of the document using hyperlinks, providing navigation facilities.

For example: **<NCTS>**

In addition, some figures illustrate the provided descriptions, using the Unified Modeling Language™ (UML, http://www.uml.org/) when it is appropriate.

2 Reference Architectures

2.1 Introduction

One of the main purposes of reference architectures, as reusable pieces of methodology, is to establish common concepts among business and IT domains, addressing mainly definitions, models, classifications, patterns and terminology.

Therefore, the following sections include a series of definitions and terms that aim at establishing common vocabulary. By linking those definitions together, models are constructed.

As described in section 2.2, the adopted approach is based on a multi-perspective classification. Inside each perspective, categories of services are provided according to their nature and purpose. This aims at supporting the elaboration of cartography as provided in chapter 4.

The cartography is the major input for the identification of the architectural models, adopting a bottom-up approach in order to analyse the existing systems and applications, and deduce their commonalities.

A top-down approach complements this analysis by examining the business and functional models which are finally the basic drivers for the design of IT systems. By globally considering the business functions of DG TAXUD and the way IT systems should support them, architectural models are defined.

The following sections provide the definition of various concepts at each perspective level, and examine how they are realized in terms of classifications and models.

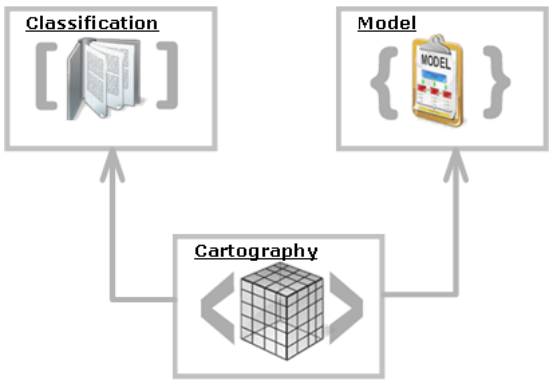


Figure 1: Modelling Approach

Finally, inferred architectural models are summarised in chapter 3.

2.2 Multi-perspective Classification

The identified architectural models, which participate to the Business-to-IT governance framework, must consider business as starting elements and constraints, linking activities (processes) to business functions, business functions to required IT systems and IT systems to underlying IT infrastructure needs.

The proposed approach provides the bridge between business process modelling and specification of software components, by presenting the various aspects of systems and applications according to different perspectives.

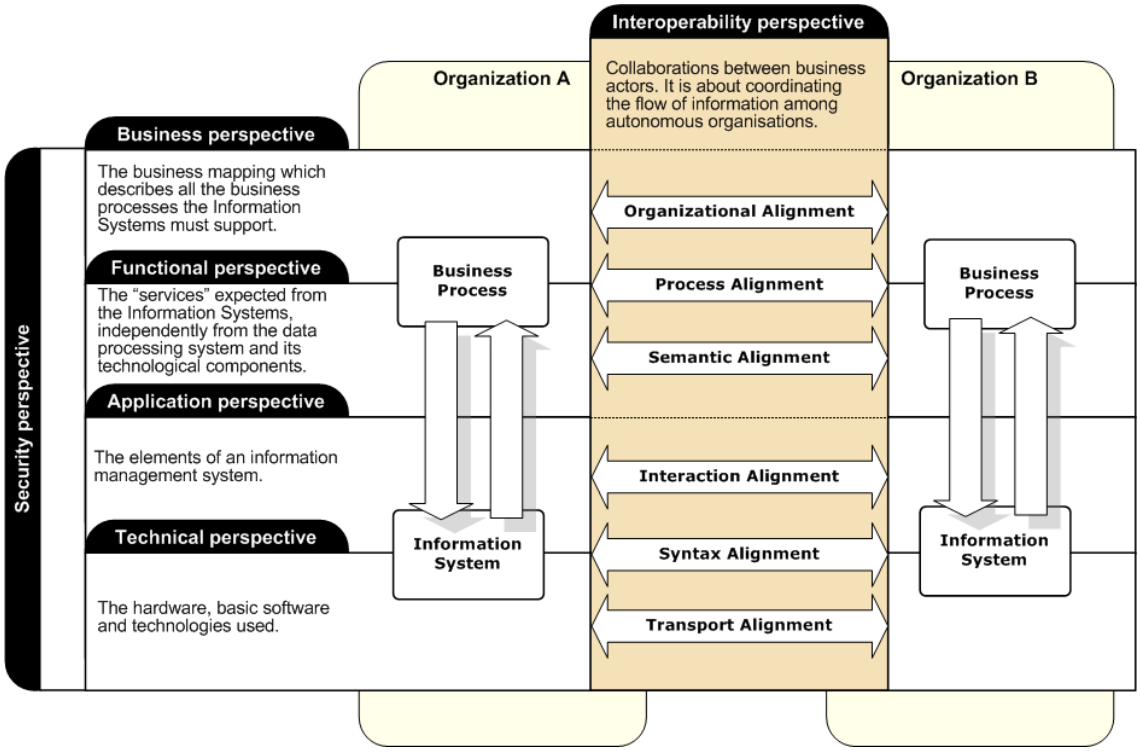


Figure 2: Multi-Perspective Classification

This approach partially follows rules and principles adopted by existing frameworks, namely:

- **The Commission Enterprise IT Architecture Framework (CEAF)** [R02], providing methodology for the analysis of the level of alignment of all the IT components within the business.
- **Semantic Interoperability in pan-European eGovernments Services** [R03], partially based on **the European Interoperability Framework (EIF)** [R04] that aims at supporting the pan-European delivery of electronic government services.

Classification

Architecture Description Perspectives

Regarding the architectural aspects of IT systems, perspectives considered in this document are:

- **[Interoperability Perspective]** addresses the collaborations between business actors. It is about coordinating the flow of information among organisations and linking their business processes. This brings great challenge to keep participating organisations as autonomous entities in integrating business processes of these organisations seamlessly.
- **[Business Perspective]** includes the description of interoperable business processes that allow business actors to collaborate according to business rules and constraints. It addresses the mission, the purpose, the business models, the business functions and the internal resources and services of DG TAXUD.
- **[Functional Perspective]** includes the description of services and functional models supporting the DG TXUD business processes and business functions.

  The concepts defining the elements constituting business processes must clearly be established according to their functional models in order to map them to IT system components in an unambiguous way.
- **[Application Perspective]** includes the description of the elements of information management systems supporting business processes and services, according to functional and non-functional requirements. It addresses the mapping between functional elements and architectural elements supporting IT systems.
- **[Technical Perspective]** includes the description of the hardware and software of the infrastructure supporting the information systems according to the technical requirements.

  Note that this perspective is mainly supported by the Technological Infrastructure Plan (TIP) [R05], annexed to this document.
- **[Security Perspective]**

  Transversal perspective which includes a set of rules, practices and measures that regulate how an organization manages, protects, and distributes information securely.

  System architecture is only as good as the assets that can be reached and integrated. This integration requires more than simple connectivity. It encompasses the need to provide secure access to these assets and to protect against a range of potential threats such as spoofing, elevation of privilege, information disclosure, tampering, repudiation, and denial of service.

  The key particularity of trans-European architectures is that it proposes to make IT systems more accessible, through multiple communication channels by multiple communicating parties. In such a distributed environment, one of the main issues is to ensure that all deployed services are properly secured from unauthorized access or any other security threat.

Table 3: Architecture Description Perspectives

The following figure depicts the various elements in each perspective which drive the definition of reference architectures for the DG TAXUD trans-European systems.

They are defined in the following sections.

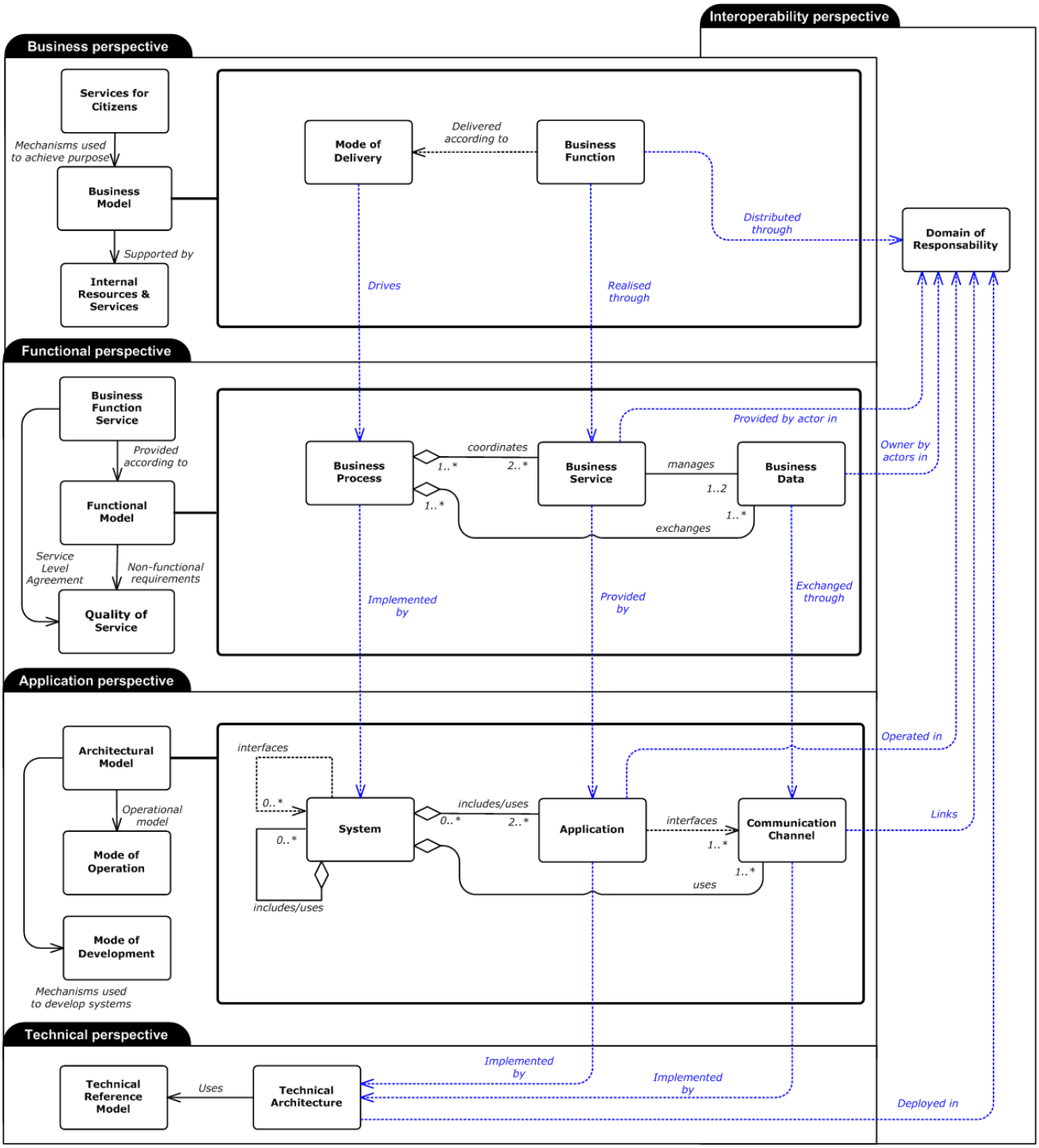


Figure 3: Multi-perspective Classification model

2.3 Interoperability Perspective

As it was stated before, Interoperability Perspective addresses the collaboration between actors operating in two independent IT ecosystems. There are two important elements which are visible in this perspective:

- Interoperability Gateways which provide the means for business to business interactions,
- Domain of Responsibility which define the boundaries between the interacting IT ecosystems.

2.3.1 Interoperability Gateways

When any two organisations need to interoperate, a number of challenges have to be overcome depending on their history with respect to service implementation inside their domain of responsibility. A number of incompatibilities can be identified at the time those organisations have a need to interoperate. These differences can be classified as follows:

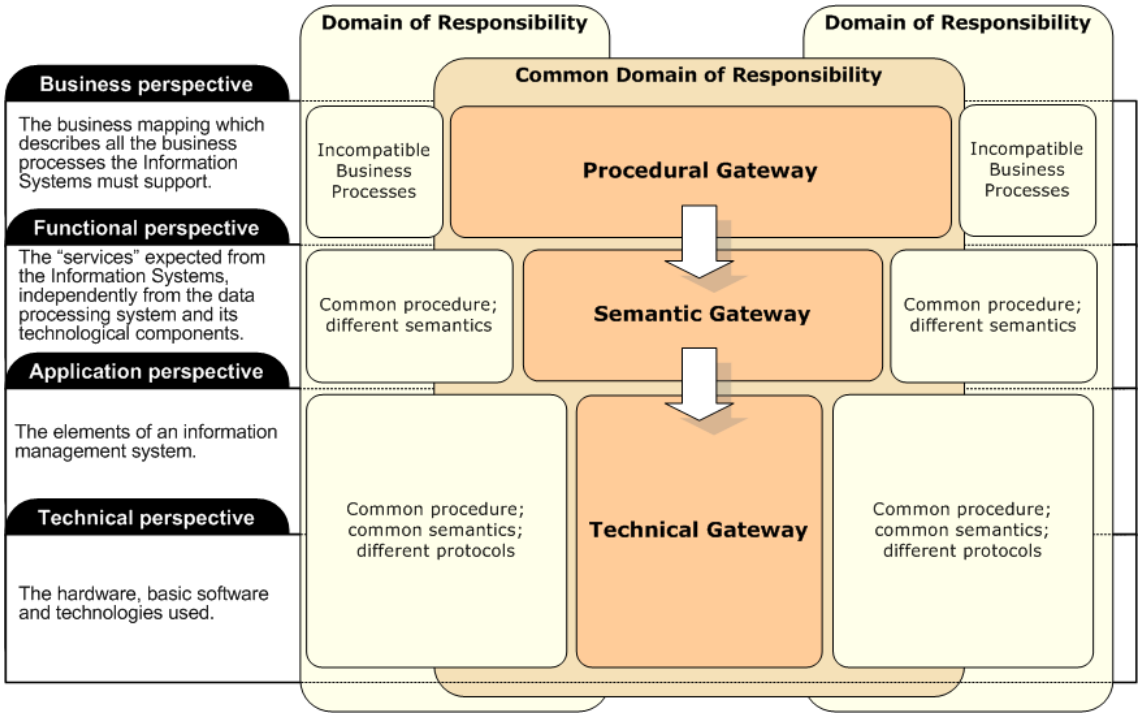


Figure 4: Interoperability Gateways

- **Incompatible Business Processes**. In this case, an agreement must be found in order to establish a "Procedural Gateway", making business processes in each organisation interoperable with others. Consequently, each organisation must implement a procedural adaptation of their business processes.
- **Different Semantics**. When compatibility at business level is established, common taxonomy must be defined for describing and classifying business objects to be exchanged, providing a "Semantic Gateway". Consequently, each

organisation must implement a semantic transposition of their business object taxonomy into the common taxonomy.

- **Different Protocols**. Even when compatibility at business and functional levels is established, organisations may still not be able to exchange electronic data effectively, because they may use different protocols, different syntax, different character sets, different message formats, etc. Therefore, a "Technical Gateway" is needed to support technical interoperability, requiring technical conversion to be fulfilled by each organisation according to the established common technical interface.

2.3.2 Domains of Responsibility

The definition of domains of responsibility is the result of the application of the **Principle of Subsidiarity**. This is one of the guiding principles for the functioning of the European Union.

"The principle of subsidiarity regulates the exercise of powers. It is intended to determine whether, in an area where there is joint competence, the Union can take action or should leave the matter to the Member States […]" (EC Treaty).

Definition | **« Domain of Responsibility »** | **DoR**

[Interoperability Perspective]

Grouping of actors by their responsibilities regarding the execution of business functions.

CEAF [R02] indicates that the principle of subsidiarity stipulates that all that can be done at the local level should be done at this local level and only what requires greater coordination is done at a central level of the organisation.

Applying this rule to a trans-European environment, the following domains of responsibility are identified:

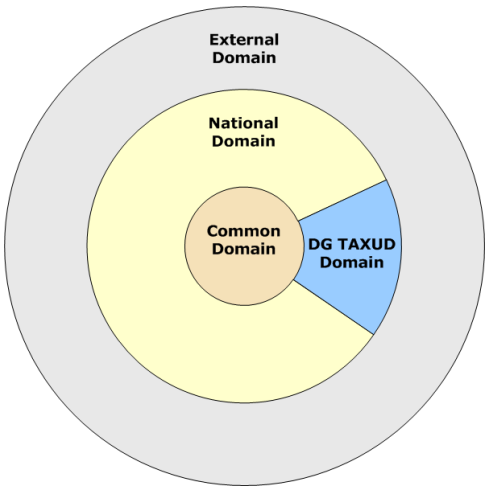


Figure 5: Domains of Responsibility

Table 4: « Domain of Responsibility » definition

Classification	Domains of Responsibility classification
	[Interoperability Perspective] .**« Domain of Responsibility »**

- **[DG TAXUD Domain]**

  Domain of responsibility encompassing the business functions endorsed by DG TAXUD. This may require the provision of services and facilities supporting the computerisation of business processes. The architectural models as well as the technology selected to develop the related IT systems is under the sole responsibility of DG TAXUD. However, adaptations have to be provided regarding the technical interoperability with other actors inside other domains of responsibility, according to the established "Technical Gateway".

- **[National Domain]**

  Domain of responsibility encompassing business functions, services and facilities operated and developed by National Administrations under their own responsibility. Each National Administration has to provide adaptations regarding interoperability with DG TAXUD, through the Common Domain, as well as with their National Citizens, through the External Domain.

- **[Common Domain]**

  Domain of responsibility encompassing the definition and the support of interoperability gateways supporting the collaboration between multiple parties, i.e. National Administrations and DG TAXUD.

  As far as the computerisation of business processes is concerned, it groups Common Service Interface and Common Communication Network supporting the "Technical Gateway" between involved parties.

  It falls under the responsibility of the European Commission. However, common agreements have to be established between all involved parties regarding business and technical interoperability.

  The Common Domain does not encompass business functions since there is not business actor to endorse them.

- **[External Domain]**

  Domain of responsibility encompassing the definition and the support of interoperability gateways supporting the collaboration between European Citizens including Economic Operators, and National Administrations.

Table 5: Domains of Responsibility classification

2.4 Business Perspective

Because the considered IT systems mainly aim at supporting the DG TAXUD business, it is important to address the nature of the related business models in the way they drive the architectural design and the development of those systems.

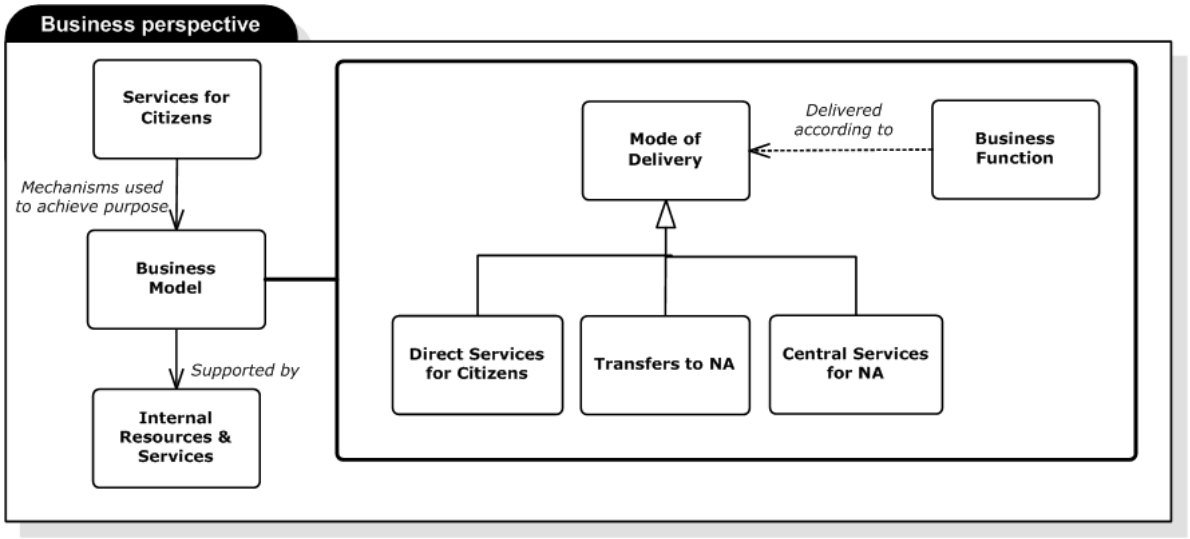


Figure 6: Business Perspective

The « Services for Citizens » describe the mission and purpose of DG TAXUD in terms of the services it provides both to and on behalf of the European Citizens. It includes the delivery of citizen-focused, public, and collective services supporting the mission and obligation of the governments to the benefit and protection of the European's general population.

The « Mode of Delivery » is tightly coupled with the « Services for Citizens » classification, and it is a determining part of the « Business Model » DG TAXUD uses to achieve its purpose. In other words, the Mode of Delivery represents the vehicle by which the DG TAXUD delivers its Services to Citizens.

Whatever the mode of delivery, it must be supported by functions provided by internal resources and services. In the scope of the current document, those supporting functions are considered essentially from Information Technology (IT) point of view.

2.4.1 Service for Citizens

Definition	« Services for Citizens »
	[Business Perspective]
Identifies the mission and purpose of DG TAXUD in terms of the services it provides both to and on behalf of the European Citizens (including Economics Operators and National Administrations).	

Table 6: « Services for Citizens » definition

Classification	« Services for Citizens » Classification into Business Domains
	[Business Perspective]
	« Services for Citizens »
	The "Core Business" of DG TAXUD, expressed as « Services for Citizens », can be classified according to the following business domains:

- **[Taxation]**
  - **Excise duties**, addressing indirect taxes on the consumption or the use of certain products. Those products can be exchanged under duty-suspension between Member States. They can also be released for consumption in which case excise duties have to be paid.
  - **Value Added Tax (VAT)**, applying more or less to all goods and services that are bought and sold for use or consumption in the European Community. Goods which are sold for export or services which are sold to customers abroad are normally not subject to VAT. Conversely imports are taxed to keep the system fair for EC producers so that they can compete on equal terms on the European market with suppliers situated outside the Union.
  - **Personal tax, company tax and other taxes**.
- **[Customs]**
  - **Imports**, addressing allowing non-member country goods to circulate freely throughout the EC in the same way as goods made in the EC. The "release for free circulation" procedure changes the status of non-EC goods to Community goods and entails the completion of all formalities laid down for importation.
  - **Transit**, addressing procedure used to facilitate the movement of goods between two points of a customs territory, via another customs territory, or between two or more different customs territories. The procedure allows for the temporary suspension of duties, taxes and commercial policy measures that are applicable at import, thereby allowing customs clearance formalities to take place at the destination rather than at the point of entry into the customs territory.
  - **Export**, addressing exit of Community goods from the EC customs territory.

Exported EC goods change their status to non-EC goods. For non-EC goods, the operation is called “re-exportation”. The export procedure entails the application of all exit formalities, including, where applicable, the payment of export refunds and the presentation of export licences.

Table 7: «Services for Citizens» Classification

2.4.2 Business Models

Definition	« Business Model »
	[Business Perspective]
Identifies the models DG TAXUD follows to achieve its mission and purpose.	

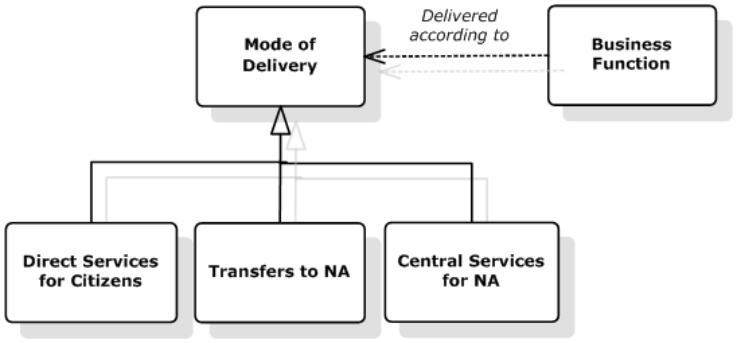


Figure 7: Business Model

Table 8: « Business Model » definition

The business model followed by a business process, as identified in case of DG TAXUD, can be characterised by determining two of its properties:

- Mode of delivery which defines who is the provider and consumer of the services.
- Business Function which characterizes the services provided.

2.4.2.1 Business Function

Definition	« Business Function »
	[Business Perspective] « Business Model »
Identifies the activities DG TAXUD performs to support its mission and purpose, i.e. « Services for Citizens », according to « Mode of Delivery ». For example: Maintenance of Economic Operators Register, Management of Quotas, Integrated Tariff Environment, etc.	

Table 9: « Business Function » definition

2.4.2.2 Mode of Delivery

Definition	« Mode of Delivery »
	[Business Perspective]
Identifies the models of mechanism DG TAXUD uses to achieve its mission and purpose. See also: « Services for Citizens »	

Table 10: « Mode of Delivery » definition

Model	{Direct Services for Citizens}
	[Business Perspective] « Mode of Delivery »
Mode of delivery referring to the delivery of services to or on behalf of the citizens by the European Commission with no other intervening persons, conditions, or organizations.	

Table 11: {Direct Services for Citizens} model

Model	{Transfers to NA}

	[Business Perspective] **« Mode of Delivery »**
Mode of delivery referring to the application of directives and regulations through services delivered to or on behalf of European Citizens by the National Administrations, without operational intervention by the European Commission, involving direct collaborations between all National Administrations.	

Table 12: {Transfers to NA} model

Model	**{Central Services for NA}**
	[Business Perspective] **« Mode of Delivery »**
Mode of delivery referring to the delivery of service to National Administrations by the European Commission, providing the support and/or the coordination of the necessary collaborations between National Administrations regarding the services to be delivered to or on behalf of European Citizens.	

Table 13: {Central Services for NA} model

2.4.3 Internal Resources & Services

Definition	**« Internal Resources & Services »**
	[Business Perspective]
Identifies the resources and services of DG TAXUD supporting the various « Mode of Delivery » of « Services for Citizens ».	

Table 14: « Internal Resources & Services » definition

Classification	**Internal Resources & Services Classification[1]**
	[Business Perspective] **« Internal Resources & Services »**

- **[IT Management]**
  Classification referring to the internal Information Technology resources of DG TAXUD. Information Technology Management involves the coordination of information and technology resources and systems required to support or provide a service.
  - **Change Management** involves the processes that facilitate a smooth evolution, composition, and transition of the design and implementation of changes to DG TAXUD resources such as assets, methodologies, systems, or procedures.

[1] Based on the FEA Reference Model Document [R07]

- **Software Development** supports all activities associated with the design and development of software applications.
- **Software Maintenance** supports all activities associated with the maintenance of in-house designed software applications.
- **IT Infrastructure Maintenance** involves the planning, design, and maintenance of an IT Infrastructure to effectively support automated needs (i.e. platforms, networks, servers, printers, etc.).
- **Information Security** involves all functions pertaining to the protection of data and information systems from unauthorized access, use, disclosure, disruptions, modification, destruction, etc. as well as the implementation of security policies, procedures and controls.
- **Information Management** involves the coordination of information collection, storage, and dissemination, and destruction as well as managing the policies, guidelines, and standards regarding information management.
- **Information Sharing** relates to any method or function, for a given business domain, facilitating the sharing and the publication of data being produced internally or received from National Administrations, and made available or accessible by other NA and European Citizens.
- **System and Network Monitoring** supports all activities related to the real-time monitoring of systems and networks for optimal quality of services.

Table 15: Internal Resources & Services Classification

2.5 Functional Perspective

The functional perspective identifies the elements addressing the classification, the specification and the modelling of services supporting the business functions.

Before business requirements are turned into software components, they must be translated in functional components supporting the definition of the related business processes, business services and business data.

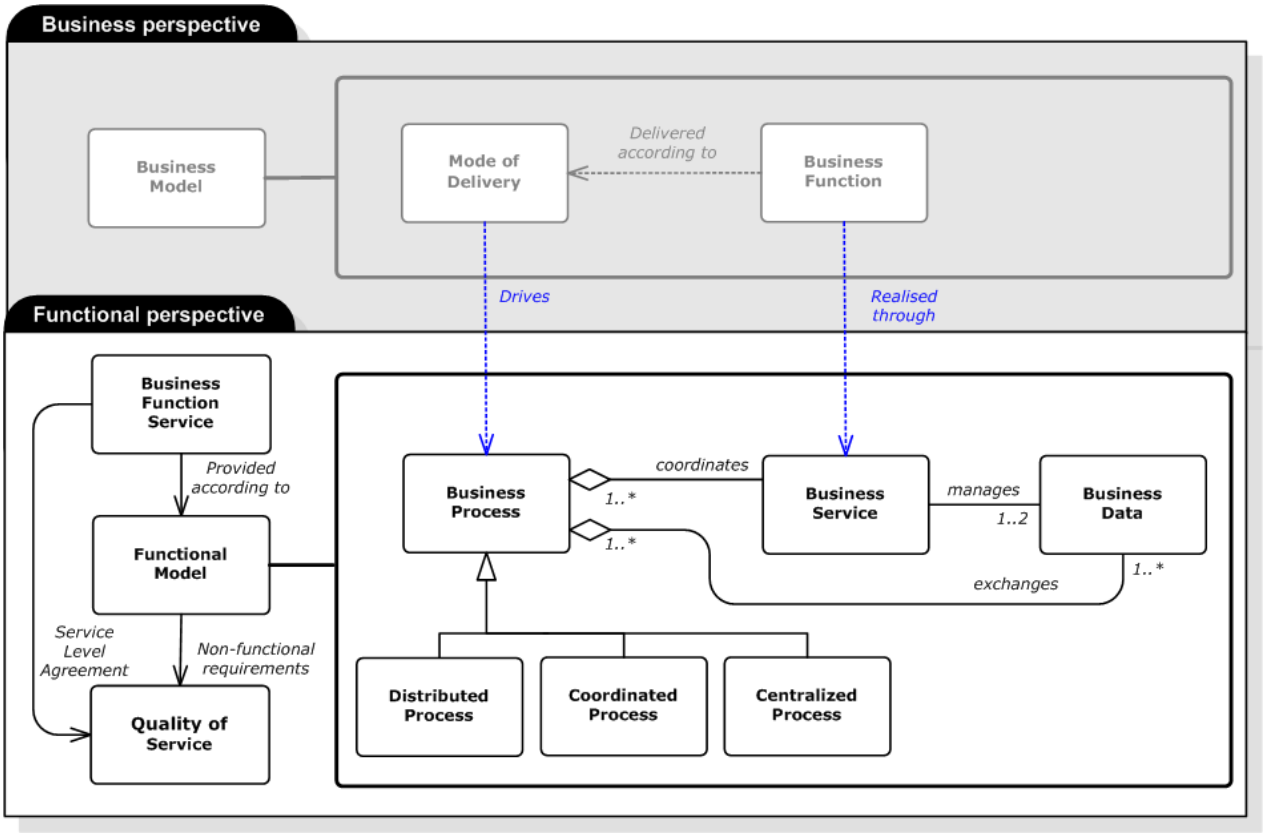


Figure 8: Functional Perspective

Those functional components must be addressed according to business constraints, including mainly the « Mode of Delivery » of « Services for Citizens », specifying the model for the distribution of « Business Function » through the various « Domain of Responsibility ».

2.5.1 Business Function Services

Definition	« Business Function Service »
	[Functional Perspective]
Service required from the « Business Function ». Description of such a service is also called "contract" (design by contract). The contract defines the data exchanged, pre-conditions, post-conditions, the owner, exception handling, quality of service, etc.	

Table 16: « Business Function Service » definition

The following classification aims at identifying service capabilities to support the reuse of functional components and services. This is particularly important regarding IT investments. IT investments can be service providers or consumers. Service providers allow consumers to reuse their capabilities.

Services Domain definitions support DG TAXUD in the control of its IT investments and assets. They are organized across horizontal service types, independent of the business functions, providing a leverage-able foundation for reuse of services.

Service types provide an additional layer of categorization that defines the context of a specific capability within a given service domain. They provide the "building blocks" to deliver the information management capability to the business.

Classification

Service Domains Classification[2]

[Functional Perspective]

« Business Function Service »

Grouping of service types that support business function services. This classification aids in identifying service capabilities to support the reuse of functional components and services across the business functions.

- **[Process Automation Services]**

  Services Domain defining the set of capabilities supporting the automation of process and management activities to assist in effectively managing the business. It is associated with tracking, monitoring, and maintaining liaison throughout the business cycle of organizations.

  - **Process Management**. Manage the life cycle of a particular process within an organization to include creating, routing, tracing, assignment and closing of a case as well as collaboration among case handlers.
  - **Process Tracking/Monitoring**. Allow the monitoring of activities within the business cycle.
  - **Exception Handling**. Allow the detection of exceptions and the execution of compensating functions.
  - **Routing and Scheduling**. Provide automatic directing, assignment, or allocation of time for a particular action or event, including management of externally or internally initiated communication between an organization and its stakeholders or partners.
- **[Business Analytical Services]**

  Service Domain defining the set of capabilities supporting the extraction, aggregation, and presentation of information to facilitate decision analysis and business evaluation.

  - **Reporting**. Capabilities within this Service Type organise data into useful information.

[2] Based on the FEA Reference Model Document [R07]

- **Analysis and Statistics**. Capabilities within this Service Type examine business facts, issues, problems and their solutions.

- **[Back Office Services]**

  Service Domain defining the set of capabilities supporting the management of data.

  - **Data Warehouse**. Support the archiving and storage of large volumes of data
  - **Data Extraction/Transformation**. Support the manipulation and change of data.
  - **Data Loading/Archiving**. Support the population of a data source with external data.
  - **Data Cleansing/Recovery**. Support the removal of incorrect or unnecessary characters and data from a data source and the restoration and stabilization of data sets to a consistent, desired state.
  - **Data Exchange**. Support the interchange of information between organisations; includes verification that transmitted data was received unaltered.
  - **Data Classification**. Allow the classification of data.

- **[Support Services]**

  Service Domain defining the set of cross-functional capabilities able to be leveraged independent of Service Domain objective and/or mission.

  - **Communication Management**. Capabilities within this Service Type transmit data, messages and information in multiple formats and protocols.
  - **Collaboration Management**. Allow for the concurrent, simultaneous communication and sharing of content, schedules, messages and ideas within an organization.
  - **Knowledge Management**. Capabilities within this Service Type identify, gather and transform documents, reports and other sources into meaningful information.
  - **Security Management**. Capabilities within this Service Type protect an organization's information and information systems.
  - **System Management**. Support the administration and upkeep of an organization’s technology assets, including the hardware, software, infrastructure, licenses, and components that comprise those assets.
  - **Testing Management**. Support the validation of application or system capabilities and requirements.

Table 17: Service Domains Classification

2.5.2 Functional Components

Definition

« Functional Component »

[Functional Perspective]

Participates to the definition of functional models, including mainly the specification of business processes[3], independent of any information system implementation. It supports the definition and the terminology of the elements constituting the collaboration between involved parties.

The main functional components are defined as follows.

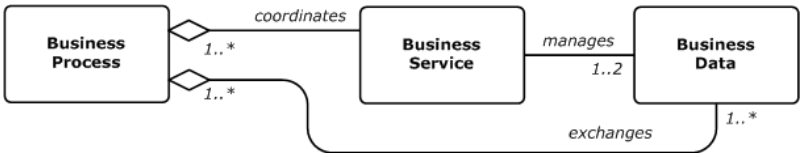


Figure 9: Functional Components

Table 18: « Functional Component » definition

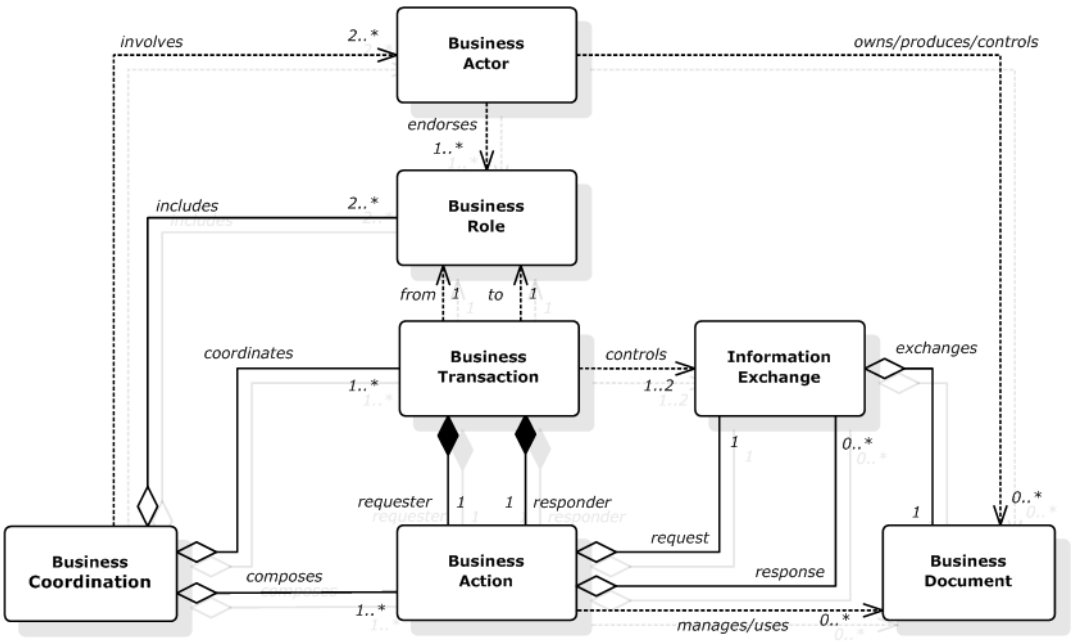
2.5.2.1 Business Process

Definition

« Business Process »

[Functional Perspective]
« Functional Component »

Collaboration between parties for the achievement of business goals. Such contracts are common agreements governing some collective behaviour of groups of actors in relation to a set of business information.



[3] Using the OASIS ebXML Business Process Specification [R06] model.

Figure 10: Business Process

A Business Process consists of a set of « Business Role » collaborating through a set of coordinated « Business Transaction », exchanging [Business Document]. Two or more « Business Actor » participate in the business collaboration through their roles. The roles interact with each other through Business Transactions. The Business Transactions are sequenced relative to each other according to a « Business Coordination ». Each Business Transaction consists of one or two predefined « Information Exchange ».

A Business Process is composed of « Business Action », each of which is implicitly assigned to a particular actor's role through its implication in a Business Transaction. Actors communicate with each other by means of Information Exchanges.

Table 19: « Business Process » definition

2.5.2.2 Business Actor

Definition

« Business Actor »

[Functional Perspective]
« Functional Component »

Humans or organisations that act on the « Business Process » through its « Business Role ».

Business Actors are identified according to their « Domain of Responsibility ».

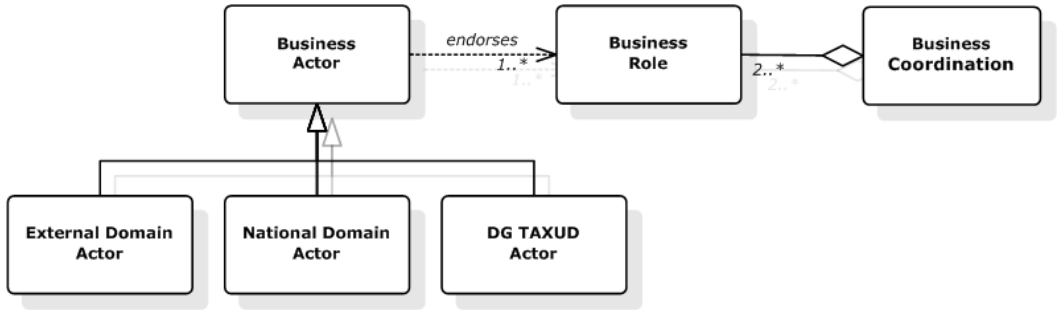


Figure 11: Business Actors

Table 20: « Business Actor » definition

2.5.2.3 Business Role

Definition	« Business Role »
	[Functional Perspective] **« Functional Component »**
Responsibility of a « Business Actor » in a « Business Process ». It has to send the request or the response in a « Business Transaction » according to the « Business Coordination ».	

Table 21: « Business Role » definition

2.5.2.4 Business Coordination

Definition

« Business Coordination »

[Functional Perspective]
« Functional Component »

Drives the automation of a « Business Process » by interconnecting business states through transitions, specifying the sequence of business activities to be fulfilled by the « Business Role » of « Business Actor ».

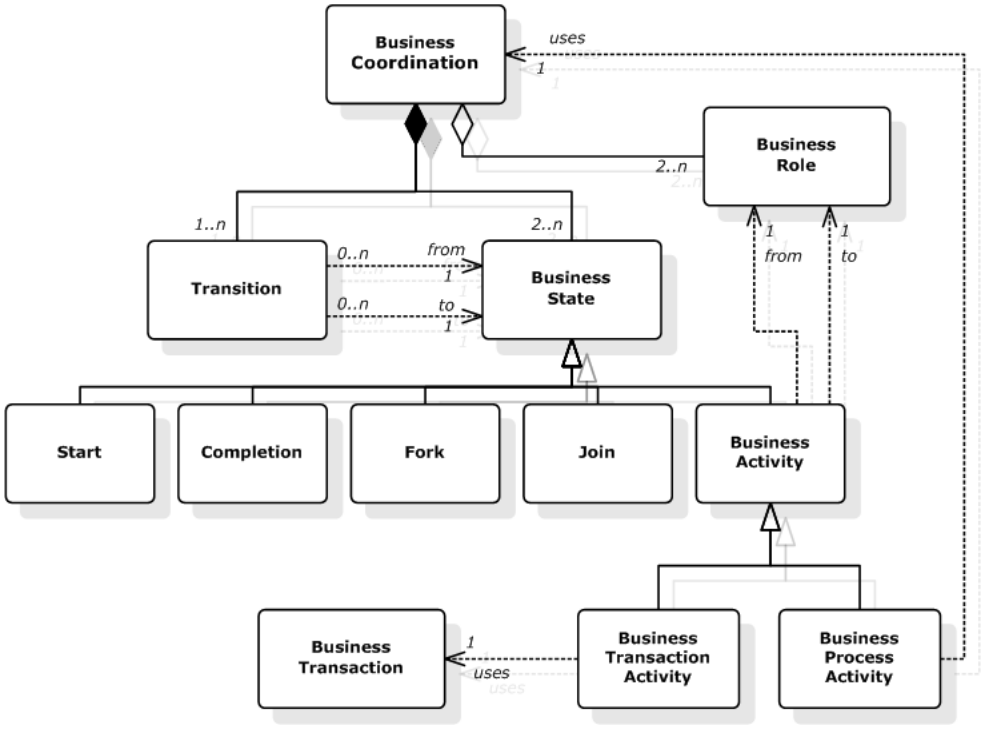


Figure 12: Business Coordination

The Business Coordination of the Business Process specifies the ordering and transitions between business transactions or sub business processes. It is described using activity diagram concepts such as start state, completion state, activities, synchronizations, transitions between activities, and guards on the transitions.

The occurrence of other events, in particular action triggering information exchange not expected by the business coordination, is an exception and has to be taken in charge by exception handling services.

Table 22: « Business Coordination » definition

Classification

Business Coordination Classification

[Functional Perspective]

« Functional Component »

« Business Coordination »

- **[Choreographed Business Process]**

  Collaborative effort focusing on the coordinated exchanges of information in "public" business processes. It does not rely on a central coordinator. All participants in the choreography need to be aware of the business process, its state, the actions to perform, the transactions to execute with other actors, and the timing and sequencing of information exchanges. It is also known as Business Choreography.

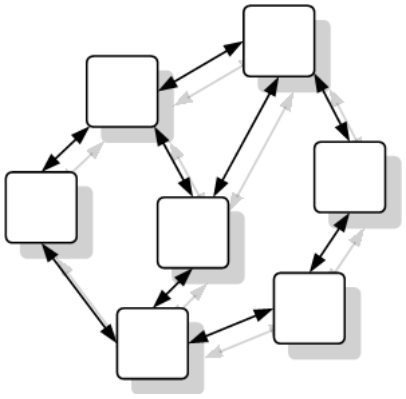


Figure 13: Choreographed Business Process

- **[Orchestrated Business Process]**

  Business coordination involving a single master control of all aspects of the Business Process. In such coordination, a central process takes control of the involved transactions and coordinates the execution of different actions. The involved services do not "know" (and do not need to know) that they are involved in a composition and that they are taking part in a coordinated business process. It is also known as Business Orchestration.

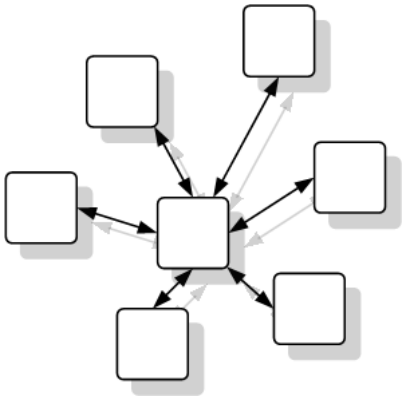


Figure 14: Orchestrated Business Process

Table 23: Business Coordination Classification

2.5.2.5 Business Transaction

Definition	« Business Transaction »
	[Functional Perspective] « Functional Component »

An atomic unit of work in the collaboration between two « Business Actor ». A Business Transaction will always either succeed or fail.

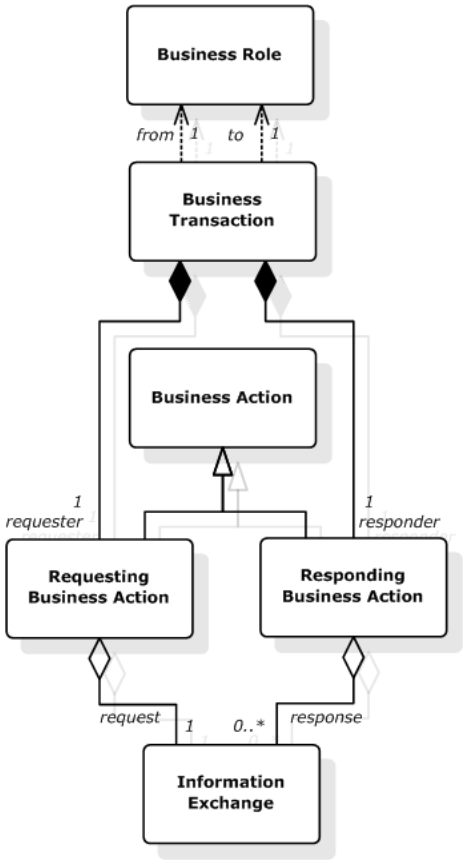


Figure 15: Business Transaction

A Business Transaction is conducted between two parties playing opposite « Business Role » in the transaction.

A business transaction is realized as « Information Exchange » flows between the requesting and responding roles, executing the related « Business Action ». There is always a soliciting Information Exchange, and optionally a responding Information Exchange, depending on the desired transaction semantics, e.g. one-way notification vs. two-way conversation.

Table 24: « Business Transaction » definition

2.5.2.6 Business Action

Definition	« Business Action »
	[Functional Perspective] « Functional Component »
The lowest level of process decomposition from a functional perspective. It may be manual, automated, or some combination of the two. It is performed by one « Business Actor » (a person or a software), inside one « Domain of Responsibility » at a specific time and under certain conditions. It is also known as Elementary Business Process (EBP)	

Table 25: « Business Action » definition

2.5.2.7 Information Exchange

Definition	« Information Exchange »	IE
	[Functional Perspective] « Functional Component »	
Homogeneous structure of information exchanged between « Business Actor » in the context of a « Business Transaction ».		

An Information Exchange is modelled indirectly as a [Business Document] envelope sent by one role and received by the other. The Information Exchange is always associated with one Requesting Business Action and one Responding Business Action to model the flow.

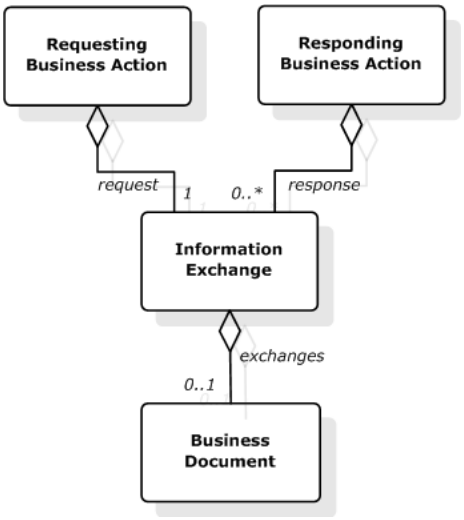


Figure 16: Information Exchange

Table 26: « Information Exchange » definition

2.5.2.8 Business Data

Definition	« Business Data »
	[Functional Perspective] **« Functional Component »**
Information defining business entities to operate a « Business Process ».	

Classification	Business Data Classification
	[Functional Perspective] « Functional Component » **« Business Data »**

- **[Business Document]**

  Information Exchange payload which often represents the dematerialization of a paper-based administrative document.

  For example: Single Administrative Document (SAD), Administrative Accompanying Document (AAD), etc.

- **[Reference Data]**

  Information referred by other codified business data and supporting the execution of services by providing classification, translation, mapping, etc.

  For example: List of codes, nomenclatures, system parameters, etc.

- **[Analytical Data]**

  Information supporting decision analysis and business evaluation.

  For example: Statistics, logging, etc.

Table 27: Business Data Classification

2.5.2.9 Business Service

Definition	« Business Service »
	[Functional Perspective] **« Functional Component »**
Define a set of capabilities as "a self contained « Business Process » or « Business Action » with predetermined functionality that may be exposed through a business or technology interface."	
The service definition is part of the service contract where the nature of the service, i.e. the « Business Function Service », and the « Quality of Service » are formally defined.	

Table 28: « Business Service » definition

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2.5.3 Functional Models

Definition	« Functional Model » [Functional Perspective]
Specifies how a « Business Function Service » is tailored to support business requirements. The behaviour of the related « Business Process » is dependent of its functional components, including the « Business Role » of the « Business Actor », the type of « Business Coordination » and the type of « Information Exchange ».	

Table 29: « Functional Model » definition

According to the « Mode of Delivery », defined at the business perspective level, the « Domain of Responsibility » of the business actors, defined at the organisational perspective level, and the type of « Business Coordination », defined at the functional perspective level, the functional models can be classified as follows.

2.5.3.1 Centralized Process

Model	{Centralized Process} [Functional Perspective] « Functional Model »
Functional model specifying « Business Process » initiated by DG TAXUD which supports « Business Function Service » offering {Central Services for NA} and {Direct Services for Citizens}.	

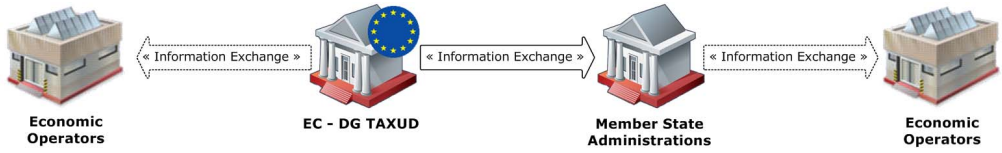


Figure 17: {Centralized Process} model

Such a process model is selected when [Orchestrated Business Process] is required. This is the case when DG TAXUD is the single owner or producer of « Business Data » to be shared with other « Business Actor ».

For example:

The maintenance of reference data supporting various business processes is taken in charge by DG TAXUD. The related Business Process involves the management of a central repository and the regular dissemination of new information to all National

Administrations.

In this case, only a centralised process can be used since Business Data are produced by a single actor, i.e. the DG TAXUD Central Services.

The following diagram depicts a simplified sequence of information exchanges performed by a centralised process.

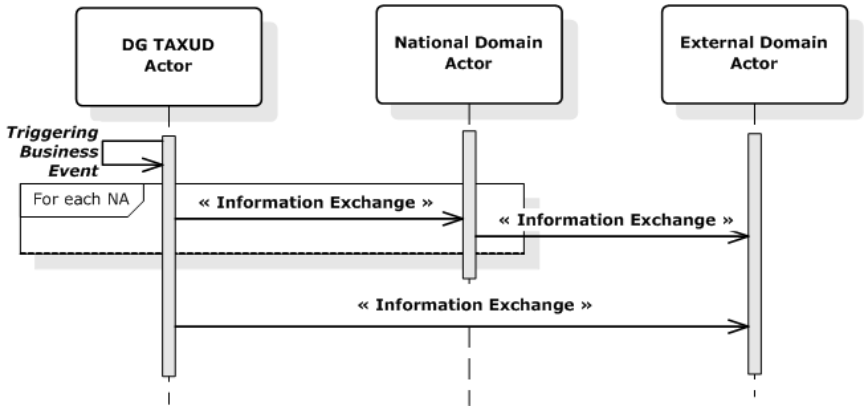


Figure 18: {Centralized Process} sequence

Table 30: {Centralized Process} definition

2.5.3.2 Coordinated Process

Model

{Coordinated Process}

[Functional Perspective]

« Functional Model »

Process initiated by National Administrations and centrally coordinated by DG TAXUD. Such a model provides {Central Services for NA} supporting business functions transferred to them (see {Transfers to NA}).

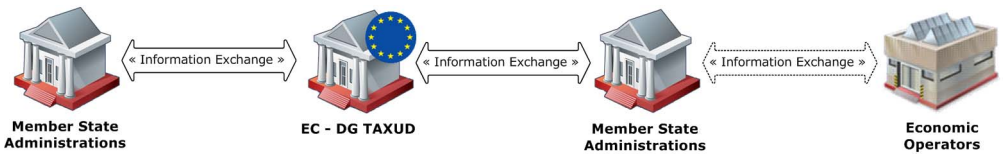


Figure 19: {Coordinated Process} model

Such a process model is selected when [Orchestrated Business Process] is preferred. This is the case when National Administrations are the mutual owners or producers of « Business Data » to be shared with other « Business Actor » through a central repository.

For example:

The maintenance of the Customs Office List (COL) supporting various business processes is taken in charge by National Administrations. Each National Administration has to provide others with updates of the national COL.

In this case, the Coordinated Process is an alternative to the {Distributed Process}. It is selected when the bottleneck induced by a central coordination is tolerated.

If so, The related Business Process involves the management by each National Administration of a central and common repository supplied by DG TAXUD which disseminates regularly the collected updates to all National Administrations.

The following sequence diagram depicts a simplified sequence of information exchanges performed by a coordinated process. In some cases, economic operators in the External Domain are involved, when they are the initiators of the business process by providing the initial Business Data.

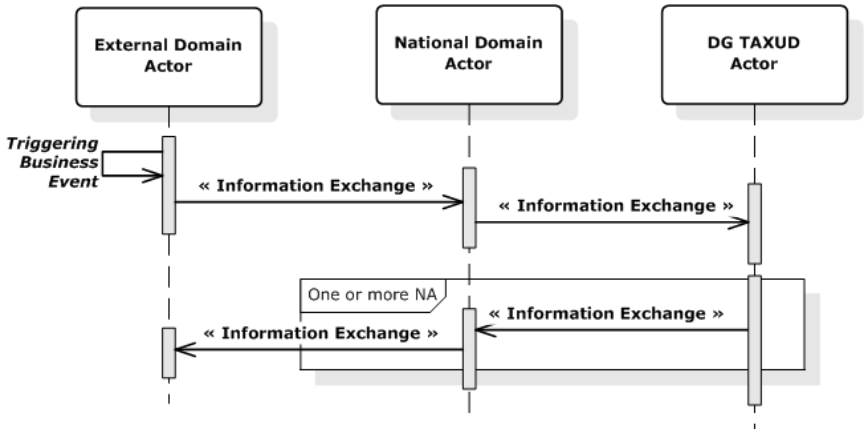
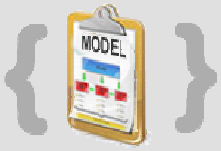


Figure 20: {Coordinated Process} sequence

Table 31: {Coordinated Process} definition

2.5.3.3 Distributed Process

Model	{Distributed Process}
	[Functional Perspective] « Functional Model »

Process initiated by National Administrations, possibility on behalf of their economic operators, and choreographed without the central intervention of DG TAXUD. Such a model provides distributed services transferred to NA (see {Transfers to NA}).

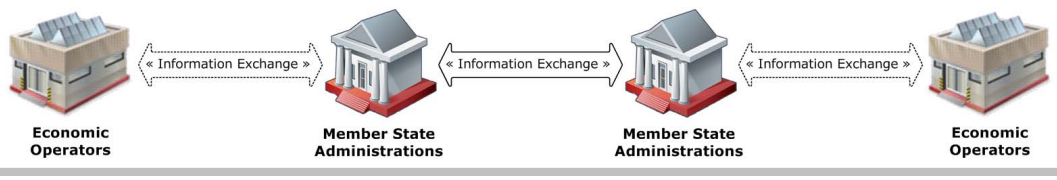


Figure 21: {Distributed Process} model

Such a process model is selected when [Choreographed Business Process] is required. This is the case when a National Administration is the owner, the producer or the manager of « Business Data » to be exchanged directly with other « Business Actor ».

For example:

The control of Transit Movements is taken in charge by all National Administrations. Each National Administration has to provide others with related Business Data.

In this case, the {Coordinated Process} is not an alternative since the bottleneck induced by a possible central coordination is not tolerated.

The following sequence diagram depicts a simplified sequence of information exchanges performed by a Distributed Process. In some cases, economic operators in the External Domain are involved, when they are the initiators of the business processes by providing the initial business data

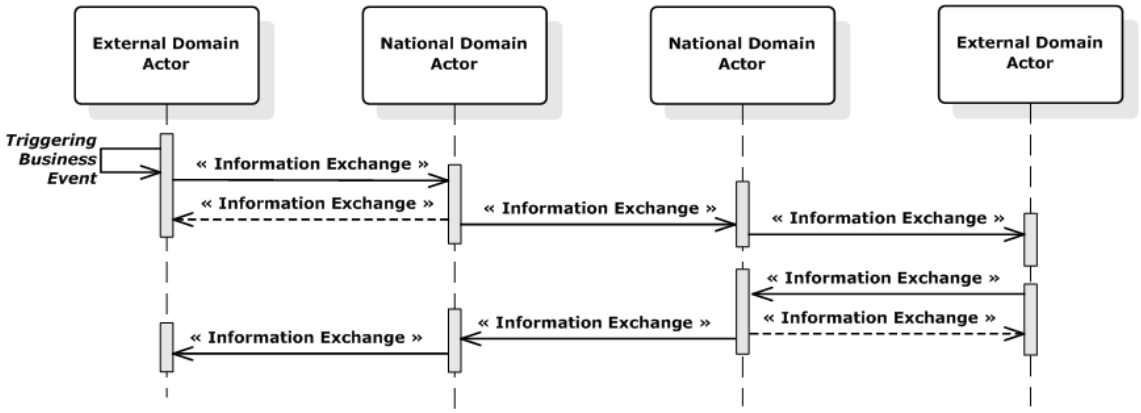


Figure 22: {Distributed Process} sequence

Table 32: {Distributed Process} definition

2.5.4 Quality of Service

Definition	« Quality of Service »	QoS
	[Functional Perspective]	

A set of quality requirements regarding the behaviour of a « Business Function Service ». It is a formal part of a service contract. It comprises requirements on all the aspects of the service access, such as response time, availability, reliability and security. It is sometimes used as quality measure indicators, referring to the level of quality of service and the guaranteed service quality specified in a Service Level Agreement.

Table 33: « Quality of Service » definition

Classification	Quality of Service Classification
	[Functional Perspective] « Quality of Service »

- **[Availability]**

  Non-functional requirement defining a minimum level of availability of the system, to which each actor commits towards his partners. Operating at a minimum level (i.e. degraded mode) is acceptable only if this level is reached exceptionally. Else, the responsible actor must inquire about the possible causes and correct this situation in order to get back to a normal level of system availability.

  Moreover, an unacceptable limit is identified as well, defining a maximum unavailability. It corresponds to a behaviour, which definitely does not meet the required availability level, even when the case occurs only once. When the availability level is required from a provider, subject to a SLA, this is the limit from which the customer is allowed to break the contract.

  Availability requirement is supported at technical level by the ability to continue to handle requests in the event of a failure. This covers both failures of hardware and software. Typically this is addressed through the provision of redundant hardware in order to avoid any single points of failure.

- **[Performance]**

  Non-functional requirement defining an average response time, calculated based on a determined period. Moreover, a maximum response time is defined as well, identifying the acceptable response time during peaks of traffic.

  Performance requirement is supported at technical level by the ability to handle requests promptly. It is simply the measure of the response time for the system. It is typically measured using a single client sending a very low volume of requests to the system. A system will be able to handle a number of requests concurrently. The combination of performance and the maximum number of concurrent requests gives an indication of throughput.

- **[Security]**

  Non-functional requirement defining the objectives for the protection of information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction in order to enforce integrity, confidentiality and business continuity.

Table 34: Quality of Service Classification

2.6 Application Perspective

When business processes have to be turned into IT system components, various considerations have to be taken into account regarding their architectural definition and the way they are developed and operated.

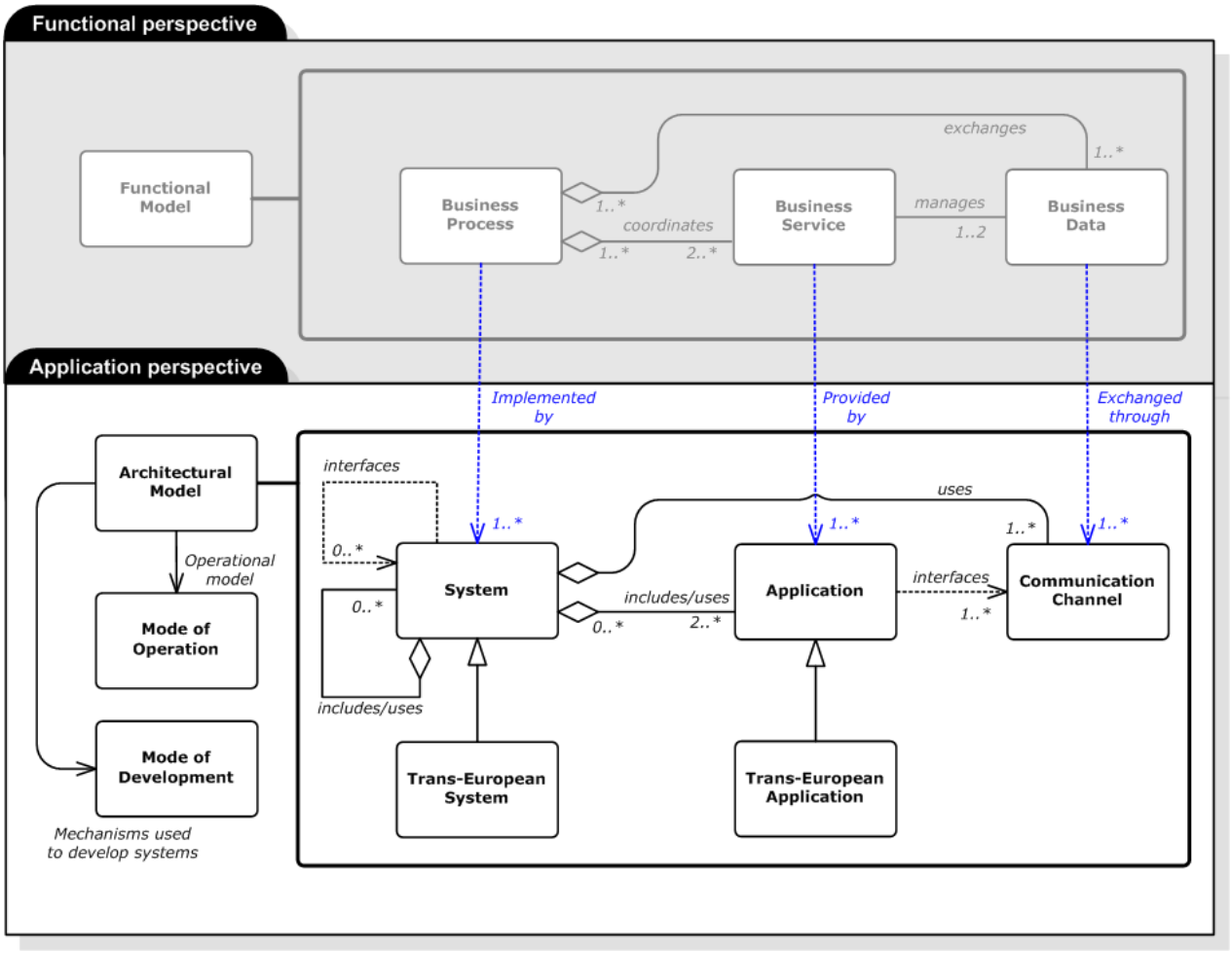


Figure 23: Application Perspective

The classification at [Application Perspective] level encompasses the definition of architectural components which support the computerization of « Business Process ».

Those architectural components must be addressed according to business and functional constraints, including indirectly the « Mode of Delivery » at the business level and mainly the « Functional Model », including in particular the type of « Business Coordination » at the functional level.

2.6.1 Architectural Components

Definition

« Architectural Component »

[Application Perspective]

Participates to the definition of architectural models, logical models of IT systems, independent of the physical implementation or technology.

The main architectural components are defined as follows.

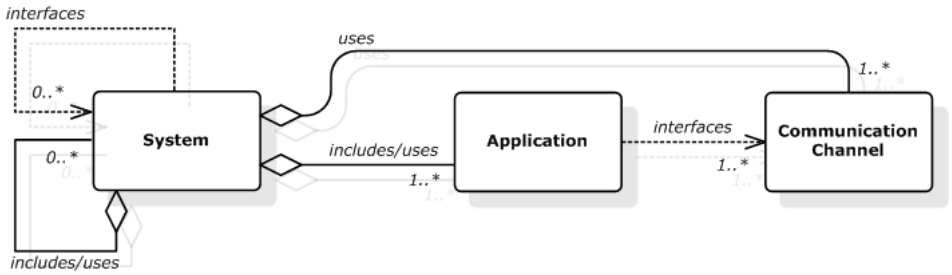


Figure 24: Architectural Components

The following figure depicts the basic architectural pattern driving the distribution of the identified architectural components defined hereafter in this section.

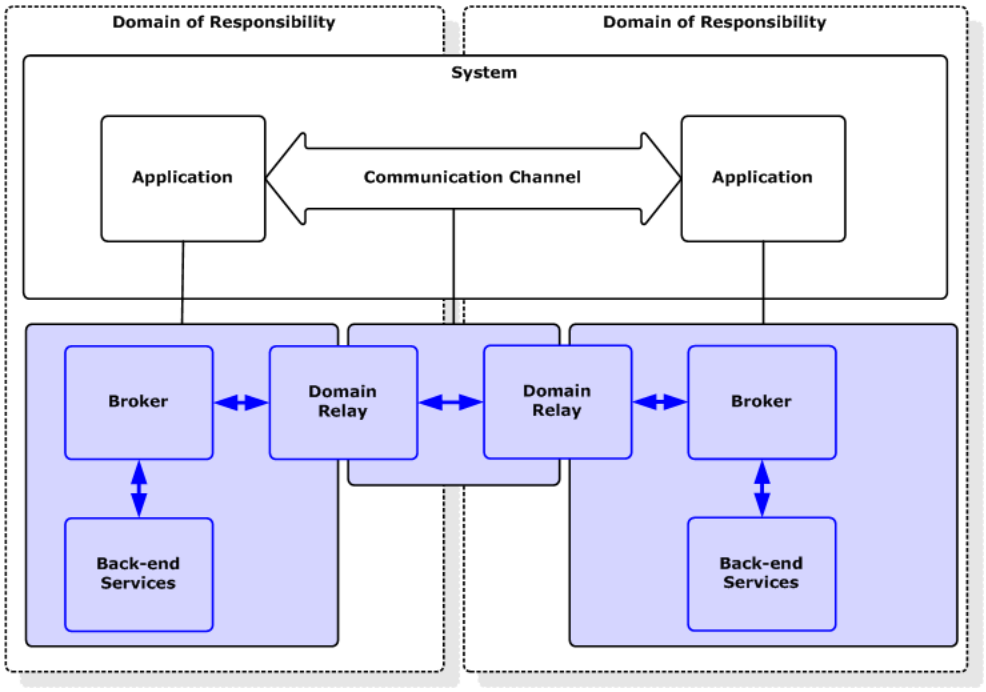


Figure 25: Architectural Pattern

Table 35: « Architectural Component » definition

2.6.1.1 System

Definition	« System »
	[Application Perspective] « Architectural Component »

Set of interacting « Application » supporting « Business Process » which could span different « Domain of Responsibility », making use of « Communication Channel ».

Systems may be supported by or composed of other systems, representing in some cases pre-requisites for their functioning. They can also interface other systems, providing interoperability between business processes of different business domains.

Table 36: « System » definition

2.6.1.2 Application

Definition	« Application »
	[Application Perspective] « Architectural Component »

Architectural component implementing « Business Action », taking part of « Business Transaction » in « Business Process », inside a single « Domain of Responsibility ».

An Application may be used by one or more Systems, participating to the implementation of one or more Business Processes.

An Application encompasses three major components playing distinct roles:

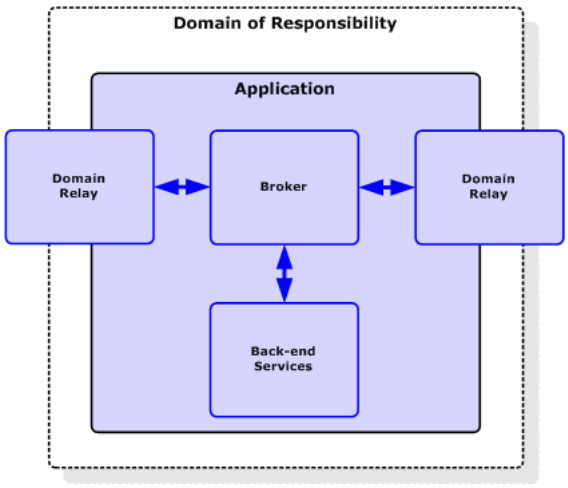


Figure 26: Application Architecture

- **« Domain Relay »**

  Architectural component constituting the end-point of a « Communication Channel

» with other applications inside other domains of responsibility, supporting the « Information Exchange ». It implements the necessary protocol conversion required to support the technical interoperability with communicating parties.

- **« Broker »**

  Architectural component supporting the « Business Coordination » of information exchanges between services inside the same domain of responsibility and with other applications inside other domains of responsibility through the domain relay(s). It implements the necessary procedural adaptations and semantic transpositions required to support the interoperability with other « Business Actor ».

- **« Back-end Services »**

  Architectural component implementing the business rules of « Business Action » supporting business processes, taking part of the coordinated business transactions. It is invoked by the Broker according to the coordinated business transactions with other Business Actors.

Table 37: « Application » definition

2.6.1.3 Communication Channel

Definition	« Communication Channel »
	[Application Perspective] **« Architectural Component »**
Architectural component supporting the « Information Exchange » between « Application », possibly spanning different « Domain of Responsibility », and providing the access to the related « Business Action ».	

Table 38: « Communication Channel » definition

2.6.2 Architectural Models

Definition	« Architectural Model »
	[Application Perspective]

Architectural Model defines the way software components are distributed and how they interoperate together to support the business processes.

Table 39: « Architectural Model » definition

2.6.2.1 Trans-European Systems

Model	{Trans-European System}
	[Application Perspective]
	« Architectural Model »
	« System »

System model supporting the coordination of business processes and information exchanges spanning different « Domain of Responsibility ».

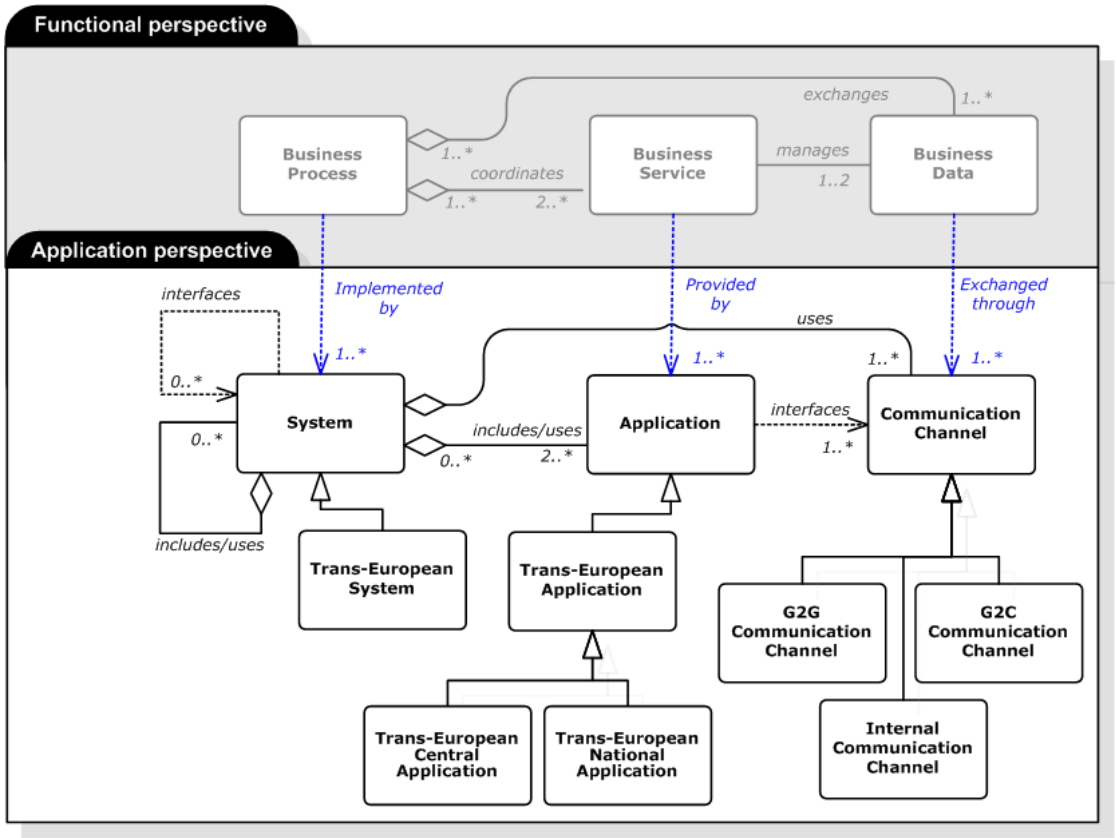


Figure 27: Trans-European System

Table 40: {Trans-European System} model

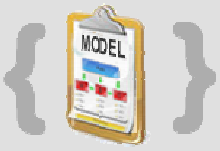
Architectural models of trans-European systems can be classified according to the way they support the business and functional constraints, mainly regarding the « Mode of Delivery » , at the business perspective level, and the « Functional Model », at the functional perspective level, including the type of « Business Coordination », as depicted in the following table.

Modes of Delivery	Direct Services for Citizens	Central Services for NA	Transfers to NA	
Business Coordination	Orchestrated Business Process			Choreographed Business Process
Functional Model	Centralized Process			Distributed Process
		Coordinated Process		
Trans-European Centralised Systems	★	★		
Trans-European Coordinated Systems		★	★	
Trans-European Distributed Systems				★

Table 41: Trans-European System Models Classification

2.6.2.1.1 Trans-European Centralised System

Model



{Trans-European Centralised System}

[Application Perspective]

« Architectural Model »

« System »

{Trans-European System}

Model of Trans-European Systems supporting {Centralized Process}, initiated and orchestrated by DG TAXUD playing a central master role. Such systems support {Central Services for NA} and {Direct Services for Citizens}.

Trans-European Centralised Systems include central applications hosted and operated inside the DG TAXUD Domain, providing the dissemination of information to be used by other applications in other domains of responsibility.

For example:

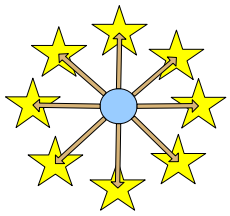
The system for the management of reference data is implemented according to the

{Centralized Process} model, supported by the CS/RD Central Application which disseminates and publishes information managed by actors in the DG TAXUD Domain.

Table 42: {Trans-European Centralised System} model

2.6.2.1.2 Trans-European Centralised System

Model	{Trans-European Coordinated System}
	[Application Perspective] « Architectural Model » « System » **{Trans-European System}**



Model of Trans-European Systems supporting {Coordinated Process}, initiated by National Administrations and centrally coordinated by DG TAXUD. Such systems provide {Central Services for NA} for the support of business services transferred to them (see {Transfers to NA}).

Trans-European Coordinated Systems includes central applications hosted and operated inside the DG TAXUD Domain, providing the coordination of information exchanges between National Administrations.

For example:

The system for the management of the Customs Office List (COL) is implemented according to the {Coordinated Process} model, supported by the CS/RD Central Application which coordinates the dissemination of information managed by National Administrations in their National Domain.

Table 43: {Trans-European Coordinated System} model

2.6.2.1.3 Trans-European Distributed System

Model	{Trans-European Distributed System}
	[Application Perspective] « Architectural Model » « System » **{Trans-European System}**

Model of Trans-European Systems supporting {Distributed Process}, initiated by National Administrations, in some cases on behalf of their citizens. Such systems do not need the involvement of a central coordinator. They provide business services in National Administrations in support of responsibilities transferred to them (see {Transfers to NA}).

Such systems implement business processes choreographed by DG TAXUD through functional specifications, and executed by National Administrations using national

applications. Some trans-European Distributed Systems may involve economic operators while others support only collaborations between National Administrations.

For example:

The system for the management of guarantees is implemented according to the {Distributed Process} model and supported by the National Transit Application (NTA) which implements the choreographed coordination of information exchanges with other NTA.

Table 44: {Trans-European Distributed System} model

2.6.2.2 Trans-European Applications

Model	{Trans-European Application}
	[Application Perspective] « Architectural Model » **« Application »**

Model of applications participating to the implementation of {Trans-European System}.

While each trans-European system model supports only one process model (see Table 41), the trans-European application models can participate to different system models, therefore implementing different process models.

Table 45: {Trans-European Application} definition

2.6.2.2.1 Central Application

Model	{Central Application}
	[Application Perspective] « Architectural Model » « Application » **{Trans-European Application}**

Model for the implementation of a set of services provided by a single organisation, i.e. DG TAXUD, implementing the business activities supporting {Centralized Process} and/or {Coordinated Process}.

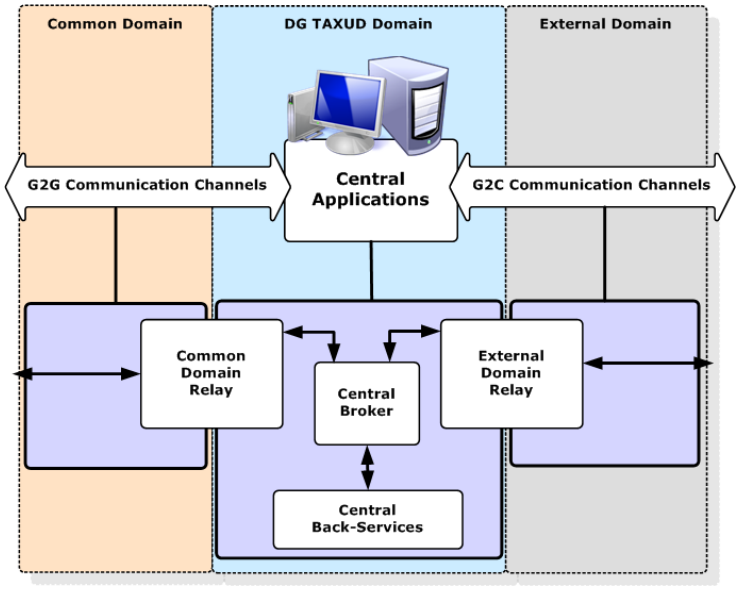


Figure 28: Central Application pattern

For example:

<CS/RD> is a Central Application implementing business actions for two trans-European systems implementing different process models:

- The system for the management of reference data, implemented according to the {Centralized Process} model.
- The system for the management of the Customs Office List (COL), implemented according to the {Coordinated Process} model.

This Central Application is used by other systems, e.g. <NCTS>, <ECS> and <EMCS Phase 0>.

Table 46: {Central Application} model

2.6.2.2.2 National Application

Model	{National Application}
	[Application Perspective] « Architectural Model » « Application » {Trans-European Application}
Model for the implementation of a set of services provided by a National Administration, implementing the business activities supporting all process models.	

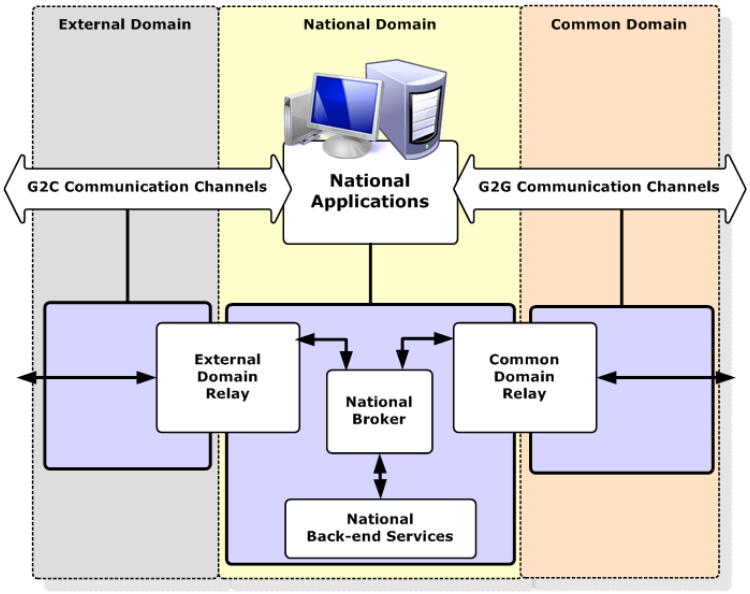


Figure 29: National Application pattern

For example:

<NTA> is a National Application implementing business actions for three trans-European systems implementing different process models:

- The system for the management of reference data, implemented according to the {Centralized Process} model in which the NTA is the consumer of information provided by the <CS/RD> Central Application.
- The system for the management of the Customs Office List (COL), implemented according to the {Coordinated Process} model in which the NTA is the provider of information to be shared with other National Applications.
- The system for the management of guarantees, implemented according to the {Distributed Process} model in which the NTA implements the choreographed coordination of information exchanges with other NTA

Table 47: {National Application} model

2.6.2.3 Communication Channels

2.6.2.3.1 Government-to-Government Communication Channel

Model	{Government-to-Government Communication Channel}

	[Application Perspective] « Architectural Model » **« Communication Channel »**
Model of communication channels supporting the exchanges of information between governmental organisations, i.e. National Administrations and DG TAXUD.	

Table 48: {G2G Communication Channel} model

2.6.2.3.2 Government-to-Citizen Communication Channel

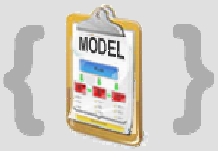
Model 	**{Government-to-Citizen Communication Channel}** [Application Perspective] « Architectural Model » **« Communication Channel »**
Model of communication channels supporting the exchanges of information between governmental organisations and citizens, including in particular economic operators.	

Table 49: {G2C Communication Channel} model

2.6.2.3.3 Government-to-Citizen Communication Channel

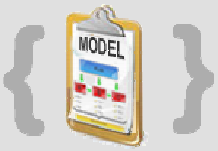
Model 	**{Internal Communication Channel}** [Application Perspective] « Architectural Model » « Communication Channel »
Model of communication channels supporting the exchanges of information between departments of a same organisation.	

Table 50: {Internal Communication Channel} model

2.6.3 Mode of Development

In a trans-European collaboration context, the way a system is developed is not straightforward. Indeed, the principle of subsidiarity that determines domains of responsibility provokes the splitting of the development effort, impacting both national and central development teams.

Typically, national applications are developed by National Administrations while central applications are implemented by DG TAXUD. However, in some cases, DG TAXUD

centrally develops applications or components to be deployed in the national domain, as a support of National Administrations in the implementation of the target system.

Definition	« Mode of Development »
	[Application Perspective]
Organisational distribution of the development effort according to the domain of responsibility in which applications must be deployed. See also: « Domain of Responsibility »	

Table 51: « Mode of Development » definition

According to the [Interoperability Perspective], two domains are mainly addressed regarding the development of trans-European applications; namely the [DG TAXUD Domain] and the [National Domain].

Therefore, it makes sense to infer two modes of development according to the domain of responsibility in which an application must be deployed, i.e. nationally or centrally.

However, additional models can be envisaged, addressing a collaborative effort for the development of applications that must be deployed in all National Administration premises and which must provide exactly the same functionality.

Such a mode of development should reduce the financial impact of the development of trans-European systems for each stakeholder (or software user), as well as improve the quality and the maintainability of the produced software components.

Whichever development approach is employed, all stakeholders of the target system must be collaboratively agreed about the common contract which links them, i.e. the common system specifications addressing the « Information Exchange » in the [Common Domain].

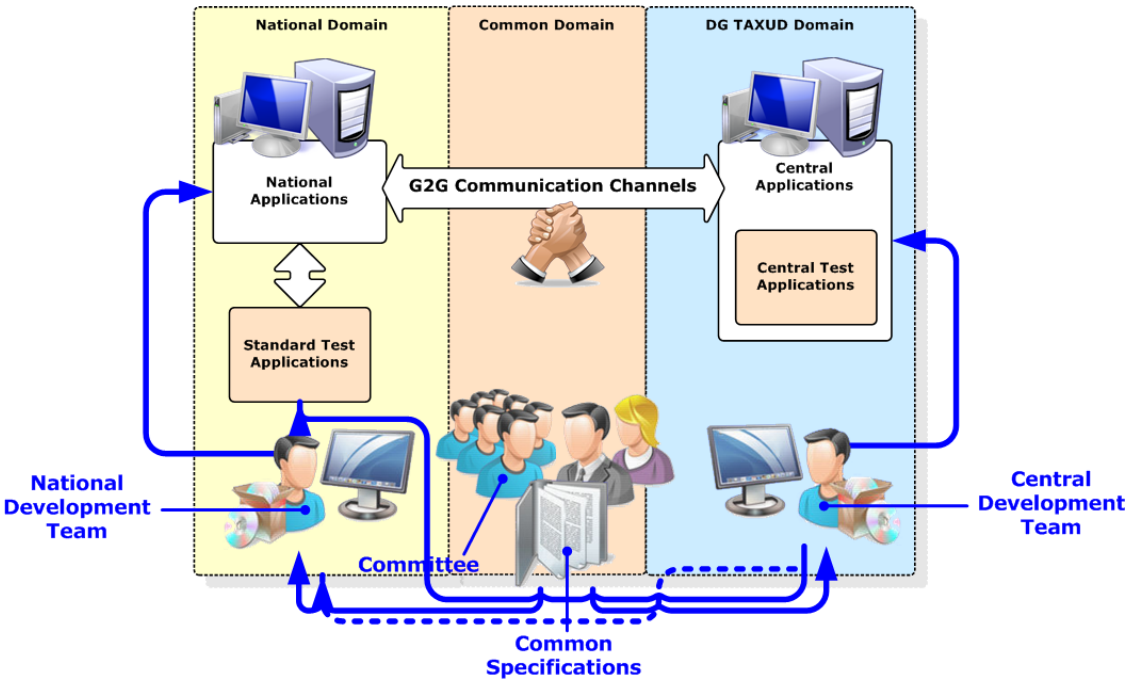


Figure 30: Mode of Development

2.6.3.1 Nationally Developed Application

Model	{Nationally Developed Application}
	[Application Perspective] .« Mode of Development »
Mode of development involving directly the National Administration development team as the producer and the owner of the required software components to be deployed in the [National Domain].	

Table 52: {Nationally Developed Application} model

2.6.3.2 Centrally Developed Application

Model	{Centrally Developed Application}
	[Application Perspective] .« Mode of Development »
Mode of development involving directly DG TAXUD as the producer and the owner of the required software components to be deployed in the [DG TAXUD Domain]. In some cases, DG TAXUD development teams develop software components to be deployed in the [National Domain], in particular test applications or interoperability elements.	

Table 53: {Centrally Developed Application} model

2.6.3.3 Collaboratively Developed Application

Model	{Collaboratively Developed Application}
	[Application Perspective] .« Mode of Development »
Mode of development involving a shared effort between National Administrations and possibly DG TAXUD. Software components are produced conjointly under the responsibility of various software owners.	

Table 54: {Collaboratively Developed Application} model

2.6.4 Mode of Operation

As for development models, the operation of trans-European system is a joint effort of all involved parties. The nature of such systems involves the distribution of the responsibility regarding the day-to-day operational activities.

Definition	« Mode of Operation »
	[Application Perspective]
Organisational distribution of the responsibility regarding the day-to-day operational activities supporting the trans-European systems. It defines the way architectural elements are deployed, monitored and administrated.	

Table 55: « Mode of Operation » definition

Usually, the applications are operated either centrally, in the DG TAXUD domain, or in the national domain.

However, because the {Government-to-Government Communication Channel} is supported by a managed network, i.e. CCN, operations must take place in the common domain, according to the so-called “square model”.

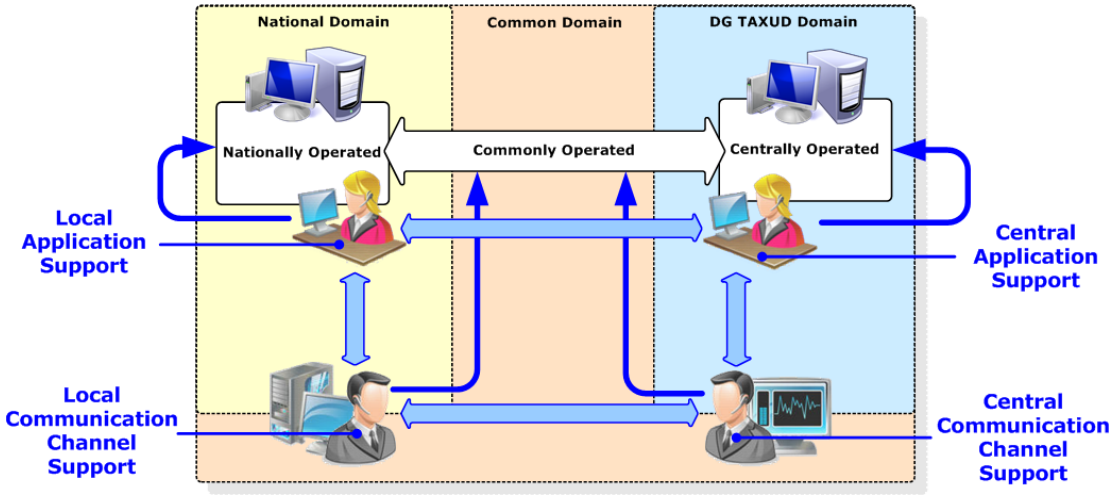


Figure 31: Mode of Operation

2.6.4.1 Centrally Operated

Model	{Centrally Operated}

	[Application Perspective] .« **Mode of Operation** »
Mode of operation of an application or a communication channel performed by a support team under the responsibility of DG TAXUD.	

Table 56: {Centrally Operated} model

2.6.4.2 Nationally Operated

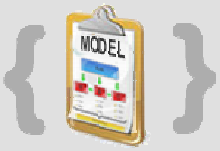
Model 	**{Nationally Operated}** [Application Perspective] .« **Mode of Operation** »
Mode of operation of an application or a communication channel performed by a support team under the responsibility a National Administration.	

Table 57: {Nationally Operated} model

2.6.4.3 Commonly Operated

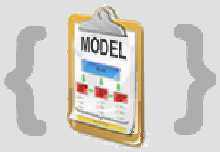
Model 	**{Commonly Operated}** [Application Perspective] .« **Mode of Operation** »
Mode of operation of an application or a communication channel performed by multiple support teams under the mutual responsibility of several parties, typically DG TAXUD and National Administrations.	

Table 58: {Commonly Operated} model

2.7 Technical Perspective

While other perspectives are independent of a specific technology, the technical perspective concerns the enabling hardware, software, and their physical locations. It addresses how the systems are implemented and deployed according to specific solutions and technologies.

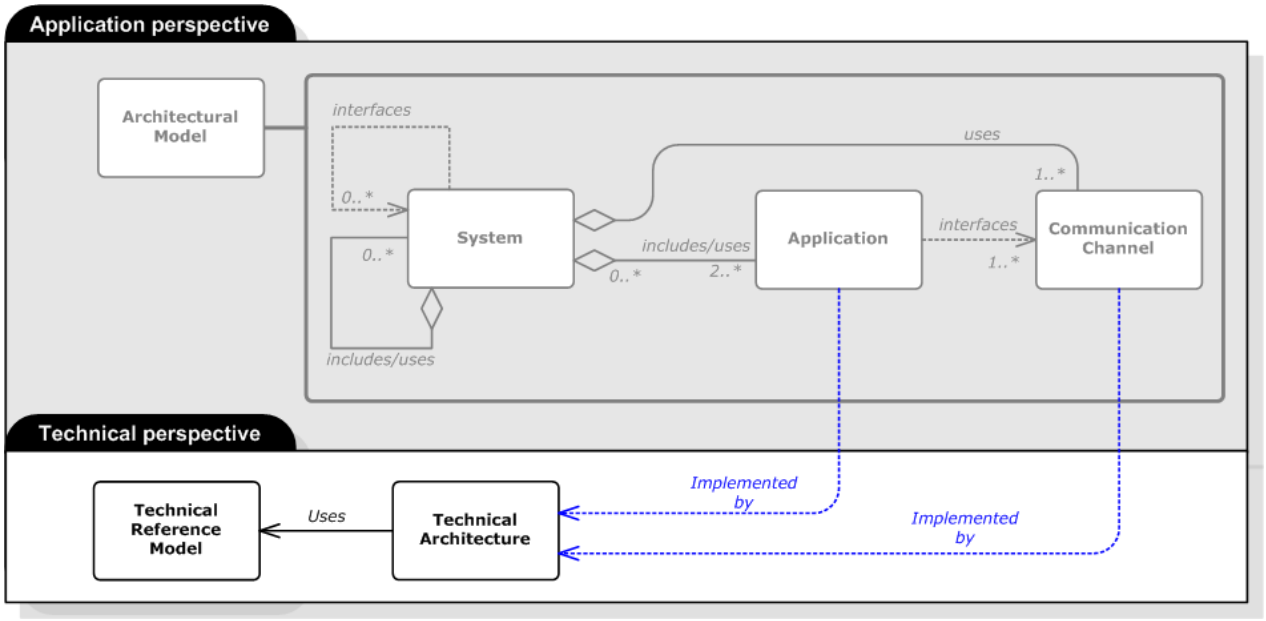


Figure 32: Technical Perspective

The physical design of the software components includes the necessary interfaces and varies according to the technology used. It is supported by generic technical architectures that provide proven solutions with a predictable quality of service level.

It is based on Technical Reference Models (TRM) used to identify the standards, specifications and technologies that support and enable the delivery of component-based applications.

TRM provides a basis for promoting the re-use of technology and component services across DG TAXUD.

2.7.1 Technical Reference Model

The following classification[4] is a component-driven, technical framework categorizing the technical services to support and enable the delivery of business services. It identifies and classifies technical capabilities in terms of services supporting architectural components.

Definition

Technical Reference Model

[Technical Perspective]

- **[Service Access and Delivery]**

  Defines the collection of Access and Delivery Channels used to leverage the Services and the requirements governing its use and interaction.

  - **[Access Channels]**. Define the interface between an application and its users, whether it is a browser, personal digital assistant, web service, electronic mail, automated application or other medium.
  - **[Delivery Channels]**. Define the level of access to applications based upon the type of network (CCN, Internet, Intranet, VPN, etc.) used to deliver them.
  - **[Service Requirements]**. Define the necessary aspects of an application or a communication channel to support the required quality of service.
  - **[Service Transport]**. Defines the end to end management of the communications session, addressing the access and delivery protocols.

- **[Service Platform and Infrastructure]**

  Defines the collection of platforms, hardware and infrastructure standards enabling component based architectures and service component reuse.

  - **[Support Platforms]**. Define software architectures, including the operating systems and programming languages able to run applications.
  - **[Delivery Servers]**. Define front-end platforms providing information to a requesting application. It includes the hardware, operating system, server software, and networking protocols.
  - **[Software Engineering]**. Covers the technology associated with building software systems as well as technical solutions supporting management issues, such as testing, modelling and versioning.
  - **[Database / Storage]**. Refers to a collection of information organized in such a way a computer program can quickly select desired pieces of data. A database management system (DBMS) is a software application providing management, administration, performance, and analysis tools for databases.
  - **[Hardware / Infrastructure]**. Defines the physical devices, facilities and standards providing the computing and networking within and between enterprises.

[4] Based on the FEA Reference Model Document [R07].

- **[Component Framework]**

  Defines the underlying foundation and technical elements by which Service Components are built, integrated and deployed across Component-Based and Distributed Architectures.

  This includes, but is not limited to, modules designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be executed on standalone machines, a LAN, Intranet or the Internet.

  - **[Security]**. Defines the methods of protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction in order to provide integrity, confidentiality and availability.
  - **[User Presentation / Interface]**. Defines the connection between the user and the software, consisting of the presentation that is physically represented on the screen.
  - **[Business Logic]**. Defines the software, protocol or method in which business rules are enforced within applications.
  - **[Data Interchange]**. Define the methods data is transferred and represented in and between software applications.
  - **[Data Management]**. Defines the management of all data/information in an organisation. It includes data administration, the standards for defining data and the way people perceive and use it.

- **[Service Interface and Integration]**

  Defines the discovery, interaction and communication technologies joining disparate systems and information providers. Service Oriented Architecture (SOA) leverage and incorporate Service Interface and Integration standards to provide interoperability and scalability.

  - **[Integration]**. Middleware increasing the flexibility, interoperability, and portability of existing infrastructure by linking or "gluing" two otherwise separate applications.
  - **[Interoperability]**. Defines the capabilities of discovering and sharing data and services across disparate systems and vendors.
  - **[Interface]**. Defines the capabilities of communicating, transporting and exchanging information through a common dialog or method. Delivery Channels provide the information to reach the intended destination, whereas Interfaces allow the interaction to occur based on a predetermined framework.

Table 59: Technical Reference Model

2.7.2 Technical Architecture

2.7.2.1 Central Application

Most of current central applications operated by DG TAXUD are designed according to architectural principles defined in the **Tariff Applications Architecture Framework** as well as by the **NCTS Central Applications Architecture** (i.e. CS/RD and CS/MIS)"

More advanced description is presented in the Appendix A: Detailed analysis.

The following pattern is the result of the merging and the generalisation of architectural elements implemented by those applications.

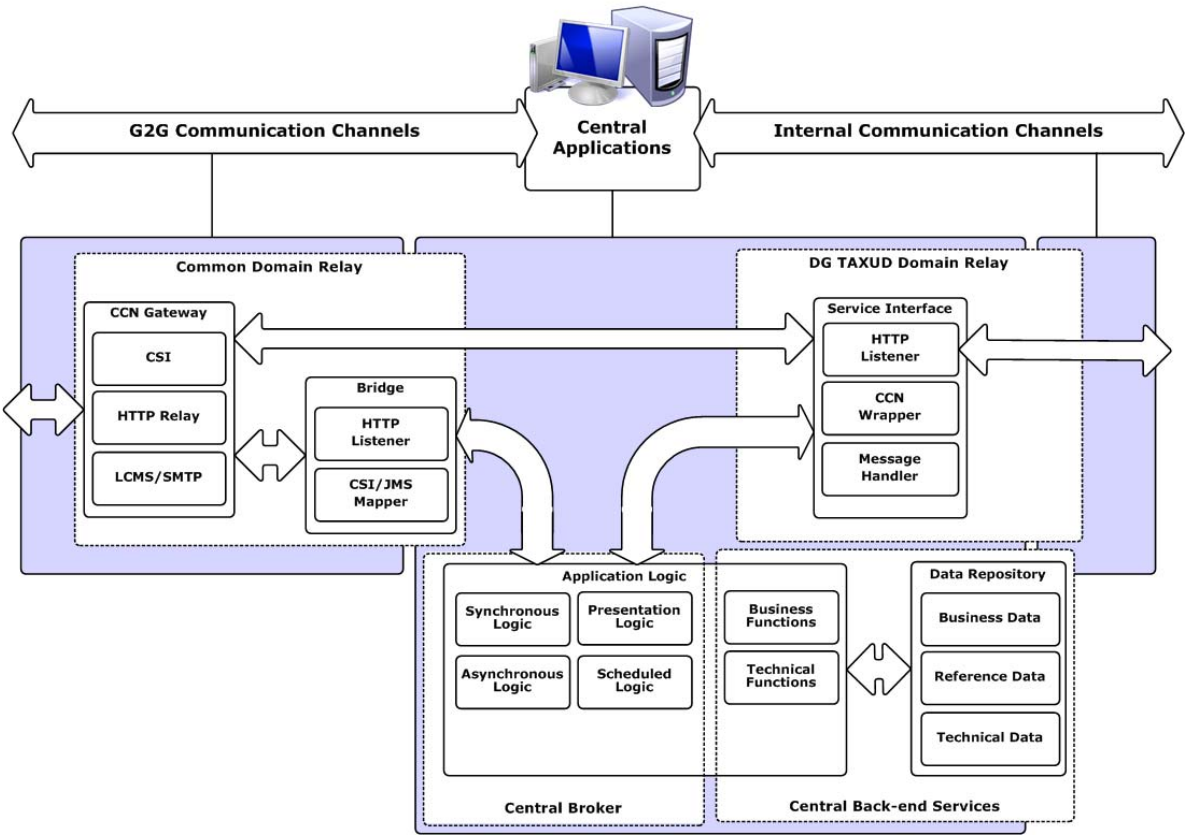


Figure 33: Central Application Technical Architecture

2.7.2.2 National Application

Current architectural components developed by DG TAXUD for national applications are mostly designed according to architectural principles defined for **NCTS** and **ECS** projects, and in particular the **MCC/ECN+** and **ECN** components.

The following pattern is the result of the merging and the generalisation of architectural elements implemented by those applications.

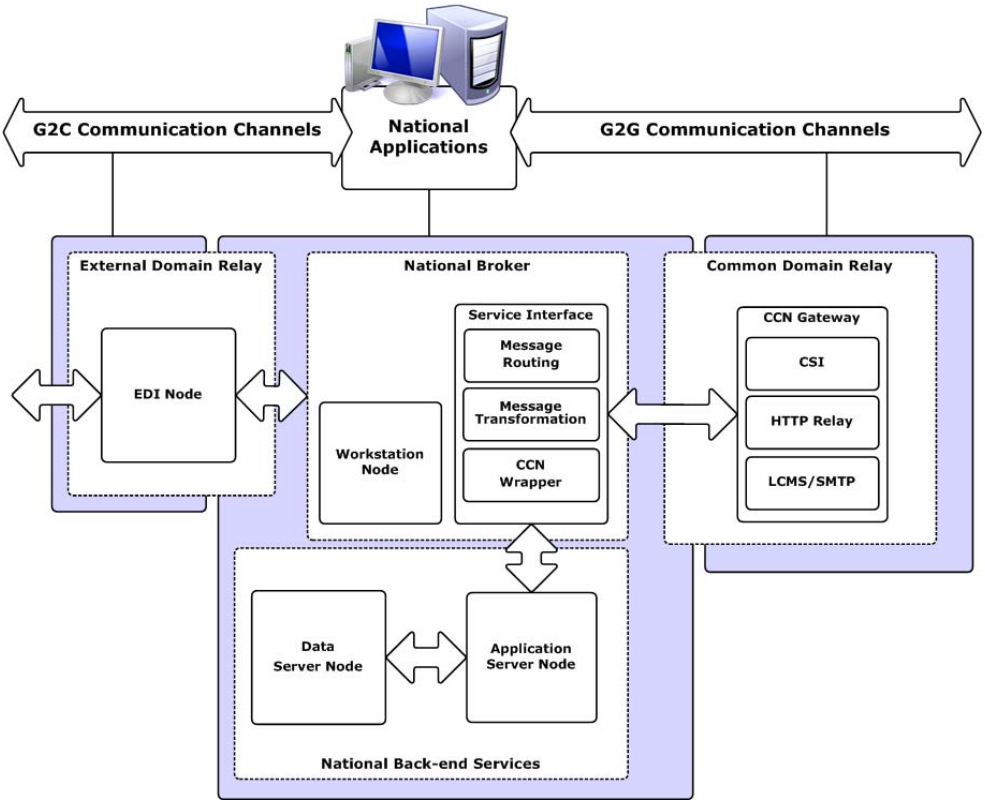


Figure 34: National Application Technical Architecture

2.7.2.3 Communication Channels

Applications of Trans-European systems use communication channels from three categories, implemented as follows:

- {Government-to-Government Communication Channel}

  Currently, such a communication channel is supported by the **CCN infrastructure** providing Value Added Services (VAS) for the reliable and secure transport of information exchanges through the common domain.

  Trans-European systems are designed to use the CCN Network infrastructure and dependent services, which are of three types:

  - Message-based synchronous/asynchronous communication through the CCN/CSI [Service Transport];

  - HTTP/HTTPS (synchronous) access to Web Services through the CCN Intranet [Service Transport];
  - Standard SMTP-based e-mail exchanges through the CCN Mail 2 [Service Transport].

- {Government-to-Citizen Communication Channel}

  Central applications which must transmit information to the External Domain use the {Internal Communication Channel} to access **DDS/EUROPA** components in charge of the dissemination through **Internet**.

  National applications interoperate with the External Domain according to the technology selected by each National Administration. The preferred delivery channel is Internet.

- {Internal Communication Channel}

  Typically, such a communication channel is supported by the private **European Commission network** inside the DG TAXUD Domain and by the Local Area Network (LAN) in the National Domain. In addition, the CCN infrastructure is possibly used to achieve exchanges between applications inside the DG TAXUD domain.

2.8 Security Perspective

When business processes have to be turned into software components deployed on IT infrastructure, various considerations have to be taken into account regarding the way assets are protected against threats according to their vulnerabilities and the identified risks.

The security must be addressed according to business and functional constraints, including mainly the « Mode of Delivery » of business functions and the adopted « Functional Model », as well as the « Architectural Model ».

The security of an IT system is dependent on its ability to provide various types of assurances, identified hereafter as « Security Objective ».

« Security Measure » can be combined in different ways to answer the specific security requirements according to security policies. These requirements may range widely from simple access control to the sophisticated non-repudiation requirements of value-bearing transactions.

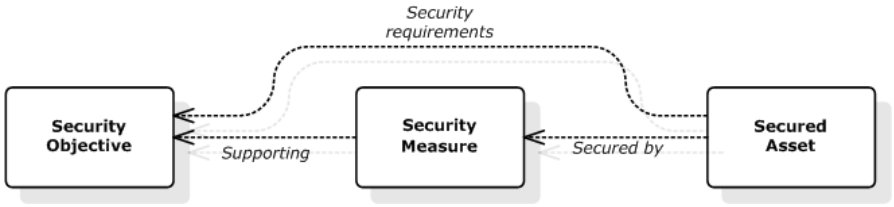


Figure 35: Security Perspective

2.8.1 Security Objectives Classification

Definition	« Security Objective »
	[Security Perspective]
Management level requirement regarding the protection of its business/activity. Usually translated in a Specification phase (Security policy definition), an Analysis phase (Risk Assessment) and an Implementation phase (Risk Mitigation)	

Table 60: « Security Objective » definition

Classification	Security Objectives Classification

	[Security Perspective] **« Security Objective »**

- **[Confidentiality]**

  Security objective participating to the protection of information, by enforcing the assurance that it will be kept secret, with access limited to appropriate and identified parties, on a need-to-know basis. System data is kept private and cannot be viewed by unauthorized individuals. This can result in unwanted information disclosure if not suitably addressed.

- **[Integrity]**

  Security objective participating to the protection of information, by enforcing the assurance that it will be kept uncorrupted. Data cannot be modified or tampered by unauthorized individuals. Insufficient integrity checking can result in systems that are subject to the threat of tampering or of repudiation.

- **[Availability]**

  Security objective participating to the business continuity, enforcing the assurance that a system should never be responsible for a loss or an unacceptable delay in the transmission of information or in the execution of a service. System availability cannot be compromised by denial-of-service attacks.

- **[Legitimate Use of the system]**

  Security objective participating to the assurance that protected resources are not used by unauthorised persons or in unauthorised ways.

  Non-repudiation is implicitly included in the [Legitimate Use of the System] objective, which requires that users and application activity can be traced back (history record).

Table 61: Security Objectives Classification

2.8.2 Security Measures Classification

Definition	**« Security Measure »**
	[Security Perspective]

Preventive and protective characteristic of an information system element, implementing the security requirements regarding a particular security objective.

Table 62: « Security Measure » definition

Classification	**Security Measures Classification**

	[Security Perspective] **« Security Measure »**

- **[Authentication]**

  Security measure participating to the [Legitimate Use of the system] and [Confidentiality] objectives, enforcing the identification and the recognition of users accessing protected resources.

  Service consumers (humans or machines) accessing the application or service must uniquely identify themselves. Failure to sufficiently authenticate actors makes a system vulnerable to security threats, e.g. spoofing.

- **[Authorisation]**

  Security measure participating to [Legitimate Use of the system], [Confidentiality] and [Integrity] objectives, enforcing the access control by verifying that an identified service consumer has the authority to perform a particular transaction.

  Service consumers have access only to those features and functions of a system to which they are entitled. If compromised, the system is vulnerable to threats referred to as elevation of privilege and information disclosure.

- **[Accounting]**

  Security measure participating to [Legitimate Use of the system] and [Confidentiality] objectives, enforcing the non-repudiation by ensuring that service consumers and application activity are traced.

  Actions performed on the system can be traced to specific service consumers for auditing purposes. The traceability of actions and transactions is an essential element in combating the threats posed by elevation of privilege and repudiation.

Table 63: Security Measures Classification

2.8.3 Security Architecture

Definition	**« Secured Asset »** **[Security Perspective]**
Element of an information system that must be protected from all types of peril damaging the business operations.	

Table 64: « Security Asset » definition

In system architecture there are many layers of security that must be addressed:

- **Physical** security, including business premises and physical location of IT equipment, must be enforced in order to prevent unauthorised physical access, damage and interference.
- **Network** security, including routers, switches, and firewalls, must be configured to protect against for example TCP/IP-based attacks and are the first defence against attacks on Web-based infrastructure.

- **Platform** security includes ensuring that the underlying host and operating system configuration is secure and robust. Measures include ensuring that patches and updates are applied to protect against vulnerabilities, that port and account information is secure, that the platform can only be configured by authorized administrators, and that administrators' actions are audited.
- **Application** security covers authentication and authorization of users, data integrity and privacy, non-repudiation of transactions, and so on.
- **Human/Personal** security covers all measures of personnel induction (accreditation, contractual obligations, NDA, policy compliance agreement), training (security awareness, specific security product training) and operations (incident management).

All of these layers must work together to ensure the security of any system or application deployed in any domain of responsibility.

According to the architectural meta-model depicted in section 2.6.1, the architectural elements to be technically protected are:

- « Application », implementing business actions, taking part of business transactions in business processes, inside a single domain of responsibility.
- « Communication Channel », supporting the exchanges of information between applications, possibly spanning different domains of responsibility.

According to the identified « Architectural Model », to ensure that an application is properly secured, an Implicit Trusted Zone is defined in which service invocations coming from each integration point are granted or rejected according to the established security policies implemented by the concerned « Domain Relay ».

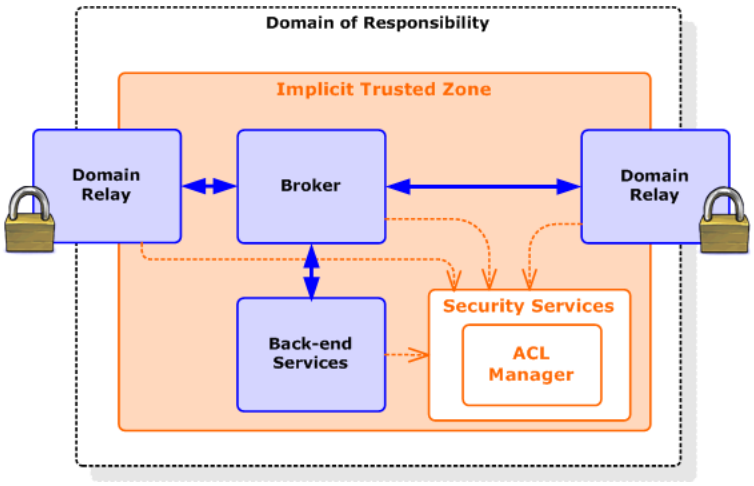


Figure 36: Security Architecture

Indeed, the « Domain Relay » is the single point of contact of an application through a communication channel. Therefore, it plays a key role in the access control. It performs the necessary [Authentication] and assigns a role (or an impersonated user identity) which is propagated to the « Broker ». Such a measure is performed for communications supported by both HTTP and CSI protocols.

The management of user accounts and profiles is exported to the infrastructure. Regarding the Domain Relay, the administrator manages the credentials using the management console (e.g. BEA WebLogic Server for the application server and/or ADM3G for CCN).

Regarding access from the Common Domain Infrastructure, the management of user accounts and profiles is exported to the CCN infrastructure, and consequently to the National Administrations (according to the {Commonly Operated} « Mode of Operation »). The Bridge between the CCN infrastructure and the Application Server is in charge of the mapping of user profiles on security roles.

The « Broker » business logic handles different types of messages representing different possible operations on the « Back-end Services » and on the related Business Data. Implicitly, it grants [Authorisation] to the service consumer by converting the messages to actual operations, e.g. by means of calls to enterprise Java beans. The deployment descriptor of those beans specifies the roles that can call the different methods. Therefore, a user must be in the right role to be able to perform operations.

The « Back-end Services » enforce the [Authorisation] by applying a specific requirement regarding the access to Business Data. Business Data are tightly linked to a role. The business logic checks if the authenticated role has the required profile to access particular Business Data, before the execution of the operation.

A generic mechanism is implemented for managing access control for data. It applies Access Control Lists (ACL) and permissions in such a way that it can be used in all types of applications. Application designers are in charge of the definition of the permissions which are valid in their Business Domain. The system administrator protects identified resources by creating lists of Users and Groups that have the permissions required to access those resources. The generic nature stems from the fact that the ACL manager security service is not aware of what the data exactly is. This is made possible by UUIDs, which uniquely identify entities, no matter their kind.

The ACL manager is designed to be embedded in an application. It is, however, possible to have several services in the same application that use the same ACL manager.

Moreover, an [Accounting] trail is implemented to keep a trace of who did what and when. Actually, the audit trail is provided by the application server (e.g. BEA WebLogic Server) and the work package mechanism (see the Tariff Applications Architecture Framework presented in the Appendix A: Detailed analysis). Each log in the server log file provides the time at which the operation has been logged and the user who did the operation. All data modified in the database are time stamped by the work package mechanism.

[Confidentiality] and [Integrity].objectives are currently achieved by the communication channels. Regarding the internal accesses, the intra-Commission network is considered

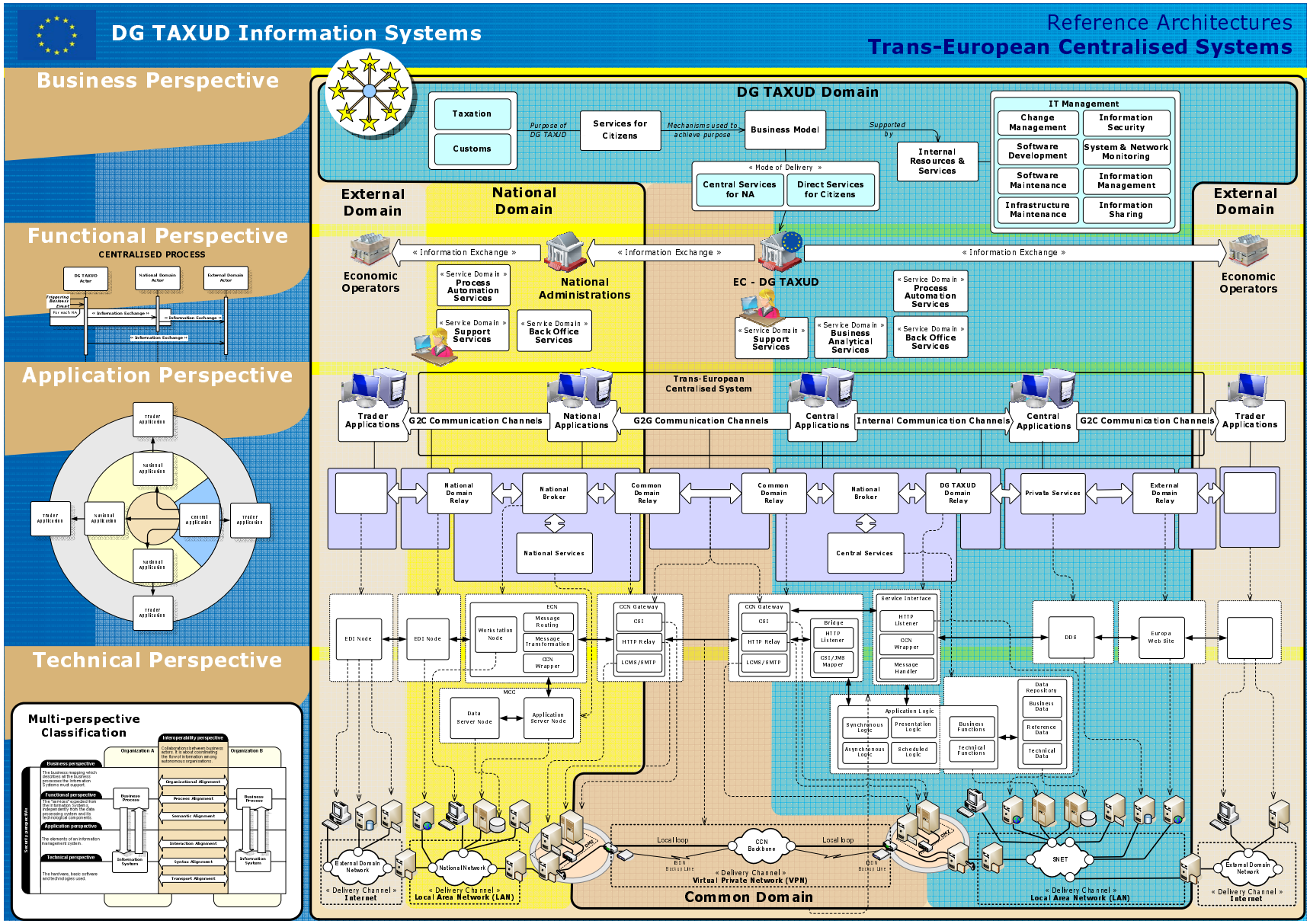
to be secure enough. Therefore, no encryption protocol is used to exchange information on it.

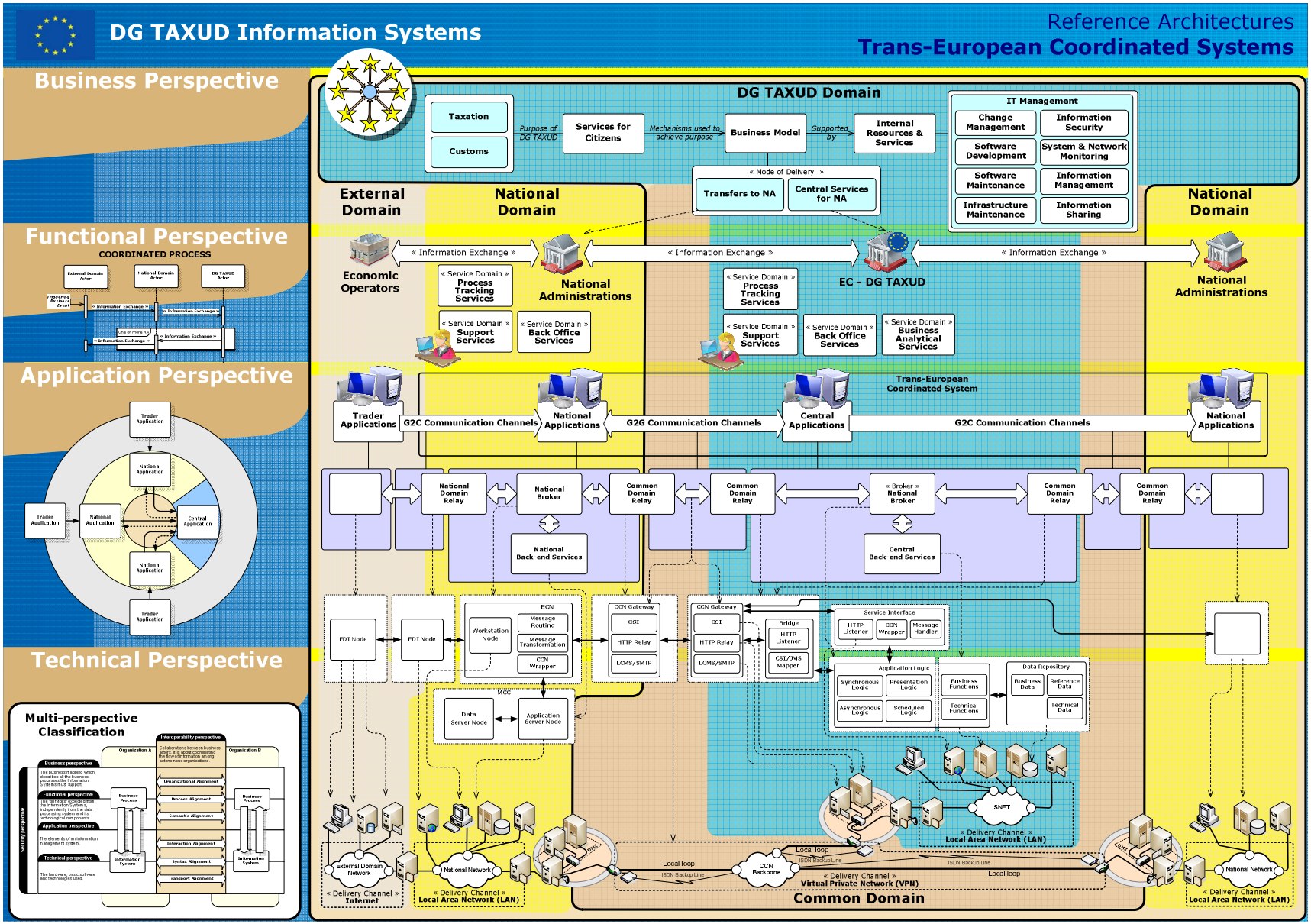
For the external accesses, the safe transmission of information between the national administrations and DG TAXUD is provided by CCN, which encrypts data exchanged on the Common Domain Network, except for CCN Mail 2 which consequently is not considered as a secure transmission channel.

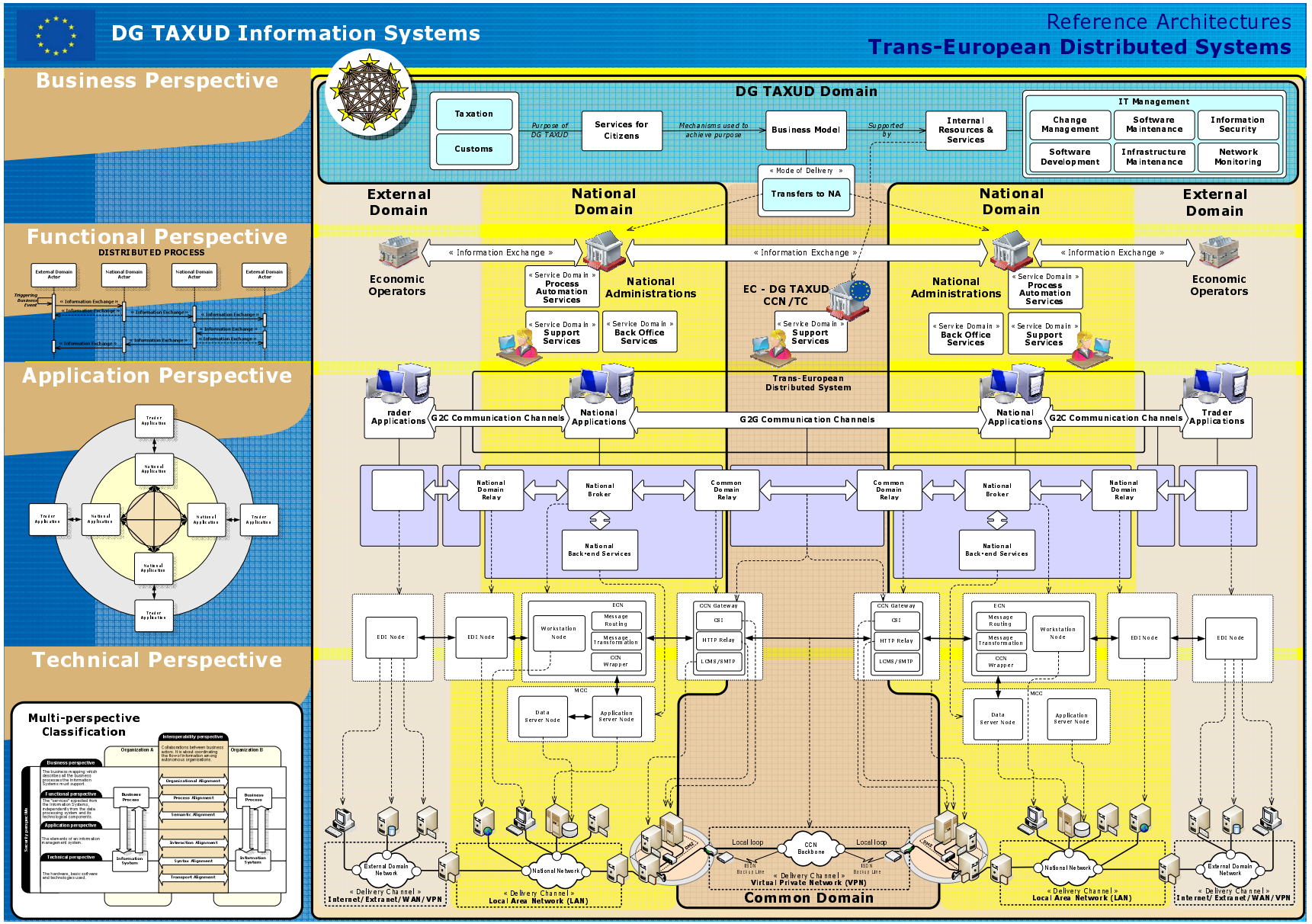
3 Overview of Architectural Models

The following sections include pictures providing schematic overviews of each architectural model.

Those pictures are available separately (see Appendix B: Architectural Models (Visio format)) for printing.


DG TAXUD Information Systems
Reference Architectures
Trans-European Centralised Systems
Business Perspective
Functional Perspective
CENTRALISED PROCESS
Application Perspective
Technical Perspective
Multi-perspective Classification
DG TAXUD Domain
Taxation
Customs
Purpose of DG TAXUD
Services for Citizens
Mechanisms used to achieve purpose
Business Model
Supported by
Internal Resources & Services
« Mode of Delivery »
Central Services for NA
Direct Services for Citizens
IT Management
Change Management
Information Security
Software Development
System & Network Monitoring
Software Maintenance
Information Management
Infrastructure Maintenance
Information Sharing
External Domain
National Domain
External Domain
« Information Exchange »
« Information Exchange »
« Information Exchange »
Economic Operators
National Administrations
EC - DG TAXUD
Economic Operators
« Service Domain » Process Automation Services
« Service Domain » Support Services
« Service Domain » Back Office Services
« Service Domain » Process Automation Services
« Service Domain » Support Services
« Service Domain » Business Analytical Services
« Service Domain » Back Office Services
Trans-European Centralised System
Trader Applications
G2C Communication Channels
National Applications
G2G Communication Channels
Central Applications
Internal Communication Channels
Central Applications
G2C Communication Channels
Trader Applications
National Domain Relay
National Broker
Common Domain Relay
Common Domain Relay
National Broker
DG TAXUD Domain Relay
Private Services
External Domain Relay
National Services
Central Services
EDI Node
EDI Node
ECN
Workstation Node
Message Routing
Message Transformation
CCN Wrapper
CCN Gateway
CSI
HTTP Relay
LCMS/SMTP
CCN Gateway
CSI
HTTP Relay
LCMS/SMTP
Bridge
HTTP Listener
CSI/JMS Mapper
Service Interface
HTTP Listener
CCN Wrapper
Message Handler
DDS
Europa Web Site
MCC
Data Server Node
Application Server Node
Application Logic
Synchronous Logic
Presentation Logic
Asynchronous Logic
Scheduled Logic
Business Functions
Technical Functions
Data Repository
Business Data
Reference Data
Technical Data
Local loop
CCN Backbone
Local loop
« Delivery Channel » Virtual Private Network (VPN)
SNET
External Domain Network
« Delivery Channel » Internet
National Network
« Delivery Channel » Local Area Network (LAN)
« Delivery Channel » Local Area Network (LAN)
External Domain Network
« Delivery Channel » Internet
Common Domain


DG TAXUD Information Systems
Reference Architectures
Trans-European Coordinated Systems
Business Perspective
Functional Perspective
COORDINATED PROCESS
Application Perspective
Technical Perspective
Multi-perspective Classification
DG TAXUD Domain
Taxation
Customs
Purpose of DG TAXUD
Services for Citizens
Mechanisms used to achieve purpose
Business Model
Supported by
Internal Resources & Services
IT Management
Change Management
Information Security
Software Development
System & Network Monitoring
Software Maintenance
Information Management
Infrastructure Maintenance
Information Sharing
« Mode of Delivery »
Transfers to NA
Central Services for NA
External Domain
National Domain
National Domain
Economic Operators
« Information Exchange »
National Administrations
EC - DG TAXUD
National Administrations
« Service Domain » Process Tracking Services
« Service Domain » Support Services
« Service Domain » Back Office Services
« Service Domain » Business Analytical Services
Trans-European Coordinated System
Trader Applications
G2C Communication Channels
National Applications
G2G Communication Channels
Central Applications
G2C Communication Channels
National Applications
National Domain Relay
National Broker
Common Domain Relay
« Broker » National Broker
National Back-end Services
Central Back-end Services
EDI Node
ECN
Workstation Node
Message Routing
Message Transformation
CCN Wrapper
CCN Gateway
CSI
HTTP Relay
LCMS/SMTP
Bridge
HTTP Listener
CSI/MS Mapper
Service Interface
CCN Wrapper
Message Handler
Application Logic
Synchronous Logic
Presentation Logic
Asynchronous Logic
Scheduled Logic
Business Functions
Technical Functions
Data Repository
Business Data
Reference Data
Technical Data
MCC
Data Server Node
Application Server Node
SNET
« Delivery Channel » Local Area Network (LAN)
External Domain Network
« Delivery Channel » Internet
National Network
« Delivery Channel » Local Area Network (LAN)
Local loop
ISDN Backup Line
CCN Backbone
« Delivery Channel » Virtual Private Network (VPN)
Common Domain
National Network
« Delivery Channel » Local Area Network (LAN)


DG TAXUD Information Systems
Reference Architectures
Trans-European Distributed Systems
Business Perspective
Functional Perspective
DISTRIBUTED PROCESS
Application Perspective
Technical Perspective
Multi-perspective Classification
DG TAXUD Domain
Taxation
Customs
Purpose of DG TAXUD
Services for Citizens
Mechanisms used to achieve purpose
Business Model
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Change Management
Software Maintenance
Information Security
Software Development
Infrastructure Maintenance
Network Monitoring
« Mode of Delivery »
Transfers to NA
External Domain
National Domain
National Domain
External Domain
« Information Exchange »
Economic Operators
« Service Domain »
Process Automation Services
National Administrations
EC - DG TAXUD CCN /TC
« Service Domain »
Support Services
« Service Domain »
Back Office Services
Trans-European Distributed System
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National Broker
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EDI Node
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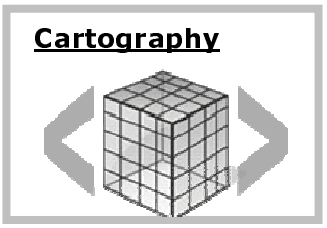
Message Routing
Message transformation
CCN Wrapper
ECN
CCN Gateway
CSI
HTTP Relay
LCMS/SMTP
MCC
Data Server Node
Application Server Node
Local loop
CCN Backbone
« Delivery Channel »
Virtual Private Network (VPN)
Common Domain
« Delivery Channel »
Internet/Extranet/WAN/VPN
« Delivery Channel »
Local Area Network (LAN)
External Domain Network
National Network

4 Cartography

4.1 Introduction

This chapter provides the cartography of current DG TAXUD trans-European systems and applications according to the models and definitions described above in chapter 2.



The structure of this section is as follows:

- **Section 4.2. Business/Functional Perspectives**

  The elements in the business and functional perspectives driving the design of IT systems and applications are summarised and mapped to models and classifications as well as to IT domains, i.e. IT systems.

  Note that, in this document, the classification at business and functional perspectives are not intended to be exhaustive. It is only the result of the analysis of existing systems and applications and aims only at providing references in the cartography at application perspective level.

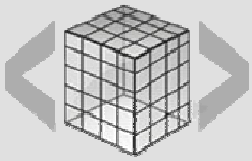
- **Section 4.3. Application/Technical Perspectives**

  The elements in the application and technical perspectives supporting the business processes are summarised and mapped to models and classifications as well as to functional domains, i.e. business processes.

4.2 Business/Functional Perspectives

4.2.1 Taxation – Value Added Tax – VAT Information Exchange

Cartography



<Taxation – Value Added Tax – VAT Information Exchange>

Exchange of information concerning Value Added Tax.

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [National Domain] The business processes are managed by NAs involved in the VAT information management. • [Common Domain] Support business and technical interoperability gateways. • [DG TAXUD Domain] The responsibility for monitoring of VIES System status and creation of its consolidated statistics. Support of software development. • [External Domain] Selected data is provided to external users.
Business perspective	« Services for Citizens »	• [Taxation]
	« Mode of Delivery »	• {Transfers to NA} • {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Information Management Software Development Software Maintenance System and Network Monitoring IT Infrastructure Maintenance
Functional perspective	« Business Function Service »	• [Back Office Services] Data Loading/Archiving • [Support Services] Collaboration Management, Communication Management, System Management, Security Management, Knowledge Management, Testing Management
	« Functional Model »	• {Distributed Process} • {Centralized Process}

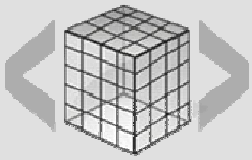
Systems

Application perspective

- <Vat Information Exchange System (VIES System)>
- <Vat-on-e-Services>
- <Exchange of Forms System>

4.2.2 Taxation – Personal Tax, Company Tax and other Taxes (Information)

Cartography



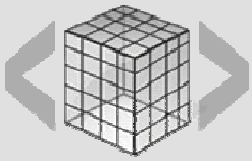
<Taxation –Personal Tax, Company Tax and other Taxes (Information)>

Exchange of information related to taxation of savings and also dissemination of data concerning taxes in force across European Union.

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [National Domain] The business processes are managed by NAs involved in the data management. • [Common Domain] Support business and technical interoperability gateways. • [DG TAXUD Domain] Responsible for data management and support of software development. • [External Domain] Selected data is provided to external users.
Business perspective	« Services for Citizens »	• [Taxation]
	« Mode of Delivery »	• {Transfers to NA} • {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Information Management Software Development Information Sharing
Functional perspective	« Business Function Service »	• [Back Office Services] Data Loading/Archiving • [Support Services] Collaboration Management, Communication Management, Testing Management
	« Functional Model »	• {Distributed Process} • {Centralized Process}
Systems		

Application perspective	• <Taxation of Savings System> • <Taxes in Europe>

4.2.3 Customs – Transit – Movements Control

Cartography	<Customs – Transit – Movement Control>
	Electronic Transit declaration management and control.

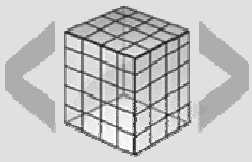
	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [External Domain] The business processes are initiated by Economics operators. • [National Domain] The business processes are managed by NAs involved in the movement validation, control and monitoring. • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Transfers to NA}
	«Resource Management»	• [IT Management]: Information Management Information SharingSystem and Network Monitoring Software Development Software Maintenance
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Management, Process Tracking/Monitoring, Exception Handling, Routing and Scheduling • [Back Office Services] Data Exchange, Data Warehouse
	« Functional Model »	• {Distributed Process}

Systems

Application perspective	• <NCTS>

4.2.4 Customs – Export – Movements Control

Cartography



<Customs – Export – Movement Control>

Electronic Export declaration management and control.

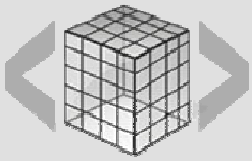
	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [External Domain] The business processes are initiated by Economics operators. • [National Domain] The business processes are managed by NAs involved in the movement validation, control and monitoring. • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Transfers to NA}
	«Resource Management»	• [IT Management]: Information Management System and Network Monitoring Software Development Software Maintenance
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Management, Process Tracking/Monitoring, Exception Handling, Routing and Scheduling • [Back Office Services] Data Exchange, Data Warehouse
	« Functional Model »	• {Distributed Process}

Systems

Application perspective
<ECS>

4.2.5 Customs – Import - Authorizations

Cartography

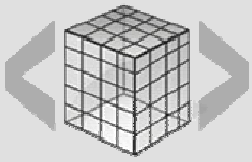


<Customs – Import - Authorizations>

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [DG TAXUD Domain] • [National Domain] • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Transfers to NA} • {Central Services for NA}
	«Resource Management»	• [IT Management]: Information Management Information Sharing System and Network Monitoring Software Development Software Maintenance
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Management, Process Tracking/Monitoring, Exception Handling, Routing and Scheduling • [Back Office Services] Data Exchange, Data Warehouse
	« Functional Model »	• {Distributed Process}
Systems		
Application perspective	• <System for IPR Management>	

4.2.6 Customs – Tariff

Cartography



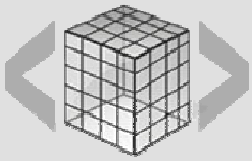
<Customs – Tariff>

The Commission has established a Binding Tariff Information (BTI) procedure for information on the tariff classification of goods, provided by the European customs authorities, in order to ensure the uniformity of the application and to eliminate the differences of the tariff classification rules within the European Union, in order to guarantee the equality and the legal protection of the operators in terms of decisions taken by the different customs authorities

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [DG TAXUD Domain] • [External Domain] • [National Domain] • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »	• [Back Office Services] Data Loading, Data Exchange, Data Classification, Data Warehouse • [Business Analytical Services] Reporting, Analysis and Statistics. • [Support Services] Communication Management.
	« Functional Model »	• {Centralized Process} • {Coordinated Process}
Systems		
Application perspective	• <Tariff Information system>	

4.2.7 Customs – Guarantee Management

Cartography

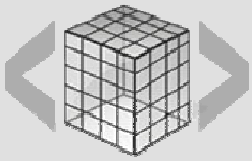


<Customs – Guarantee Management>

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [External Domain] The business processes are initiated by Economics operators. • [National Domain] The business processes are managed by NAs involved in the guarantee management. • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Transfers to NA}
	«Resource Management»	• [IT Management]: Information Management System and Network Monitoring Software Development Software Maintenance
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Management, Process Tracking/Monitoring, Exception Handling, Routing and Scheduling • [Back Office Services] Data Exchange, Data Warehouse
	« Functional Model »	• {Distributed Process}
Systems		
Application perspective	• <System for Guarantee Management>	

4.2.8 Customs – Monitoring & Statistics

Cartography

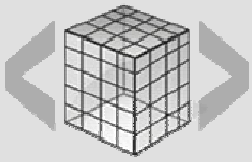


<Customs – Monitoring & Statistics>

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [National Domain] The responsibility for the submission of statistics and monitoring alerts is set to National Domain and assigned to each National Administration. • [Common Domain] Support business and technical interoperability gateways. • [DG TAXUD Domain] The responsibility for the consolidation and dissemination of statistics as well as the dissemination of Common Domain statistics and monitoring alerts is assigned to DG TAXUD.
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Transfers to NA} • {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Information Management Information Sharing System and Network Monitoring Software Development Software Maintenance
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Tracking/Monitoring, Exception Handling, Routing and Scheduling • [Back Office Services] Data Extraction/Transformation, Data Exchange, Data Warehouse, Data Loading/Archiving • [Business Analytical Services] Reporting, Analysis and Statistics • [Support Services] System Management
	« Functional Model »	• {Coordinated Process} • {Centralized Process}
	Systems	
Application perspective		• <System for Business Monitoring and Reporting> • <System for Operation Monitoring and Reporting>

4.2.9 Customs – Risk Management

Cartography

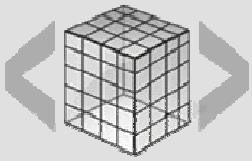


<Customs – Risk Management>

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [National Domain] • [Common Domain]
Business perspective	« Services for Citizens »	• [Customs]
	« Mode of Delivery »	• {Central Services for NA}
	«Resource Management»	• [IT Management]: Information Management
Functional perspective	« Business Function Service »	• [Back Office Services] Data Classification, Data Warehouse • [Business Analytical Services] Reporting, Analysis and Statistics.
	« Functional Model »	• {Coordinated Process}
Systems		
Application perspective	• <Risk Management System>	

4.2.10 Taxation – Excise Duties – Movements Control

Cartography



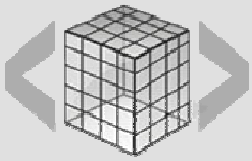
<Taxation – Excise Duties – Movement Controls>

Excise declaration management and control.

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [National Domain] The business processes are managed by NAs involved in the movement monitoring. • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Taxation]
	« Mode of Delivery »	• {Transfers to NA}
	«Resource Management»	• [IT Management]: Information Management Software Development Software Maintenance
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Tracking/Monitoring • [Back Office Services] Data Extraction/Transformation, Data Exchange • [Support Services] Communication Management, Collaboration Management
	« Functional Model »	• {Distributed Process}
Systems		
Application perspective	• <EMCS Phase 0>	

4.2.11 Maintenance of Economic Operators Information

Cartography



<Maintenance of Economic Operators Information>

Maintenance of certificates and authorisations of economic operators.

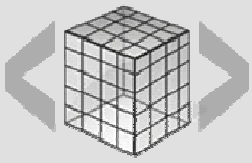
	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [External Domain] • [National Domain] The responsibility for the maintenance of the Registration Information is assigned to each National Administration. • [DG TAXUD Domain] After Registration Information is changed centrally, information is disseminated to National Administrations by DG TAXUD. • [Common Domain] Supports business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Taxation] • [Customs]
	« Mode of Delivery »	• {Transfers to NA} • {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Management, Exception Handling, Routing and Scheduling • [Back Office Services] Data Extraction/Transformation, Data Exchange, Data Warehouse, Data Loading/Archiving, Data Cleansing/Recovery
	« Functional Model »	• {Coordinated Process}
	Systems	

Application perspective

- <System for Economic Operators Customs Information Registration>
- <System for Economic Operators Excise Information Registration>

4.2.12 Maintenance of Reference Data

Cartography



<Maintenance of Reference Data>

Maintenance and sharing of common reference data including:

- The Common Reference Data, such as country names, currency codes, units of measure, etc.
- The Customs List (COL) in all participating countries.
- Specimens, such as stamps, seals and certificates.
- Inventory of Chemical Substances.
- Inventory of tax and non tax liabilities in force in EU Member States.

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [DG TAXUD Domain] The responsibility for the central maintenance and dissemination of reference data is assigned to DG TAXUD. • [Common Domain] Support business and technical interoperability gateways. • [National Domain] After reference data is changed centrally, information is disseminated to National Administrations which must incorporate it into their information repositories. The responsibility for the maintenance of the Customs Offices List is assigned to each National Administration. • [External Domain] Reference data are partially provided to economics operators.
Business perspective	« Services for Citizens »	• [Customs] • [Taxation]
	« Mode of Delivery »	• {Central Services for NA} • {Transfers to NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »	• [Process Automation Services] Process Management, Exception Handling, Routing and Scheduling • [Back Office Services] Data Extraction/Transformation, Data Exchange, Data Warehouse, Data Loading/Archiving, Data Cleansing/Recovery, Data Classification
	« Functional Model »	• {Centralized Process} • {Coordinated Process}

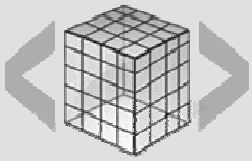
Systems

Application perspective

- <System for Management of Reference Data>
- <System for Management of COL>
- <System for Specimens Maintenance>
- <System for Chemical Substances Inventory>
- <EMCS Phase 0>

4.2.13 Activity Reporting

Cartography

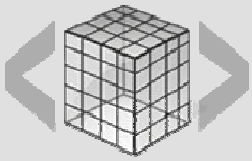


<Activity Reporting>

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [DG TAXUD Domain] The business processes are managed by DG TAXUD involved in planning and monitoring the activities and expenses. • [National Domain] NAs have to provide the necessary information. • [Common Domain] Support business and technical interoperability gateways.
Business perspective	« Services for Citizens »	• [Taxation] • [Customs]
	« Mode of Delivery »	• {Central Services for NA}
	«Resource Management»	• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »	• [Back Office Services] Data Loading, Data Exchange • [Business Analytical Services] Reporting
	« Functional Model »	• {Coordinated Process}
Systems		
Application perspective	• <System for Activity Report>	

4.2.14 System Development - Testing

Cartography



<System Development - Testing>

	Area	Classification/Model
Interoperability perspective	« Domain of Responsibility »	• [DG TAXUD Domain] DG TAXUD is involved in international testing process. • [National Domain] NAs are involved in testing process. • [Common Domain] Support technical interoperability gateway.
Business perspective	« Services for Citizens »	• [Taxation] • [Customs]
	« Mode of Delivery »	• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»	• [IT Management]: Software Development
Functional perspective	« Business Function Service »	• [Support Services] Testing Management
	« Functional Model »	• {Centralized Process} • {Distributed Process}

Systems

Application perspective

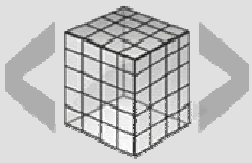
- <NCTS> / <STTA> <TTA>
- <ECS> / <STTA> <TTA>
- <EMCS Phase 0> / <DDS>
- <EMCS Phase 0> / <SEEDv0>
- <EMCS Phase 0> / <SEEDv0>
- <EMCS Phase 0> / <SEEDv0>
- <SEEDv0>
- <VIES Test Application>
- <VAT-on-e-Services RTA>
- <E-Forms Test Tool>
- <Taxation of Savings Test Tool>
- <Generic Test Tool>

4.3 Application/Technical Perspectives

4.3.1 Systems

4.3.1.1 New Computerised Transit System (NCTS)

Cartography



<NCTS>

{Trans-European System}

Business Processes

Functional perspective

- <Customs – Transit – Movement Control>
- <Customs – Guarantee Management>
- <Maintenance of Reference Data>
- <Customs – Monitoring & Statistics>
- <System Development - Testing>

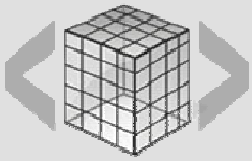
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [External Domain] • [National Domain] • [Common Domain] • [DG TAXUD Domain]
Application perspective	« Architectural Model »	« System »	NCTS includes a set of sub-systems supporting the specific business areas, namely: • <System for Guarantee Management> • <System for Management of Reference Data> • <System for Management of COL> • <System for Business Monitoring and Reporting> • <System for Operation Monitoring and Reporting>

		« Application »	• {National Application}
			  • <NTA>
			  • <STTA>
			• {Central Application}
			  • <CS/RD>
			  • <CS/MIS>
			  • <SMART>
			  • <DDS>
			  • <TTA>
			  • <Web2000>

		« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.2 Export Control System (ECS)

Cartography



<ECS>

{Trans-European Distributed System}

Business Processes

Functional perspective

- <Customs – Export – Movement Control>
- <Customs – Guarantee Management>
- <Maintenance of Reference Data>
- <Customs – Monitoring & Statistics>
- <System Development - Testing>

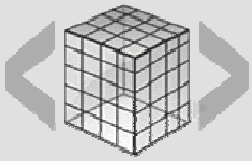
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [External Domain] • [National Domain] • [Common Domain] • [DG TAXUD Domain]
Application perspective	« Architectural Model »	« System »	ECS includes a set of sub-systems supporting the specific business areas, namely: • <System for Guarantee Management> • <System for Management of Reference Data> • <System for Management of COL> • <System for Business Monitoring and Reporting> • <System for Operation Monitoring and Reporting>

		« Application »	• {National Application}
			  • <ECS National Application>
			  • <STTA>
			• {Central Application}
			  • <CS/RD>
			  • <CS/MIS>
			  • <DDS>
			  • <SMART>
			  • <TTA>
			  • <Web2000>

		« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.3 Tariff Information system

Cartography



<Tariff Information system>

{Trans-European System}

The European Binding Tariff Information system ensures effective management of the procedure. The system ensures the transparency of customs information and provides a guarantee of equality for the operators. It enables to facilitate and verify the classification of a good and ensures coherence of classification of the different national authorities, by searching for divergent or incorrect classifications. The system also allows looking for attempted fraudulent practice by operators.

Business Processes

Functional perspective

- <Customs – Tariff>

Interoperability perspective

Area	Classification/Model
« Domain of Responsibility »	• [DG TAXUD Domain] • [National Domain] • [Common Domain] • [External Domain]

Application perspective

« Architectural Model »

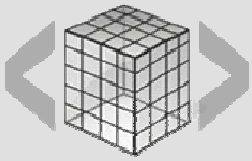
« System »	

« Application »	• {Central Application}
	  • <EBTI>
	  • <TARIC>
	  • <Taric Reports>
	  • <Suspensions>
	  • <TQS>
	  • <DDS>
	• {National Application}
	  • *{Nationally Developed Application}*

« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.4 System for Economic Operators Customs Information Registration

Cartography



<System for Economic Operators Customs Information Registration>

{Trans-European Coordinated System}

Business Processes

Functional perspective

- <Maintenance of Economic Operators Information>

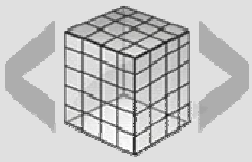
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {Central Application}
			  • <AEO>
			  • <DDS>
			• {National Application}
			  • *{Nationally Developed Application}*

		« Communication Channel »	• {Internal Communication Channel} • {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.5 System for Guarantee Management

Cartography



<System for Guarantee Management>

{Trans-European Distributed System}

Providing a mechanism for the maintenance and the exchange of guarantee information.

Business Processes

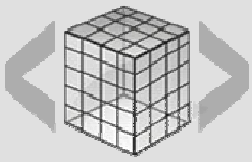
Functional perspective

- <Customs – Guarantee Management>

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	
		« Application »	• {National Application} • <NTA>
		« Communication Channel »	• {Government-to-Government Communication Channel}
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Nationally Developed Application} • {Centrally Developed Application}

4.3.1.6 Excise Movement Control System (EMCS) Phase 0

Cartography



<EMCS Phase 0>

{Trans-European System}

The system encompasses the operational support, maintenance and improvement of existing systems used in the excise field. EMCS Phase 0 ensures that these systems are aligned with the overall objective of EMCS.

Business Processes

Functional perspective

- <Taxation – Excise Duties – Movement Controls>
- <Maintenance of Economic Operators Information>
- <System for Management of Reference Data>
- <System for Management of COL>

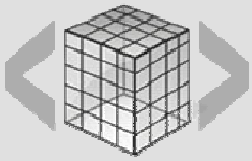
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] • [DG TAXUD Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	EMCS Phase 0 includes a set of sub-systems supporting the specific business areas, namely: • <System for Management of Reference Data> • <System for Economic Operators Excise Information Registration>

		« Application »	• {National Application}
			  • <EWSE>
			  • <MVS>
			• {Central Application}
			  • <SEEDv0>
			  • <CS/RD>
			  • <DDS>

		« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.7 System for Economic Operators Excise Information Registration

Cartography



<System for Economic Operators Excise Information Registration>

{Trans-European Coordinated System}

Business Processes

Functional perspective

- <Maintenance of Economic Operators Information>

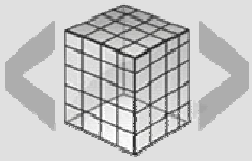
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] • [DG TAXUD Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {Central Application}
			  • <SEEDv0>
			  • <CS/RD>
			  • <DDS>

		« Communication Channel »	• {Internal Communication Channel} • {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.8 System for Activity Report

Cartography



<System for Activity Report>

{Trans-European Coordinated System}

This system supports the exchange and consultation of information on expenses made by Member States and Candidate Countries in the framework of the Customs and Fiscalis programs. It covers all activities that have been developed under the programs Fiscalis and Customs and supports a number of reporting obligations.

Business Processes

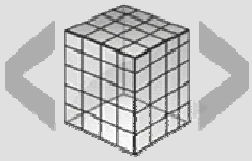
Functional perspective

- <Activity Reporting>

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain]
Application perspective	« Architectural Model »	« System »	
		« Application »	• {Central Application} • <ART>
		« Communication Channel »	• {Government-to-Government Communication Channel}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.1.9 System for Operation Monitoring and Reporting

Cartography



<System for Operation Monitoring and Reporting>

{Trans-European Centralised System}

Provides the facilities needed to monitor and report on the operation of NCTS and ECS.

Business Processes

Functional perspective

- <Customs – Monitoring & Statistics>

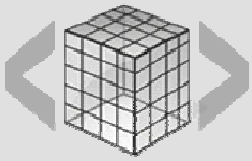
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	• <NCTS> • <ECS>

		« Application »	• {Central Application}
			  • <CS/MIS>
			  • <SMART>

		« Communication Channel »	• {Internal Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.10 System for Business Monitoring and Reporting

Cartography



<System for Business Monitoring and Reporting>

{Trans-European Coordinated System}

Provides the facilities needed to monitor and report on the business activities performed through NCTS and ECS.

Business Processes

Functional perspective

- <Customs – Monitoring & Statistics>

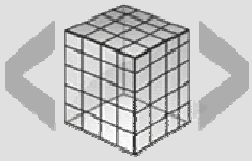
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	• <NCTS> • <ECS>

		« Application »	• {Central Application}
			  • <CS/MIS>
			  • <SMART>
			• {National Application}
			  • <NTA>

		« Communication Channel »	• {Internal Communication Channel} • {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.11 System for Management of Reference Data

Cartography



<System for Management of Reference Data>

{Trans-European Centralised System}

Supports the central maintenance of reference data.

Business Processes

Functional perspective

- <Maintenance of Reference Data>

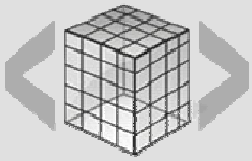
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	• <NCTS> • <ECS> • <EMCS Phase 0>

		« Application »	• {Central Application}
			  • <CS/RD>
			  • <SEEDv0>
			  • <DDS>
			  • <Surveillance>
			• {National Application}
			  • <NTA>
			  • <EWSE>
			  • <MVS>

		« Communication Channel »	• {Internal Communication Channel} • {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.12 System for Management of COL

Cartography



<System for Management of COL>

{Trans-European Coordinated System}

Supports the central maintenance of the Customs Office Lists.

Business Processes

Functional perspective

- <Maintenance of Reference Data>

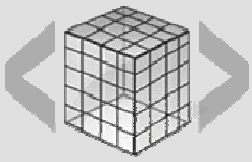
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	• <NCTS> • <ECS> • <EMCS Phase 0>

		« Application »	• {Central Application}
			  • <CS/RD>
			  • <DDS>
			• {National Application}
			  • <NTA>

		« Communication Channel »	• {Internal Communication Channel} • {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.13 System for Chemical Substances Inventory

Cartography



<System for Chemical Substances Inventory>

{Trans-European Coordinated System}

The main goal of the system is to provide a central repository with information on chemical substances, relevant to the customs departments in order to ascertain proper control over their movements (import, export, transit).

Business Processes

Functional perspective

- <Maintenance of Reference Data>

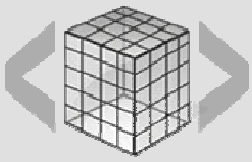
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {Central Application}
			  • <ECICS>
			  • <DDS>
			• {National Application}
			  • *{Nationally Developed Application}*

		« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.14 System for IPR Management

Cartography



<System for IPR Management>

{Trans-European System}

The main objective of the system is to manage information concerning the IPR (Inward Processing Relief) authorizations.

Business Processes

Functional perspective

- <Customs – Import **- Authorizations>**
- <Maintenance of Reference Data>

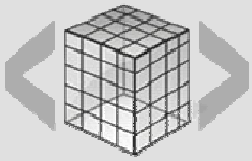
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] • [National Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {Central Application}
			  • <ISPP>
			  • <TARIC>
			• {National Application}
			  • *{Nationally Developed Application}*

		« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel}

4.3.1.15 System for Specimens Maintenance

Cartography



<System for Specimens Maintenance>

{Trans-European Coordinated System}

The purpose of the system is to disseminate specimen information quickly and accurately throughout the EC and its partner countries.

Business Processes

Functional perspective

- <Maintenance of Reference Data>

Interoperability perspective

Area	Classification/Model
« Domain of Responsibility »	• [National Domain] • [DG TAXUD Domain] • [Common Domain]

Application perspective

« Architectural Model »

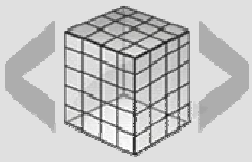
« System »	

« Application »	• {Central Application}
	  • <SMS>
	• {National Application}
	  • *{Nationally Developed Application}*

« Communication Channel »	• {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.16 Risk Management System

Cartography



<Risk Management System>

{Trans-European Coordinated System}

This system is an essential element in the strategic development and implementation of a standard Risk Management Framework in the customs services of the European Union. Its purpose is to ensure the management of risk information and the exchange of risk information between National Risk Analysis Centers (NRACs - including DG TAXUD) and Customs Offices (COs, i.e. ports, airports…) in the Member States.

Business Processes

Functional perspective

- <Customs – Risk Management>

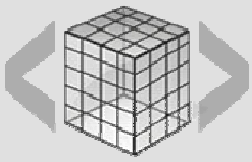
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] • [DG TAXUD Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {Central Application}
			  • <RIF>
			• {National Application}
			  • *{Nationally Developed Application}*

		« Communication Channel »	• {Government-to-Government Communication Channel} • {Internal Communication Channel}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.1.17 Vat Information Exchange System (VIES System)

Cartography



<Vat Information Exchange System (VIES System)>

{Trans-European System}

Supports exchange and dissemination of information concerning VAT registration and turnover of traders in EU.

Business Processes

Functional perspective

<Taxation – Value Added Tax – VAT Information Exchange>

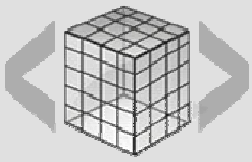
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] • [DG TAXUD Domain] • [Common Domain] • [External Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {National Application}
			  • <VIES>
			• {Central Application}
			  • <VIES-on-the-Web>
			  • <VIES Monitoring>
			  • <VIES-on-the-Web Monitoring>
			  • <VIES-on-the-Web Configuration Tool>
			  • <VIES & VoW Statistics>
			  • <VIES Test Application>

		« Communication Channel »	• {Government-to-Citizen Communication Channel} • {Government-to-Government Communication Channel} • {Internal Communication Channel}

4.3.1.18 Vat-on-e-Services System

Cartography



<Vat-on-e-Services>

{Trans-European System}

Provides facilities to exchange information concerning taxation (VAT) of e-services between Member States of EU.

Business Processes

Functional perspective

<Taxation – Value Added Tax – VAT Information Exchange>

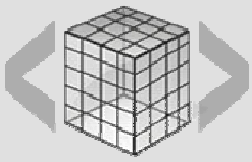
	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] • [DG TAXUD Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	

		« Application »	• {National Application}
			  • <Vat-on-e-Services>
			• {Central Application}
			  • <VAT-on-e-Services RTA>

		« Communication Channel »	• {Government-to-Government Communication Channel}

4.3.1.19 Taxation of Savings System

Cartography



<Taxation of Savings System>

{Trans-European System}

Provides Member States of EU with facilities to exchange information relevant for taxation (PIT) of savings.

Business Processes

Functional perspective

<Taxation –Personal Tax, Company Tax and other Taxes (Information)>

Interoperability perspective

Area	Classification/Model
« Domain of Responsibility »	• [National Domain] • [DG TAXUD Domain] • [Common Domain]

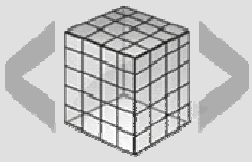
Application perspective

« Architectural Model »

« System »	
« Application »	• {National Application} • <Taxation of Savings> • {Central Application} • <Taxation of Savings Test Tool>
« Communication Channel »	• {Government-to-Government Communication Channel}

4.3.1.20 Exchange of Forms System (VIES 2)

Cartography



<Exchange of Forms System (VIES 2)>

{Trans-European System}

Provides authorized authorities of Member States of EU with the facility to exchange tax information and also to request to undertake certain administrative actions.

Business Processes

Functional perspective

<Taxation – Value Added Tax – VAT Information Exchange>

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] • [DG TAXUD Domain] • [Common Domain]
Application perspective	« Architectural Model »	« System »	

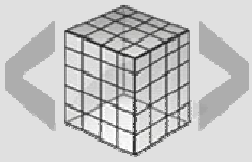
		« Application »	• {National Application}
			  • <E-Forms>
			• {Central Application}
			  • <E-Forms Test Tool>

		« Communication Channel »	• {Government-to-Government Communication Channel}

4.3.2 Applications

4.3.2.1 AEO

Cartography



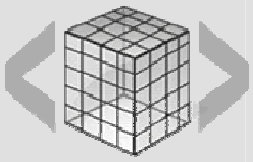
<AEO>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the process of dissemination of information concerning the Authorized Economic Operators to NA and to citizens.
Business perspective	« Services for Citizens »		• [Taxation] • [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Back Office Services] Data loading, Data Exchange • [Business Analytical Services] Reporting
	« Functional Model »		• {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.2 ART

Cartography



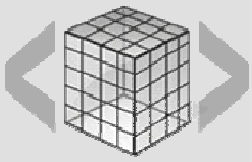
<ART>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the internal DG TAXUD process of planning and monitoring the activities and expenses connected to it.
Business perspective	« Services for Citizens »		• [Taxation] • [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data loading, Data Exchange • [Business Analytical Services] Reporting
	« Functional Model »		• {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.3 CN

Cartography



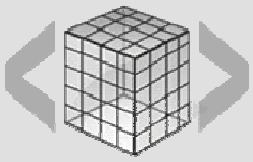
<CN>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the internal DG TAXUD process allowing the management and the preparation of Combined Nomenclature Publications.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification • [Business Analytical Services] Reporting
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.4 Central Services/Management Information System (CS/MIS)

Cartography



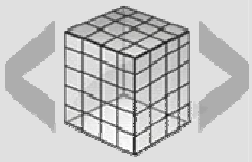
<CS/MIS>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides the statistics on the performance of NCTS and ECS systems, the management of scheduled unavailabilities of the business actors (i.e. NA), and the "MRN follow-up".
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Warehouse • [Business Analytical Services] Reporting, Analysis and Statistics.
	« Functional Model »		• {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel} • {DG TAXUD Domain Relay} with {Internal Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.5 Central Services/Reference Database (CS/RD)

Cartography



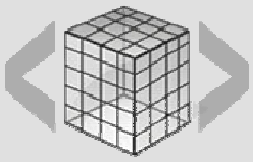
<CS/RD>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the maintenance of reference data for NCTS and ECS systems, as well as the maintenance of the Customs Office List (COL).
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Sharing
Functional perspective	« Business Function Service »		• [Back Office Services] Data Exchange, Data Warehouse • [Business Analytical Services] Reporting.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel} • {DG TAXUD Domain Relay} with {Internal Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.6 DDS

Cartography



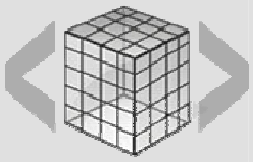
<DDS>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application is used for disseminating the information to citizens via the Europa Web site.
Business perspective	« Services for Citizens »		• [Taxation] • [Customs]
	« Mode of Delivery »		• {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Sharing
Functional perspective	« Business Function Service »		• [Back Office Services] Data Loading. • [Support Services] Communication Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {External Domain Relay} with {Government-to-Citizen Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.7 EBTI

Cartography



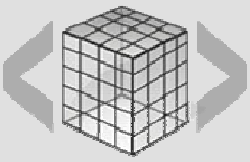
<EBTI>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] Collect and Disseminate Binding Tariff Information.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data classification
	« Functional Model »		• {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.8 ECICS

Cartography



<ECICS>

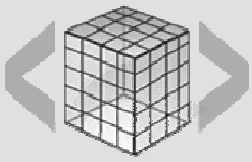
{Central Application}

The ECICS facilitates the maintenance and consultation of the European Customs Inventory of Chemical Substances, described by chemical names and synonyms in all official languages, CAS (Chemical Abstract System) references and chemical structure drawings and references to documents on the classification decision.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports internal DG TAXUD process of maintenance of European Customs Inventory of Chemical Substances.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification, Data Loading/Archiving (from WHO or ESIS), Data Exchange, Data Classification, Data Extraction/Transformation • [Business Analytical Services] Reporting.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.9 EWSE

Cartography



<EWSE>

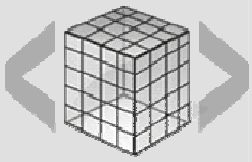
{National Application}

This application supports the exchange of warnings about excitement movement.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application supports the exchange of warnings about excitement movement.
Business perspective	« Services for Citizens »		• [Taxation]: Excise duties
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Support Services]: Collaboration Management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• <EWSE e-forms>
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.10 ECS National Application

Cartography



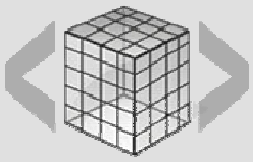
<ECS National Application>

{National Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application plays role of NA agent in <ECS> system.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services]: data maintenance, data classification
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {External Domain Relay} with {Government-to-Citizen Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <ECN>
		« Back-end Services »	• <ECN+>
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Nationally Developed Application} • {Centrally Developed Application} **(ECN+/ECN)**

4.3.2.11 ISPP

Cartography



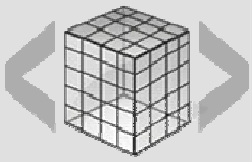
<ISPP>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] Disseminates community custom procedures with an economic impact.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.12 MVS

Cartography



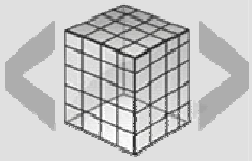
<MVS>

{National Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application supports the execution of queries about actual movements data.
Business perspective	« Services for Citizens »		• [Taxation]: Excise duties
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Support Services]: collaboration management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• <MVS e-forms>
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.13 NTA

Cartography



<NTA>

{National Application}

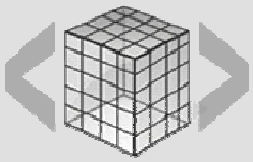
The application manages transit movements of a National Administration in an NCTS compliant manner by:

- Processing messages from, and responding to, the trader's systems;
- Managing the international exchange of information about transit movements with the transit systems of other NAs;
- Providing a mechanism for manual input by the NA's Customs Officers to control transit movements, and input data when the trader's systems are not available;
- Managing the exchange of information with the appropriate Guarantee Management System;
- Managing the exchange of data with Central Services.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application is deployed in the National Domain, playing role of NA agent in <NCTS> system.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		[IT Management]: Information Management System and Network Monitoring
Functional perspective	« Business Function Service »		• [Process Automation Services] Process Management, Process Tracking/Monitoring, Exception Handling, Routing and Scheduling • [Back Office Services] Data Exchange, Data Warehouse
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {External Domain Relay} with {Government-to-Citizen Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <ECN>
		« Back-end Services »	• <MCC> (Transit Movements) • <GMS> (Guarantee Management)
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Nationally Developed Application} **(NDTA)** • {Centrally Developed Application} **(MCC/GMS/ECN)**

4.3.2.14 RIF

Cartography



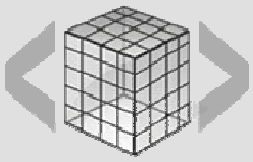
<RIF>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports Risk Management Framework.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification, Data Warehouse • [Business Analytical Services] Reporting, Analysis and Statistics.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• <RIF e-forms>
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.15 SEEDv0

Cartography



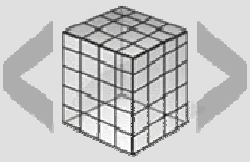
<SEEDv0>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides reference data for use in EMCS system.
Business perspective	« Services for Citizens »		• [Taxation]: Excise duties
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	«Resource Management»		• [Back Office Services] Data Warehouse, Data Exchange. • [Business Analytical Services] Reporting.
	« Business Function Service »		• {Centralized Process} • {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.16 SMART

Cartography



<SMART>

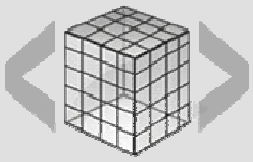
{Central Application}

The main purpose of the SMART is to expand the scope of the monitoring of NCTS and ECS operations by having the possibility to execute flexible queries on the operational data, generate statistics, identify open movements in the system and collect data on abnormal behaviour and in general maintain an overview of NCTS and ECS Operations.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] Processes statistical data for NCTS and ECS systems.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Warehouse • [Business Analytical Services] Reporting, Analysis and Statistics.
	« Functional Model »		• {Centralized Process} • {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.17 SMS

Cartography



<SMS>

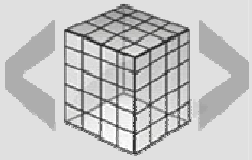
{Central Application}

Paper-based information about specimens is captured by DG TAXUD staff which validates and enters information into the application. Inquiries can be performed on the information according to various criteria, both by the DG TAXUD staff and the National Administrations.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain]
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification, Data Loading/Archiving, Data Exchange, Data Classification, Data Extraction/Transformation, Data Warehouse • [Business Analytical Services] Reporting.
	« Functional Model »		• {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.18 Standard Transit Test Application (STTA)

Cartography



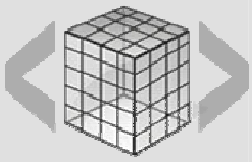
<STTA>

{National Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application provides testing services for ECS and NCTS applications.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel} to communicate with local applications in "local loop".
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.19 Surveillance

Cartography



<Surveillance>

{Central Application}

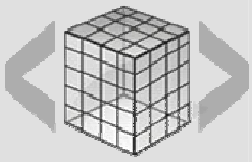
The Surveillance application enables DG TAXUD to supervise the imports and exports for particular products. The Member States are able to send directly statistical information coming from an import or export transaction after the declaration has been finalized for the goods under surveillance.

It includes Reference Data maintenance as well.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the surveillance of import and export of certain goods to EU countries.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification, Data Warehouse • [Business Analytical Services] Reporting.
	« Functional Model »		• {Coordinated Process} • {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.20 Suspensions

Cartography



<Suspensions>

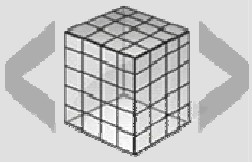
{Central Application}

The Suspensions application supports the legislative work for regulations covering the suspensions of autonomous tariff duties and quotas for certain products. It facilitates the management and consultation of suspensions and provides a tool for the publication of the suspension regulation in the official journal. It also generates working documents, which are discussed with Members States administrations during the preparation of such a regulation

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports internal DG TAXUD process of preparation of the regulation, allowing the management of autonomous quotas and suspensions.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	.«Resource Management»		• [IT Management]: Information Management
Functional perspective	«Resource Management»		• [Back Office Services] Data Classification, Data Warehouse, Data Exchange
	« Business Function Service »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.21 TARIC

Cartography



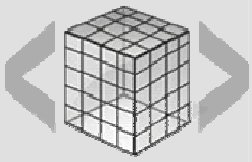
<TARIC>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the management of tariff information.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Back Office Services] Data Classification, Data Warehouse • [Business Analytical Services] Reporting.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.22 Taric Reports

Cartography



<Taric Reports>

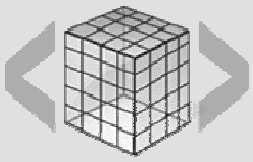
{Central Application}

Taric Reports application replaces and expands the reporting capabilities provided originally by the Taric application.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the reporting of tariff information, specifying the Customs duty categorization.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Business Analytical Services] Reporting.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.23 TQS

Cartography



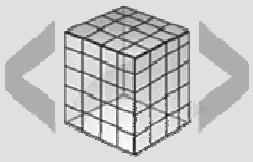
<TQS>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application supports the management of tariff quota.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Management
Functional perspective	« Business Function Service »		• [Back Office Services] Data exchange • [Business Analytical Services] Reporting.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.24 TTA

Cartography



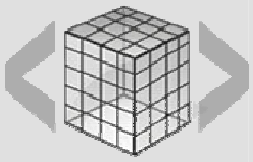
<TTA>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides testing services for <ECS> and <NCTS> applications.
Business perspective	« Services for Citizens »		• [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		• {Centralized Process} • {Coordinated Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel} to communicate with other national applications being part of the tested system
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.25 Web2000

Cartography



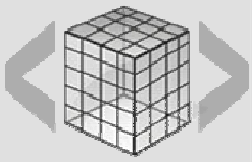
<Web2000>

{Central Application}

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application is used for disseminating information about NCTS and ITMS to NA and DG TAXUD contractors.
Business perspective	« Services for Citizens »		• [Taxation] • [Customs]
	« Mode of Delivery »		• {Central Services for NA} • {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Sharing
Functional perspective	« Business Function Service »		• [Support Services] Communication Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel} • {External Domain Relay} with {Government-to-Citizen Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.26 VIES

Cartography



<VIES>

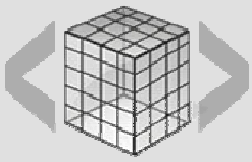
{National Application}

The application supports the exchange of VAT registration and turnover information of traders in EU, between interested Member States.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application supports the exchange of VAT information.
Business perspective	« Services for Citizens »		• [Taxation]: Value Added TAX (VAT)
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Support Services]: collaboration management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application} • {Nationally Developed Application}

4.3.2.27 VIES-on-the-Web

Cartography



<VIES-on-the-Web>

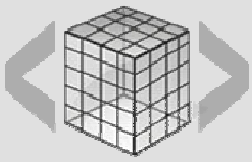
{Central Application}

Supports dissemination of information concerning VAT registration of traders in EU, to citizens via the Europa Web site.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application is used for disseminating the information to citizens via the Europa Web site.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Sharing
Functional perspective	« Business Function Service »		• [Support Services] Communication Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {External Domain Relay} with {Government-to-Citizen Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.28 VIES Monitoring

Cartography



<VIES Monitoring>

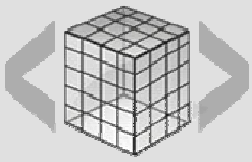
{Central Application}

The application provides the monitoring capability of the VIES applications across Member States.

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application is used for constantenous monitoring of National VIES applications availability.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: System and Network Monitoring
Functional perspective	« Business Function Service »		• [Support Services] System Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.29 VIES-on-the-Web Monitoring

Cartography



<VIES-on-the-Web Monitoring>

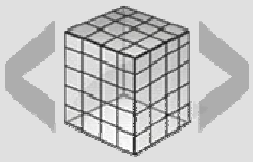
{Central Application}

The application provides the monitoring capability of the services provided by the Vies-on-the-Web application

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] It is used for constantenous monitoring of the services provided by the Vies-on-the-Web application.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: System and Network Monitoring
Functional perspective	« Business Function Service »		• [Support Services] System Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.30 VIES-on-the-Web Configuration Tool

Cartography



<VIES-on-the-Web Configuration Tool>

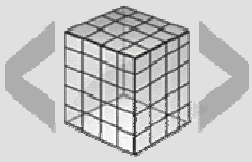
{Central Application}

Provides the configuration management capabilities of the VIES-on-the-Web application

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] It is used to manage the parameters of the VIES-on-the-Web application.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Maintenance
Functional perspective	« Business Function Service »		• [Support Services] System Management Security Management
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel}
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.31 VIES & VoW Statistics

Cartography



<VIES & VoW Statistics>

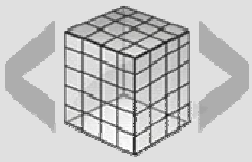
{Central Application}

Collects and processes VIES related operational information from various sources in several formats. On the basis of those information it provides consolidated statistics concerning VIES System and VIES-on-the-WEB

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] Collects and processes different information from various sources in several formats. On the basis of those information it provides consolidated statistics concerning VIES System and VIES-on-the-WEB. The statistics collected concern mostly VIES related traffic and MS VIES Applications availability.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Maintenance IT Infrastructure Maintenance
Functional perspective	« Business Function Service »		• [Back Office Services] Data Loading/Archiving • [Support Services] Knowledge Management
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {DG TAXUD Domain Relay} with {Internal Communication Channel}
		« Broker »	• <Email> • <FTP>
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.32 VIES Test Application

Cartography



<VIES Test Application>

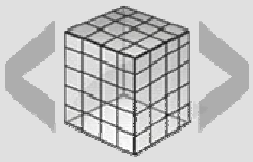
{Central Application}

The application provides testing services for VIES applications

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides testing services for VIES applications.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• {Synchronous Layer} • {Asynchronous Layer}
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated} • {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.33 Taxes in Europe

Cartography



<Taxes in Europe>

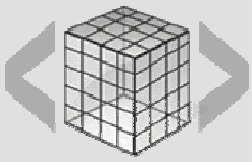
{Central Application}

Enables anyone with Internet access to consult information on tax and non-tax liabilities, which are in force in any of Member States of European Union

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] Enables anyone with Internet access to consult information on tax and non-tax liabilities, which are in force in any of Member States of European Union.
Business perspective	« Services for Citizens »		• [Taxation]:Personal tax, company tax and other taxes
	« Mode of Delivery »		• {Direct Services for Citizens}
	«Resource Management»		• [IT Management]: Information Sharing
Functional perspective	« Business Function Service »		• [Support Services] Communication Management. • [Back Office Services] Data Loading/Archiving.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {External Domain Relay} with {Government-to-Citizen Communication Channel} • {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	
		« Back-end Services »	<Tax Form> <search engine>
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.34 E-Forms

Cartography



<E-Forms>

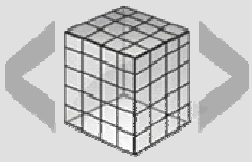
{National Application}

Supports exchange of information between interested Member States using strictly defined messages

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] Supports exchange of information between interested Member States using strictly defined messages.
Business perspective	« Services for Citizens »		• [Taxation]
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Support Services]: collaboration management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• <defined e-forms>
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application} • {Nationally Developed Application}

4.3.2.35 Taxation of Savings

Cartography



<Taxation of Savings>

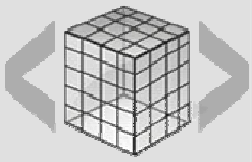
{National Application}

Supports exchange of information between interested Member States. The information exchanged, concerns payment of interests mad in the Member States

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] Supports exchange of information between interested Member States. The information exchanged, concerns payment of interests mad in the Member States.
Business perspective	« Services for Citizens »		• [Taxation]:Personal tax, company tax and other taxes
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Support Services]: collaboration management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• <ToS forms>
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application} • {Nationally Developed Application}

4.3.2.36 Vat-on-e-Services

Cartography



<Vat-on-e-Services>

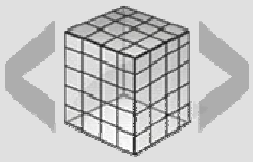
{National Application}

The application supports the exchange of VAT information concerning certain cases of e-services

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [National Domain] The application supports the exchange of VAT information concerning certain cases of e-services.
Business perspective	« Services for Citizens »		• [Taxation]: Value Added TAX (VAT)
	« Mode of Delivery »		• {Transfers to NA}
	«Resource Management»		• [IT Management]: Information Management Information Sharing
Functional perspective	« Business Function Service »		• [Support Services]: collaboration management.
	« Functional Model »		• {Distributed Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application} • {Nationally Developed Application}

4.3.2.37 Vat-on-e-Services RTA

Cartography



<VAT-on-e-Services RTA>

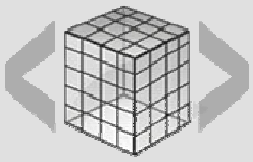
{Central Application}

The application provides testing services for Vat-on-e-Services applications

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides testing services for Vat-on-e-Services applications.
Business perspective	« Services for Citizens »		• [Taxation]:Value Added TAX (VAT)
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• {Business Layer}
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.38 Generic Test Tool

Cartography



<Generic Test Tool>

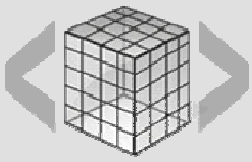
{Central Application}

The application provides framework for remote testing of applications

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides framework for remote testing of applications.
Business perspective	« Services for Citizens »		• [Taxation] • [Customs]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		
Application perspective	« Architectural Model »	« Domain Relay »	
		« Broker »	
		« Back-end Services »	
	« Mode of Operation »		• {Centrally Operated} • {Nationally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.39 E-Forms Test Tool (GTT Plug-in)

Cartography



<E-Forms Test Tool (GTT Plug-in)>

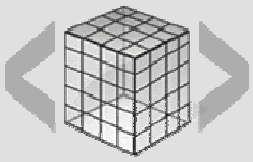
{Central Application}

The application provides testing services for E-Forms applications

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides testing services for E-Forms applications.
Business perspective	« Services for Citizens »		• [Taxation]
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• <defined e-forms>
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

4.3.2.40 Taxation of Savings Test Tool (GTT Plug-in)

Cartography



<Taxation of Savings Test Tool (GTT Plug-in)>

{Central Application}

The application provides testing services for Taxation of Savings applications

	Area		Classification/Model
Interoperability perspective	« Domain of Responsibility »		• [DG TAXUD Domain] The application provides testing services for Taxation of Savings applications.
Business perspective	« Services for Citizens »		• [Taxation]:Personal tax, company tax and other taxes
	« Mode of Delivery »		• {Central Services for NA}
	«Resource Management»		• [IT Management]: Software Development
Functional perspective	« Business Function Service »		• [Support Services] Testing Management.
	« Functional Model »		• {Centralized Process}
Application perspective	« Architectural Model »	« Domain Relay »	• {Common Domain Relay} with {Government-to-Government Communication Channel}
		« Broker »	• <CCN Mail 2>
		« Back-end Services »	• <ToS forms>
	« Mode of Operation »		• {Centrally Operated}
	« Mode of Development »		• {Centrally Developed Application}

5 Appendix A: Detailed analysis

This appendix provides the gathered information about the analysed systems and applications. It includes the architecture descriptions of each of them.

6 Appendix B: Architectural Models (Visio format)

This appendix provides the Visio format of the figures presented in **Chapter 3**.

7 Appendix C: Technological Infrastructure Plan (TIP)

This appendix provides the DG TAXUD Technological Infrastructure Plan.

(Also available at I:\Common\TIP\html\index.html)