



UN/CEFACT

Sectoral PDA, Travel and Tourism

BUSINESS REQUIREMENTS SPECIFICATION (BRS)

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Business Process: Destination Travel Information Process

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Document History

Phase	Status	Date Last Modified

Change Log

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Date of Change	Version	Paragraph Changed	Summary of Changes
2013.10.08	1.0		First draft
2013.11.04	2.0	Business Partners View	
2014.01.13	2.1	Overall	Change the opinion of Japan
2014.01.22	2.2	Overall	Change the opinion of INDIA
2014.02.14	25	1.Preamble 2.OBJECT	South Korea to the world of limited scope modification
2014.02.24	2.6	Preamble Business Requirements View Definition of terms Class diagram	Note that the three utility processes in Figure 5 are to be described later in a follow-up document

DTI BRS

1. Preamble

As travel, tourism and leisure (TT&L) industry has grown worldwide, inbound and outbound travel agencies have developed their own travel information system to attract more tourists. However, information provided by different travel agencies is often non-standard and available only in a limited number of languages. Moreover, such system systems are redundant, thereby causing unnecessary costs as a whole. These issues have led necessity of establishing a standardized travel information system.

The lack of consolidated standards of travel information has prevented tourists from accessing to desired information. Specifically, tourists often experience difficulty finding accurate locations of attractions when it is a common name for a place or called by a generic name. For example, the name of an area in Korea, “Myeong-dong” is used in multiple entities such as restaurants, coffee shops and lodging facilities. A famous shopping site “Namdaemun market” is commonly called simply “Namdaemun” while “Namdaemun” itself refers to one of historic gates near the market. These non-standardized location names make it even difficult for travel agencies in overseas to collect accurate information. Furthermore, this problem can be a potential obstacle to prompting TT&L industry in the country.

Another issue is redundant investment in developing travel information systems. Online travel agencies have rapidly grown up as individual tourists increase. Online travel agencies process raw information in the form of online content and, based on them, provide new reservation services or local information. In particular, location information services are heavily used in travel planning or comparing prices. However, a number of companies have invested tremendous amount of resources in establishing their own location information systems. As a result, this has caused waste of resources in society as a whole.

In order to address this ineffectiveness and inefficiency, we propose a standardized information system, Destination Travel Information (DTI). We expect that this system is useful not only for TT&L industry but also, as a tourism infrastructure for e-commerce, other industry sectors linked with the common aim of serving the travel needs of tourists. For example, geographic information in the system is used for pinpointing the exact location using the latitude and longitude lines. This can be utilized for the identification Point Of Interest (POI), navigation and location-based storytelling as well. In particular, this can be adopted in public transportation, such as bus, train and airplane, which are becoming smarter due to recent IT technologies.

2. References

1. B2B E-Commerce for the National Tourism Industry Standardization (2009,MCST)
**Written in Korean*
2. A study on the Information Technology Architecture of Travel Business Process system(KITA,2004)
3. UN/CEFACT –ebXML Core Components Technical Specifications version 2.01 – ISO 1500-5
4. UN/CEFACT Business Requirements Specification version 1.5 (CEFACT/ICG/005)
5. Unified Modelling Language (UML version 1.4)
6. UN/CEFACT CC Library version 2.0 & 3.0
7. eb-XML TR-Naming Convention for Core Components version 1.04 (10 May 2001)

3. Objective

This document is to provide a guideline to establish DTI, which aims to bring an opportunity to promote and foster tourist attractions of each country through more convenient and accurate information exchange.

This document clarifies the usability of the information by explaining the structure of DTI as well as the standards to determine and classify the data. The structure and the flow of information exchange between providers and users of the information will be illustrated later in this document. In addition, this document suggests a basic guideline for service suppliers that use DTI to create a new business model.

This document is based on planning phase of individual travelers who do not purchase package tour items. The planning phase consists of broad information collection, location choice, detailed information research, scheduling, budgeting, reservation and payment, departure and arrival and writing a review. This document illustrates and analyzes service models for the travel planning via DTI. For example, when collecting information for a specific place, a traveler can find its historical and current name of the place, and distinguish two different names of the same place, if any. Virtual tour, which enables travelers to virtually experience their travel plan, can also be available through the use of DTI.

The business documents are composed of Business Information Entities (BIEs), which when available, are taken from the library of reusable business information entities and when not found, are proposed as new BIEs. The contents of the business documents and the BIEs are presented using class diagrams.

4. Scope

4.1 Description

This document targets TT&L industry. However, it can be utilized by any industry interested in doing business in tourism or other related areas (e.g. hotels and restaurants), individuals or organizations.

4.2 Contexts

DTI BRS

Categories	Description and Values
Business process	Destination Travel Information
Product classification	In all content
Industry classification	TT&L industry
Geopolitical	global
Official constraint	none
Business process role	In all content
Supporting role	In all content
System capabilities	In all content

Figure 1. Cross Industry Invoice BRS

TT&L industry involved with multiple parties, for example, government administrators, service providers, travel agencies and customers. In perspective of information access in the DTI system, they can be divided into two groups; information providers and users.

Information providers are again divided into public and private sectors. Their roles are registering data such as geographic standards or business information into the DTI system. On the other hand, information users utilize it in various ways. For example, service suppliers (e.g. travel agencies) can deliver the information directly to customers or process it to develop new service items. Since service suppliers receive feedbacks or reviews (e.g. POI, navigation or storytelling) from customers, they also can play a role as information providers.

5. Business Requirements Elaboration

This document specifies a list of attributes suggested by information users to implement DTI and/or provide services. This document also defines a number of communication processes to integrate requested conditions and attributes.

5.1 Business Requirements Lists

Business requirement statements and corresponding transaction names are described based on the needs analysis of business models that utilize DTI.

Table 2. is a list of projected business plans and requests to implement DTI.

Number	Business Requirement Statement	Business Transaction Name for this Req.
A.1	User-friendly search service that provides reliable information of certain countries and/or cities	Conditional search
A.2	An automatic information extraction feature that allows users to use an image file to find a geographical coordinates and/or to find pictures taken in searched area	Location information collection (Automatic Information Extraction Feature)
A.3	A video that records and tracks travel routes which allow users multiple position and courses trajectory	Multiple position Registration
A.4	-Location information specified by its longitude and latitude coordinates -The information is up to date and each location cannot be registered with multiple names	Registration management
A.5	- A service that captures certain area by connecting pictures taken in different locations - Users can search and register the information about captured area	Geofencing Registration (Boundary specification)
A.6	Public transportation navigation service to find directions for transit routing	Public transportation information
A7	A service that distinguishes a geographical area and an accessible route of an airport	Schedule planning, Route planning
A.8	Prescribed classification codes that enables travelers to find	Restaurant

	description and price ranges of food and/or a specific restaurant	business codification
A.9	DTI requires predetermined classification codes for the accommodations information providers with the rates of amenities and accommodations	Category Registration
A.10	-A public entity can certify the registered data and establish standards [Need to define a standardized of SOPs] -The standard helps FIT and travel agencies gathering tour information by clarifying the categories of the information	Information Search Registration
A.11	DTI allows authorized private sectors to commercialize and recreate DTI with minimal registration process	Information Registration
A.12	DTI users do not have restrictions on access across the nations Users of any country can have an access to different country's DTI with minimal registration process	User Registration

Figure 2. Business Requirement Statement

Data Requirement Statement Template

In order to construct a destination information system, a solid standard is required to classify the accumulated data in addition to the fundamental location data. Table 3. details the classification categories to manage and reflect the continual change of data more effectively.

Number	Data Requirement Statement
B.1	Basic information collection (name, description, contact information, official website and business hours) Reliable and credible information to be certified by the government
B.2	Longitude/latitude, observation angle, distance and direction
B.3	Registration record management time, on-site POI media registration time
B.4	Official name of attraction and the classification standards Classification categories example: Continent/Country/Region/City or State

B.5	Classification category: accommodations, options or packages Attractions, amenities, public transportations
B.6	Central DTI consists of government owned assets (attractions), commercial and Private Each country has it own centralized DTI Connection
B.7	Information management: original copy, information user track, information usage track) Conduct statistical analysis to assess the status of information utilization and the user response to provide quality information
B.8	Coded categories are classified by country/state or city/products/occasion

Figure 3. Data Requirement Statement

5.2 Definitions Business Terms

Table 4. specifies business terms used in this document. Those terms and definitions are to help understanding different phases of the implementation and utilization of the DTI system.

Terms	Definitions
Travel Destination	Destination that reflects an individual traveler's POI
Travel Schedule	A list of travel destinations without considerations of time and location place
Travel Route	A travel schedule that states: i) Calculate the distance between one place to another and ii) Estimate time taken to reach one place to another
Public DTI exchange	Information exchange about government-owned assets This information must be certified by an adequate government organization
Private DTI exchange	Information exchange about privately owned assets such as privately owned attractions, leisure and entertainment facilities, restaurants, accommodations and architectures
Private DTI	Registered FITs share their experience and information through DTI

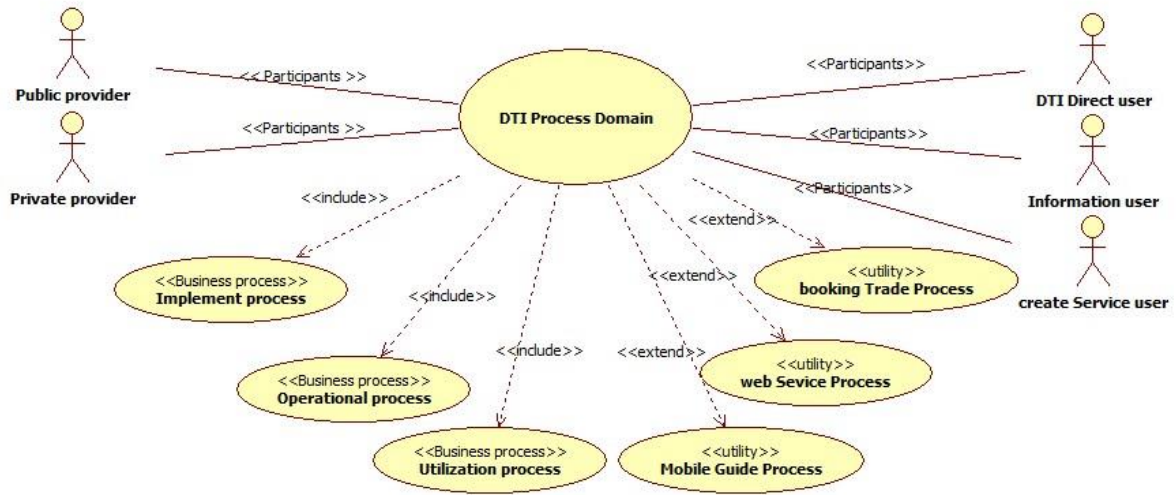
DTI Provision	Users can obtain information from DTI servers through API
Destination POI	Travel destination location
Indicator POI	The center or main spot of a destination to indicate the location on the map <i>* Indicator POI provides location information of the center of a park or a building whereas Destination POI leads travelers to the entrance(s) of a building or a park.</i>
Emotional POI	Destination POI with emotional approach to provide a unique experience for certain attractions Examples of emotional POI include suggested locations for the night view of Seoul or selected spots to find the best view of an attraction. .

Figure 4. Business Terms and Definitions

5.3 Business Requirements View

Business Requirements view must be formalized with adequate UML: Activity diagram, class diagram, business choreography diagram and worksheet. Detailed UMLs will be provided in an additional document.

5.3.1 Business Domain View



5.3.1.1 Business Process Worksheet

Form for Business Process	
General	
Name	Implementation Business Process
Description	<p>Process to input basic information of DTI (travel destination, geographical coordinates, basic description, classification code and key word for searching option)</p> <p>Consists of a number of sequential phases including information</p> <p>Figure 5.Business Domain Use Case Diagram</p> <p>information disclosure</p>

Form for Business Process	
General	
Name	Operating Business Process
Description	<p>Operating system maintenance process to update information and analyze the information quality by assessing the magnitude of content usage</p>

Form for Business Process	
General	
Name	Utilization Business Process
Description	<p>Process to foster value-creating project or businesses using DTI</p> <ul style="list-style-type: none"> - Users can directly obtain and recreate information from DTI - Business entities can utilize DTI to create new business models or travel products

Figure 6. Form for Business Process

Form for Utility	
General	
Name	Booking Trade Process
Description	<p>숙박시설을 예약하고 이름에 관련하지 않고 근접 숙박 시설에 대한 거래검색과 이름이 다른 두개이상의 전자거래에서 위치를 이용한 동일 호텔 여부를 확인함</p> <p>예) 숙박 시설 고유번호</p> <p>First, make reservation and Check the hotel 2 ways : near acomandation trades that does not related name, and different name more than 2 online trades.</p> <p>Ex) accommodation signal number</p>

Form for Utility	
General	
Name	Web service Process
Description	지도 위에 위치를 표시하기 위한 지리좌표 서비스와 거리를

	<p>재기 위한 두지점의 좌표를 이용한 여 계산, 일정표의 목적지를 근접 순서로 하여 최단거리 일정 만들기에서 서비스 예) 일정 작성, 지도표시.</p> <p>Calculate using Geo-location Service for presenting the location on the map and two locations for the know the farness, Service the at the plan making system in the length law.</p> <p>Ex) Planning the routine, presenting on the map</p>
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Form for Utility	
General	
Name	Mobile guide Process
Description	<p>목적지의 위치를 확인 하여 관광설명 포인트를 표시한다. 모바일 기기가 검출한 좌표를 이용하여 여행자간 커뮤니케이션 또는 목적지와의 관계를 현장에서 안내한다. 예) 길안내 모바일 어플, 여행자와 목적지의 위치적 관계</p> <p>Present the tourism explanation point by checking location of the destination.</p> <p>Explain communication and location relations between traveler through the geo-location came by mobile.</p> <p>Ex) Road- explaining application, locate-relations between traveler and destination.</p>

Figure 7. Form for Utility

5.3.1.2 Business Process Use Case & Utility Process

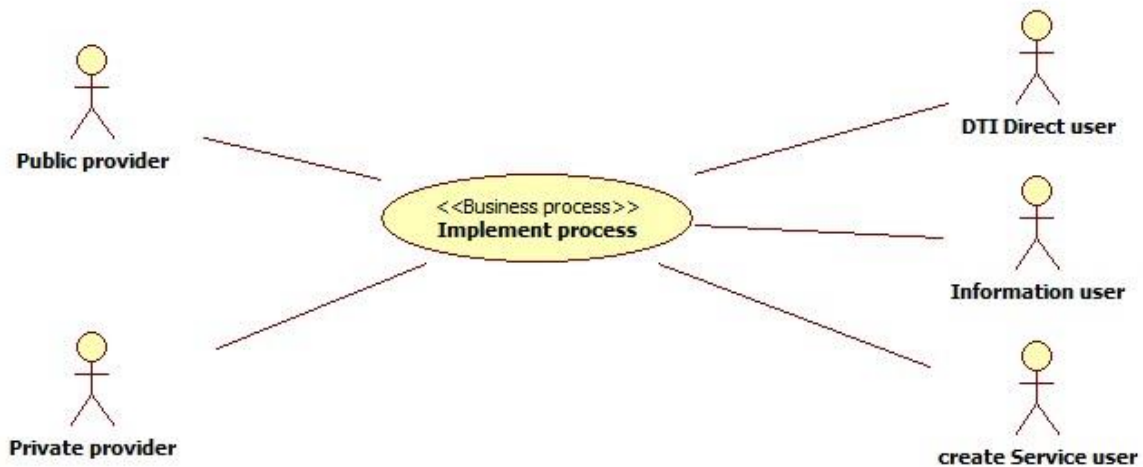


Figure 8. Business Process Use Case

Figure 9. Business Process Use Case

Business processes consist of implement, operation and development process. They can be used to create a new business model/method.

5.3.2 Business Partners View

Public provider: information provider certified by DTI server operators. Public DTI provider may have requirements to use the information

Private provider: individual users that share their own travel information through DTI servers

DTI users: information users with an access to the original information or partially disclosed information depending on the information provider. User can create or develop business or products using DTI.



Figure 7. Business Partners View

5.3.2.1 Information model definition – Class diagram

The class diagram of the destination travel information used in the Business Domain Use Case Diagram in Figure 5 is shown as follows in Figure 9.

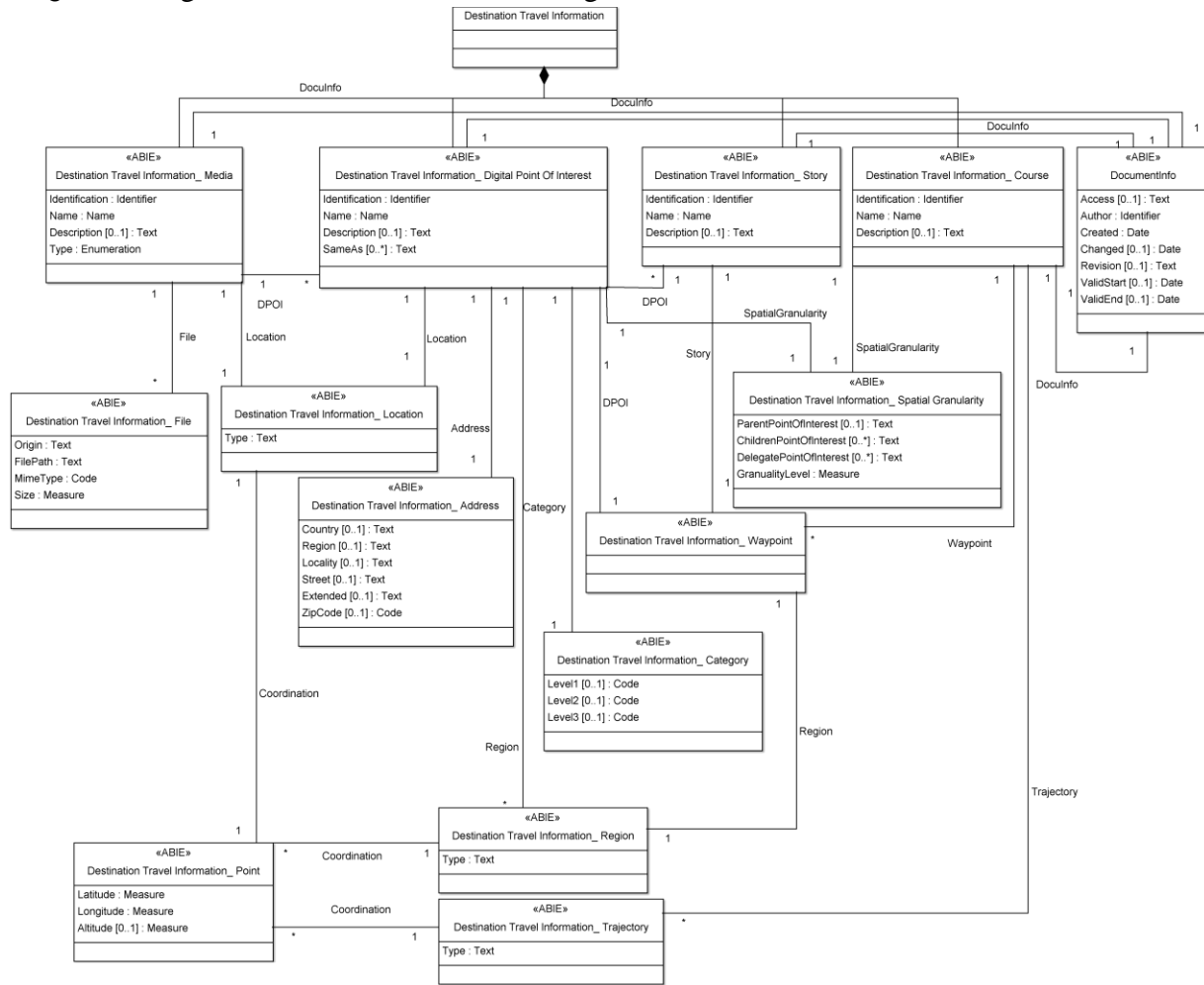


Figure 8. Destination Travel Information Conceptual Model – Classes and Attributes

5.3.2.2 Definition of terms

The definition of terms is shown in Figure 10.

Name	Definition
Destination Travel Information_Digital Point Of Interest	Point of Interest
Destination Travel Information_Digital Point Of Interest. Identification	A unique identifier that is automatically assigned by the system
Destination Travel Information_Digital Point Of Interest. Name	The name, expressed as text, of this DPOI
Destination Travel Information_Digital Point Of Interest. Description	The written description of features of this DPOI
Destination Travel Information_Digital	The representative position, expressed as GeoJSON

Point Of Interest. Location. Destination Travel Information_ Location	point, of this DPOI
Destination Travel Information_ Digital Point Of Interest. Region. Destination Travel Information_ Region	The physical region, expressed as GeoJSON polygon, of this POI
Destination Travel Information_ Digital Point Of Interest. SpatialGranularity. Destination Travel Information_ Spatial Granularity	Level of detail information that is classified based on the spatial information of this DPOI
Destination Travel Information_ Digital Point Of Interest. Address. Destination Travel Information_ Address	The administrative address of the place where this DPOI is located, including the house or office number and the name of the street, area, and town
Destination Travel Information_ Digital Point Of Interest. Category. Destination Travel Information_ Category	A string code that classifies features of this DPOI
Destination Travel Information_ Digital Point Of Interest. SameAs	A list of URLs used in other sites and/or services that represent the same place of this DPOI
Destination Travel Information_ Digital Point Of Interest. DocuInfo	Document metadata of this DPOI.
Destination Travel Information_ Course	Course information including DPOIs
Destination Travel Information_ Course. Identification	A unique identifier that is automatically assigned by the system
Destination Travel Information_ Course. Name	The name, expressed as text, of this course
Destination Travel Information_ Course. Description	The written description of features of this course
Destination Travel Information_ Course. Waypoint. Destination Travel Information_ Waypoint	A list of DPOI attributes constituting this course
Destination Travel Information_ Course. Trajectory. Destination Travel Information_ Trajectory	The physical line, expressed as GeoJSON line string, of this course
Destination Travel Information_ Course. SpatialGranularity. Destination Travel Information_ Spatial Granularity	Level of detail information that are classified based on the spatial information of this course
Destination Travel Information_ Course. DocuInfo	Document metadata of this Course.
Destination Travel Information_ Story	Story information using DPOIs
Destination Travel Information_ Story. Identification	A unique identifier that is automatically assigned by the system
Destination Travel Information_ Story. Name	The name, expressed as text, of this story
Destination Travel Information_ Story. Description	The written description of features of this story
Destination Travel Information_ Story. DPOI. Destination Travel Information_ Digital Point Of Interest	The list of DPOIs related to this story
Destination Travel Information_ Story. DocuInfo	Document metadata of this Story.
Destination Travel Information_ Media	Media
Destination Travel Information_ Media.	A unique identifier that is automatically assigned by

Identification	the system
Destination Travel Information_ Media. Name	The name, expressed as text, of this media
Destination Travel Information_ Media. Description	The written description of features of this media
Destination Travel Information_ Media. Type	The types of media. (photo, audio, video, panorama, web resource, et al.)
Destination Travel Information_ Media. File. Destination Travel Information_ File	A URI list of media files
Destination Travel Information_ Media. Location. Destination Travel Information_ Location	The physical location, expressed as GeoJSON point, where media is generated
Destination Travel Information_ Media. DPOI. Destination Travel Information_ Digital Point Of Interest	A URI list of DPOIs related to this media
Destination Travel Information_ Media. DocuInfo	Document metadata of this Media.
Destination Travel Information_ Category	DPOI classification code
Destination Travel Information_ Category. Level1	High-level classification code that is classified based on the general characteristics of DPOI
Destination Travel Information_ Category. Level2	Medium-level classification code that is classified based on the type characteristics of DPOI
Destination Travel Information_ Category. Level3	Low-level classification code that is classified based on the detailed characteristics of DPOI
Destination Travel Information_ Address	Address
Destination Travel Information_ Address. Country	Country name
Destination Travel Information_ Address. Region	States/county name
Destination Travel Information_ Address. Locality	City/town name
Destination Travel Information_ Address. Street	Village/street name + street code
Destination Travel Information_ Address. Extended	Detailed address
Destination Travel Information_ Address. ZipCode	ZIP code
Destination Travel Information_ Spatial Granularity	Level of detail information that are classified based on the spatial information
Destination Travel Information_ Spatial Granularity. ParentPointOfInterest	The URI of the upper level document
Destination Travel Information_ Spatial Granularity. ChildrenPointOfInterest	The list of URIs of lower level documents
Destination Travel Information_ Spatial Granularity. DelegatePointOfInterest	The list of URIs of extended DPOI services or servers
Destination Travel Information_ Spatial Granularity. GranularityLevel	The value, expressed as double, which represents the level of this objects in geospatial context, is categorized by the physical size of the area of DPOI.
Destination Travel Information_ Waypoint	A List of DPOI attributes constituting this course
Destination Travel Information_ Waypoint. DPOI. Destination Travel	A URI of DPOI constituting a course

Information_ Digital Point Of Interest	
Destination Travel Information_ Waypoint. Story. Destination Travel Information_ Story	A URI of story related to the DPOI
Destination Travel Information_ Waypoint. Region. Destination Travel Information_ Region	A physical region, expressed as GeoJSON polygon type, of the story or DPOI for describing contents
Destination Travel Information_ File	Media file information
Destination Travel Information_ File. FilePath	A file system path of a media file
Destination Travel Information_ File. Origin	A original file name including file extension
Destination Travel Information_ File. MimeType	Multipurpose Internet Mail Extensions
Destination Travel Information_ File. Size	Bytes size of a media file
Destination Travel Information_ Location	Geospatial location information
Destination Travel Information_ Location. Type	Type of location information such as points, polygon, line set, and et al.
Destination Travel Information_ Location. Coordination. Destination Travel Information_ Point	Point information composed of latitude and longitude.
Destination Travel Information_ Point	Geospatial location information of a point
Destination Travel Information_ Point. Latitude	Latitude of a point.
Destination Travel Information_ Point. Longitude	Longitude of a point.
Destination Travel Information_ Point. Altitude	Altitude of a point.
Destination Travel Information_ Region	Geospatial location information of a region
Destination Travel Information_ Region. Type	Type of location information such as points, polygon, line set, and et al.
Destination Travel Information_ Region. Coordination. Destination Travel Information_ Point	Coordinate information of the region composed of latitude and longitude.
Destination Travel Information_ Trajectory	Geospatial location information of a trajectory
Destination Travel Information_ Trajectory. Type	Type of location information such as points, polygon, line set, and et al.
Destination Travel Information_ Trajectory. Coordination. Destination Travel Information_ Point	Coordinate information of the trajectory composed of latitude and longitude.
Destination Travel Information_ DocumentInfo	Metadata of document
Destination Travel Information_ DocumentInfo. Access	An access permission list of this document.
Destination Travel Information_ DocumentInfo. Author	An author identifier of this document.
Destination Travel Information_ DocumentInfo. Created	Create date of this document.
Destination Travel Information_ DocumentInfo. LastChanged	Last changed date of this document.

DocumentInfo. Changed	
Destination Travel Information_ DocumentInfo. Revision	Revision number of this document.
Destination Travel Information_ DocumentInfo. VaildStart	Start time of valid duration.
Destination Travel Information_ DocumentInfo. ValidEnd	End time of valid duration.

Figure 9. . Terms and Definitions