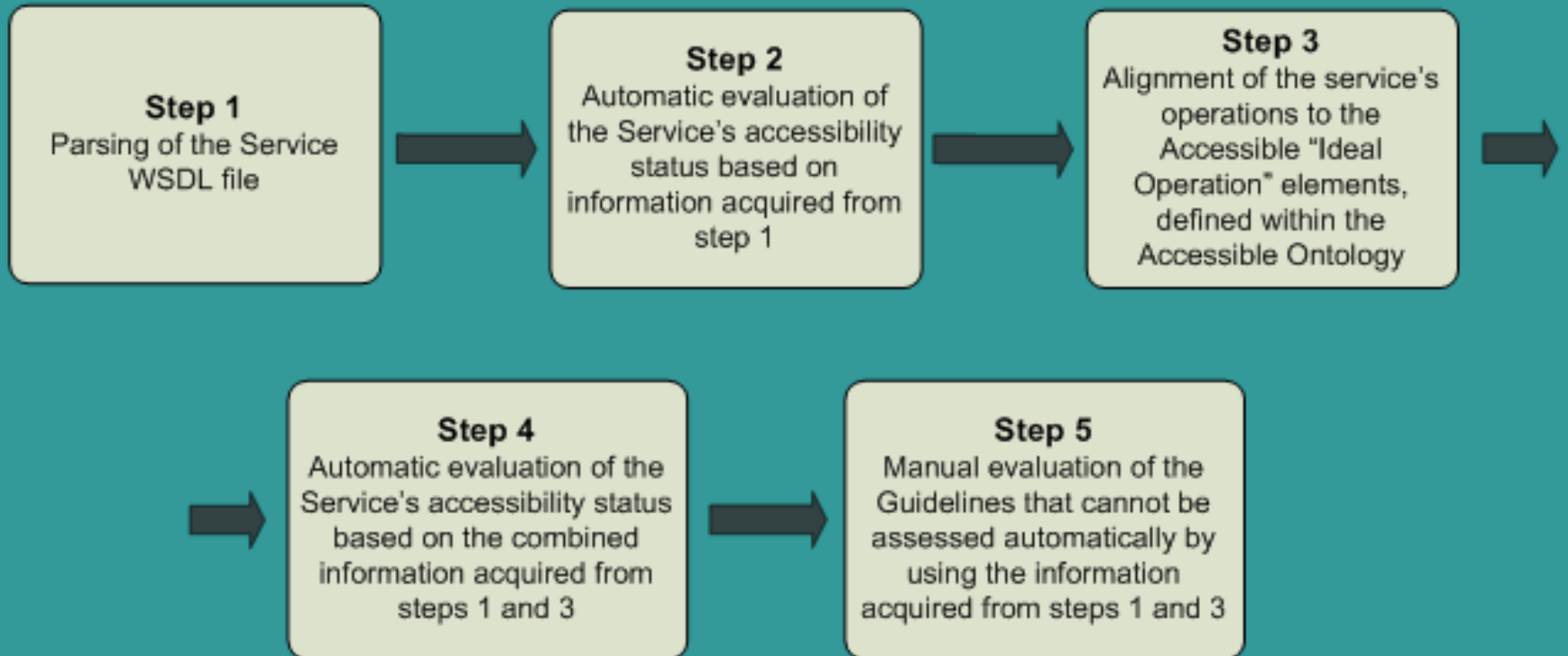
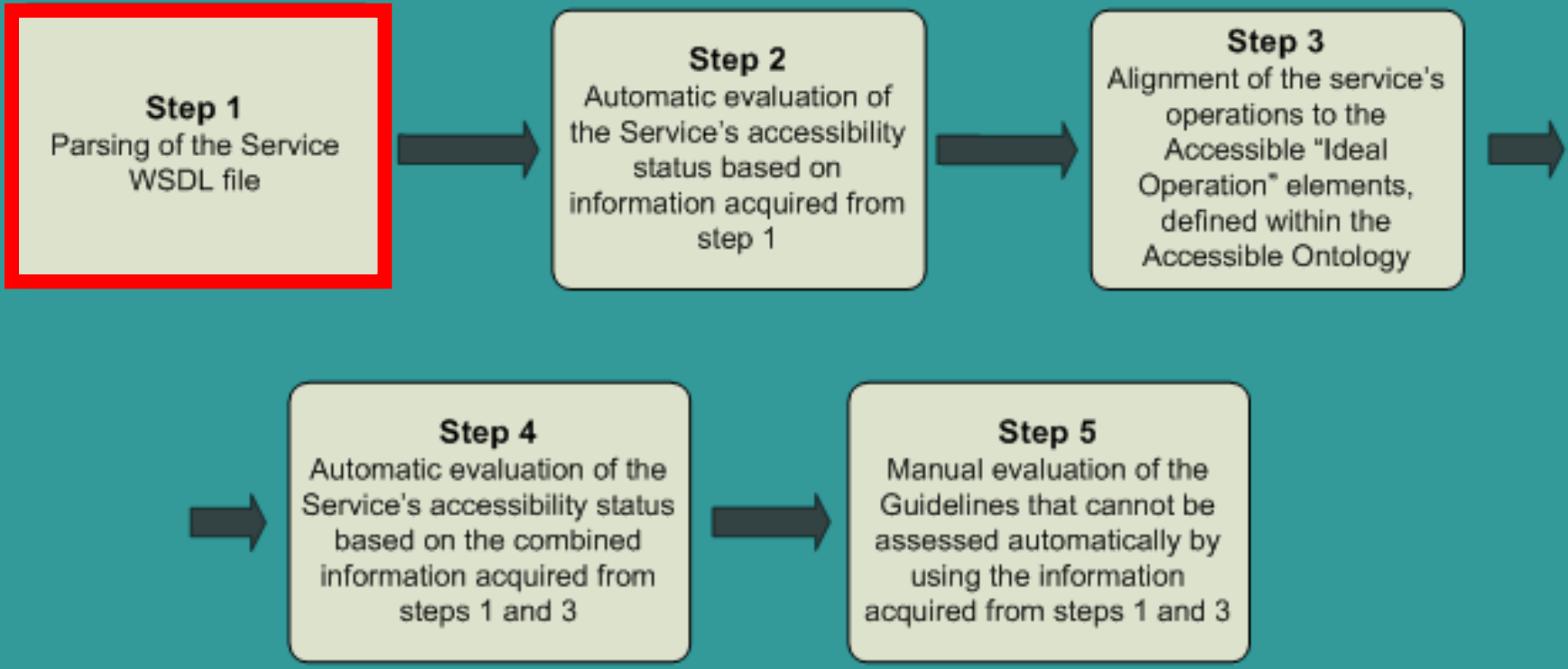


Accessible Web Service Evaluation Process



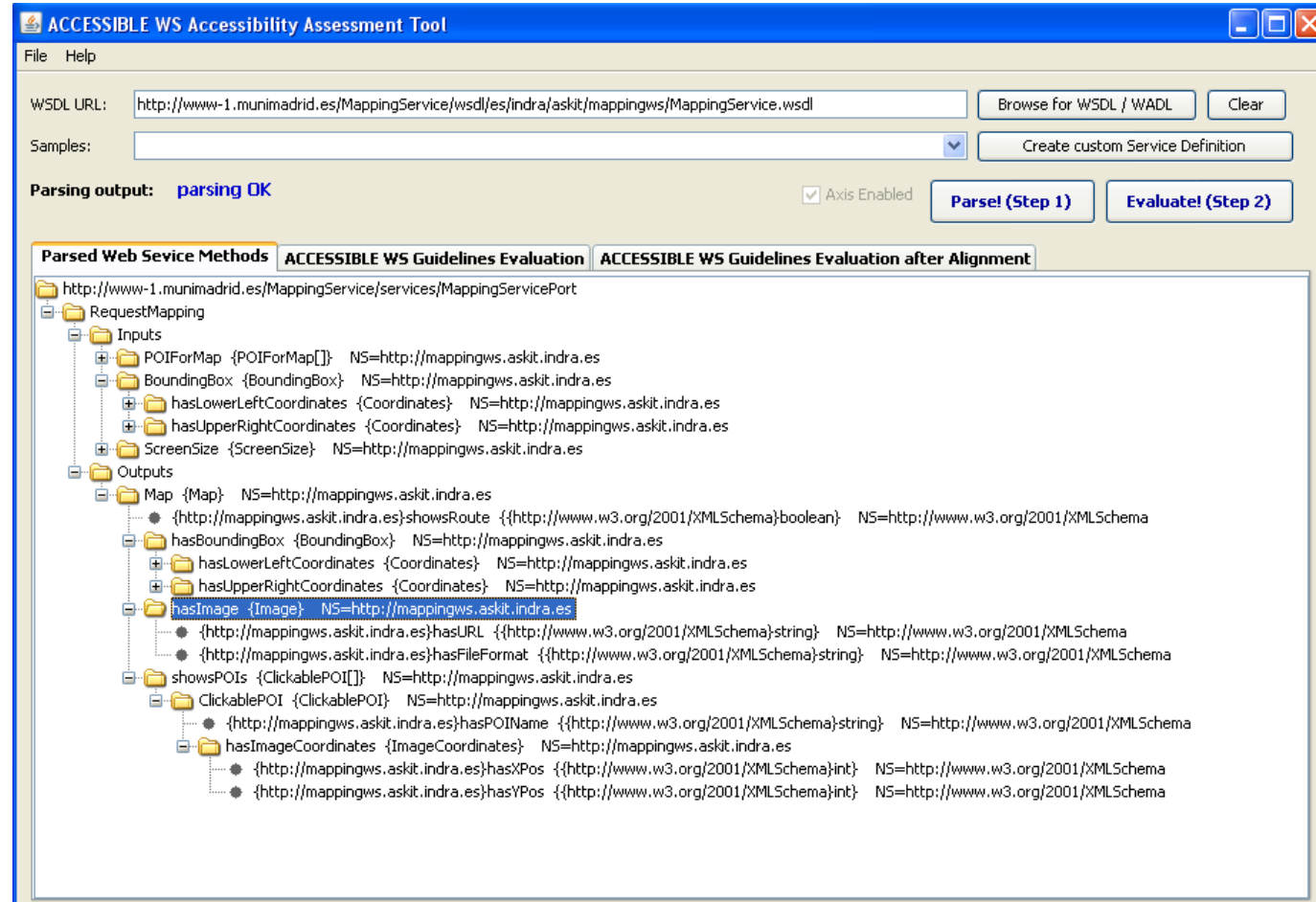
- ❑ Web Service:
 - ❑ A “Mapping” Web Service developed and used within the ASK-IT IP:
 - ❑ <http://www-1.munimadrid.es/MappingService/wsd/es/indra/askit/mappingws/MappingService.wsdl>
 - ❑ Input: Coordinates of a geographic bounding box
 - ❑ Output: An image showing the map of the area within the requested bounding box
 - ❑ **A client application will use the service in order to get the map of a specific area and show it to the end user**
 - ❑ Accessibility evaluation example:
 - ❑ *If the service provides an “alternative text” element together with the map, the client application will be able to show an image (the map delivered from the service) together with “Alternative text”, covering the needs of the blind end users.*
 - ❑ *If the service does not provide an “alternative text” element, the client application will show an image (the map) **not accessible** to its blind end users*

Accessible Web Service Evaluation Process

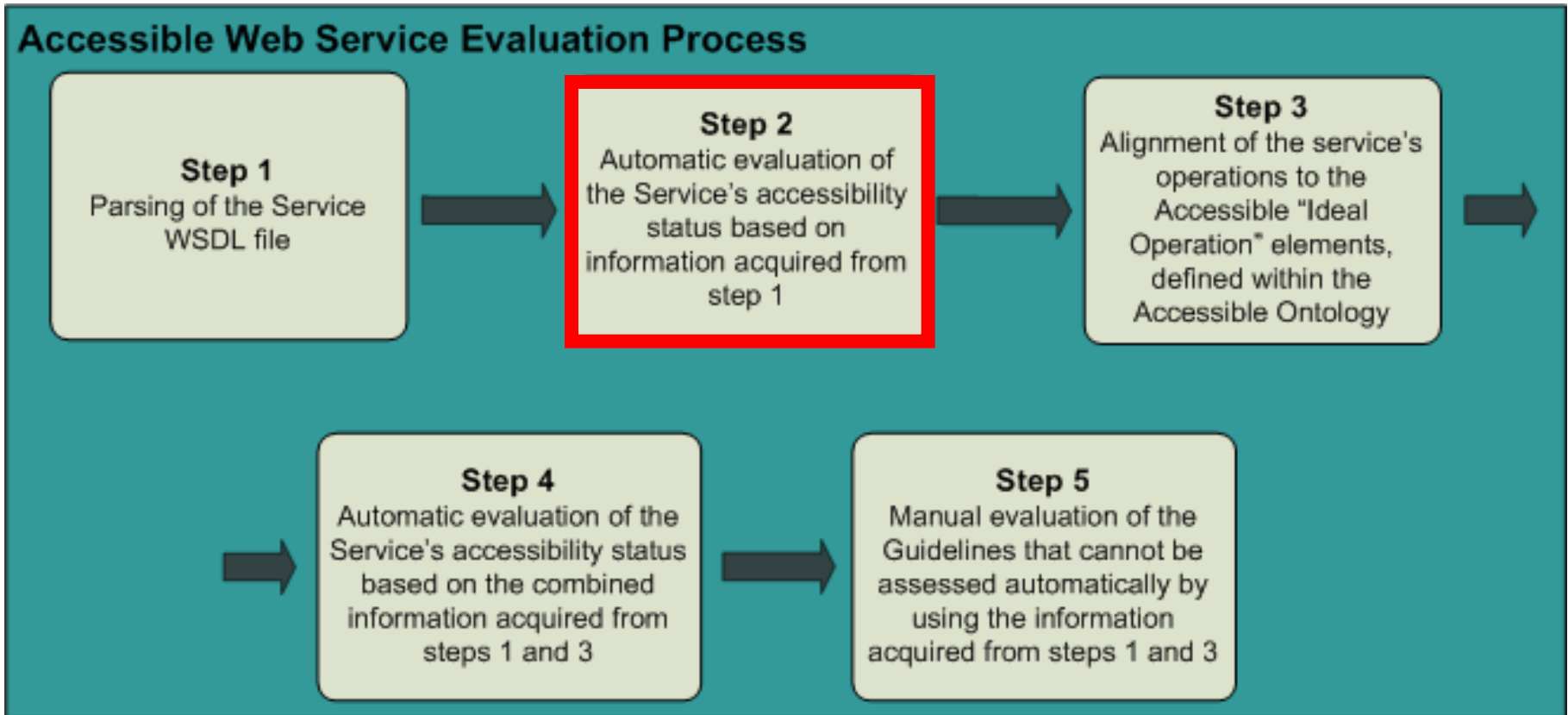


- Initially, the evaluator inserts the URL of the Service's WSDL file in the Accessible WS evaluation tool and asks the tool to "Evaluate" the WS

- Step 1: Parsing of the WSDL file
 - The Accessible WS evaluation tool parses the service WSDL file on the basis of the Axis 1 and Axis 2 frameworks



The screenshot displays the 'ACCESSIBLE WS Accessibility Assessment Tool' window. The 'WSDL URL' field contains 'http://www-1.munimadrid.es/MappingService/wsdl/es/indra/askit/mappingws/MappingService.wsdl'. The 'Parsing output' section shows 'parsing OK' and 'Axis Enabled' is checked. Two buttons, 'Parse! (Step 1)' and 'Evaluate! (Step 2)', are visible. The main area shows a tree view of 'Parsed Web Service Methods' for the service 'http://www-1.munimadrid.es/MappingService/services/MappingServicePort'. The tree is expanded to show 'Inputs' and 'Outputs'. Under 'Inputs', there are folders for 'POIForMap', 'BoundingBox', 'hasLowerLeftCoordinates', 'hasUpperRightCoordinates', and 'ScreenSize'. Under 'Outputs', there are folders for 'Map', 'showsPOIs', and 'ClickablePOI'. The 'Map' folder is expanded, showing several methods: 'showsRoute', 'hasBoundingBox', 'hasLowerLeftCoordinates', 'hasUpperRightCoordinates', and 'hasImage'. The 'hasImage' method is highlighted, showing its parameters: 'hasURL' (string), 'hasFileFormat' (string), and 'hasImageCoordinates' (ImageCoordinates). The 'hasImageCoordinates' folder is also expanded, showing 'hasXPos' (int) and 'hasYPos' (int) parameters.



- ❑ Automatic Evaluation of the Service's accessibility status based on information derived from step 1
 - ❑ A limited set of Guidelines is automatically evaluated
 - ❑ Guidelines which can be evaluated automatically by only using information derived from the parsing of the service's WSDL
- ❑ E.g. Guideline I4: Do not provide operations that produce no output
 - ❑ All this service's operations produce output (information contained in the WSDL file)
 - ❑ Evaluation outcome for Guideline I3: **PASS**

The screenshot displays the ACCESSIBLE WS Accessibility Assessment Tool interface. The top window shows the 'Parsed Web Service Methods' tree, with the 'Outputs' folder highlighted in red. The bottom window shows the 'ACCESSIBLE WS Guidelines Evaluation' results for Guideline I2 and Guideline I3. The evaluation outcome for Guideline I3 is highlighted in red and shows 'PASS'.

ACCESSIBLE WS Accessibility Assessment Tool

WSDL URL:

Samples:

Parsing output: parsing OK Axis Enabled

Parsed Web Service Methods | ACCESSIBLE WS Guidelines Evaluation | ACCESSIBLE WS Guidelines Evaluation after Alignment

RequestMapping

- Inputs
 - POIForMap (POIForMap[]) NS=http://mappingws.askit.indra.es
 - BoundingBox (BoundingBox) NS=http://mappingws.askit.indra.es
 - hasLowerLeftCoordinates (Coordinates) NS=http://mappingws.askit.indra.es
 - hasUpperRightCoordinates (Coordinates) NS=http://mappingws.askit.indra.es
 - ScreenSize (ScreenSize) NS=http://mappingws.askit.indra.es
- Outputs
 - Map (Map) NS=http://mappingws.askit.indra.es
 - showRoute (http://mappingws.askit.indra.es)showsRoute (http://www.w3.org/2001/XMLSchema)boolean NS=http://www.w3.org/2001/XMLSchema
 - BoundingBox (BoundingBox) NS=http://mappingws.askit.indra.es
 - hasLowerLeftCoordinates (Coordinates) NS=http://mappingws.askit.indra.es
 - hasUpperRightCoordinates (Coordinates) NS=http://mappingws.askit.indra.es
 - hasImage (Image) NS=http://mappingws.askit.indra.es
 - showPOIs (http://mappingws.askit.indra.es)hasURL (http://www.w3.org/2001/XMLSchema)string NS=http://www.w3.org/2001/XMLSchema
 - hasFileFormat (http://www.w3.org/2001/XMLSchema)string NS=http://www.w3.org/2001/XMLSchema
 - showPOIs (ClickablePOI[]) NS=http://mappingws.askit.indra.es
 - clickablePOI (ClickablePOI) NS=http://mappingws.askit.indra.es
 - hasPOIName (http://mappingws.askit.indra.es)hasPOIName (http://www.w3.org/2001/XMLSchema)string NS=http://www.w3.org/2001/XMLSchema
 - hasImageCoordinates (ImageCoordinates) NS=http://mappingws.askit.indra.es
 - hasYPos (http://mappingws.askit.indra.es)hasYPos (http://www.w3.org/2001/XMLSchema)int NS=http://www.w3.org/2001/XMLSchema
 - hasXPos (http://mappingws.askit.indra.es)hasXPos (http://www.w3.org/2001/XMLSchema)int NS=http://www.w3.org/2001/XMLSchema

Parsing output: Processing...

ACCESSIBLE WS Accessibility Assessment

WSDL URL:

Samples:

Parsing output: Processing...

Parsed Web Service Methods | ACCESSIBLE WS Guidelines Evaluation | ACCESSIBLE WS Guidelines Evaluation after Alignment

Evaluating Service:

Guideline I2

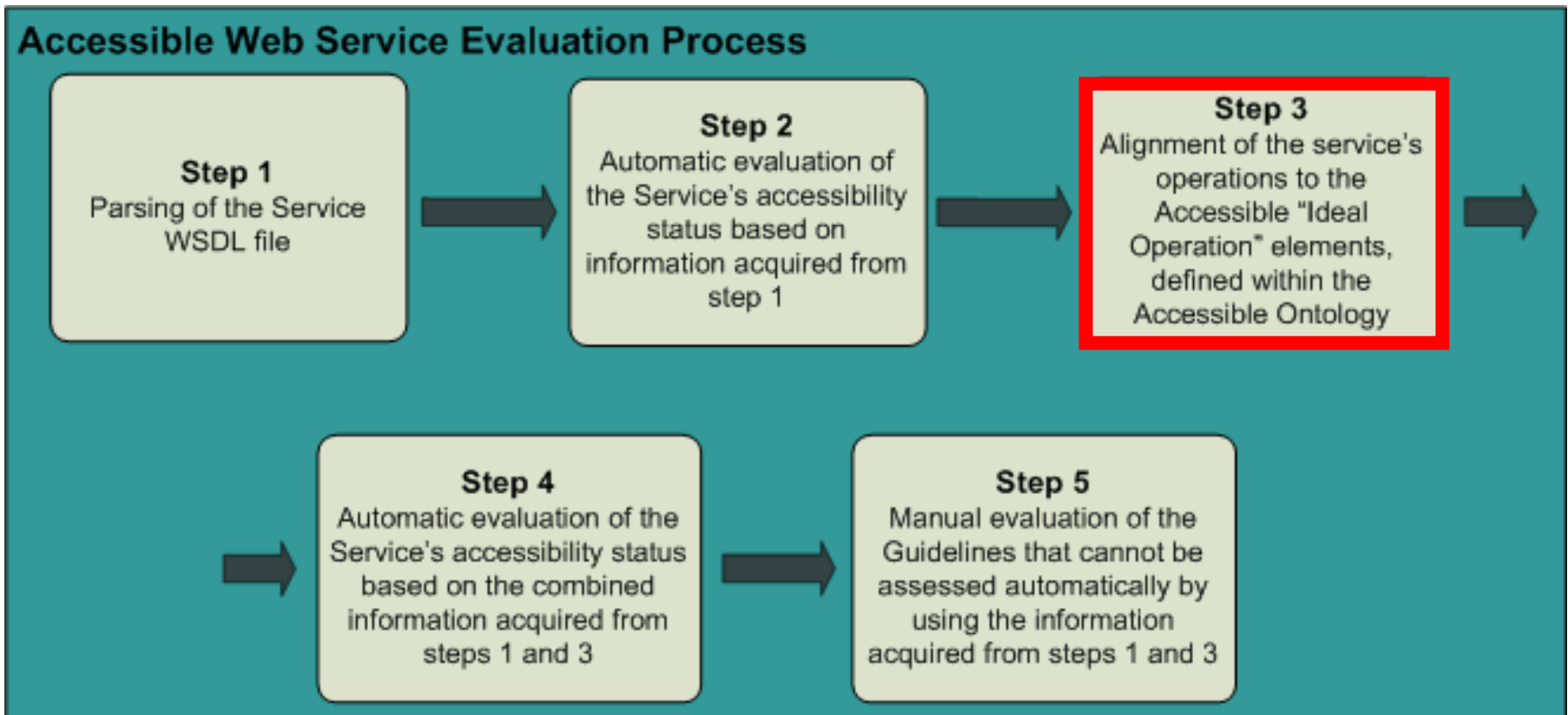
The (WSDL) files that define Web Services shall have correct XML-based (WSDL) syntax, allowing for the parsing of the (WSDL) file from the most common (WSDL) Parsers (e.g. Axis)

Evaluation outcome: PASS

Guideline I3

Services shall not provide "one-way" operations that produce no output. Operations provided through WSs shall always send back to the client a confirmation message declaring whether the requested functionality has been triggered or completed

Evaluation outcome: **PASS**



- ❑ Alignment of the service's operations to Accessible "Ideal Operation" elements defined within the Accessible Ontology
 - ❑ Why?
 - ❑ From this process, the Accessible WS evaluation tool extracts more information regarding the service under evaluation
 - ❑ *E.g. Up to Step 2, the Accessible WS Evaluation Tool does not know what kind of content is returned from the Service upon invocation*
 - ❑ How?
 - ❑ E.g. An operation returning an image upon invocation will be aligned to the Accessible "Image Provider" Ideal Operation
 - ❑ *The image element returned from the service will be aligned to the image element defined within the "Image Provider" Ideal Operation's outputs*
 - ❑ *The "alternative text" element (if provided) returned from the service will be aligned to the Ideal operation's "alt text" output element*



The Accessible WS evaluation tool now knows that the service provides an image as output and whether an "alternative text" element is provided for the returned image or not

Based on the ASK-IT Service Alignment Tool (SAT)

- For this example, the evaluator aligns the “hasURL” service’s output element to the “Image Object URL” output element of the Accessible “Image Provider” Ideal Operation

- Accessible knows that this service returns an image upon invocation

Accessible Automatic Alignment Result

Service: http://www-1.munimadrid.es/MappingService/services/MappingServicePort
Service Operation: RequestMapping
ACCESSIBLE Ideal Operation: ImageProvider

Input	Aligned Element of Accessible Ideal
hasPOIID [POIForMap::POIForMap::hasPOIID]	-
hasPOIName [POIForMap::POIForMap::hasPOI...	-
hasPOIType [POIForMap::POIForMap::hasPOIT...	-
X [POIForMap::POIForMap::hasCoordinates::X]	-
Y [POIForMap::POIForMap::hasCoordinates::Y]	-

Output	Aligned Element of Accessible Ideal Operation	Similarity Match Score
Z [Map::hasBoundingBox::hasLowerLeftCoordin...	-	
X [Map::hasBoundingBox::hasUpperRightCoordi...	-	
Y [Map::hasBoundingBox::hasUpperRightCoordi...	-	
Z [Map::hasBoundingBox::hasUpperRightCoordi...	-	
hasURL [Map::hasImage::hasURL]	ImageObjectURL	0.6 (0.1926575940859863)
hasFileFormat [Map::hasImage::hasFileFormat]	-	
hasPOIName [Map::showsPOIs::ClickablePOI::h...	-	

Accessible Ideal Operation Selection

Your Operation: RequestMapping

Select an ACCESSIBLE Ideal Operation that describes Your Operation's functionality best:

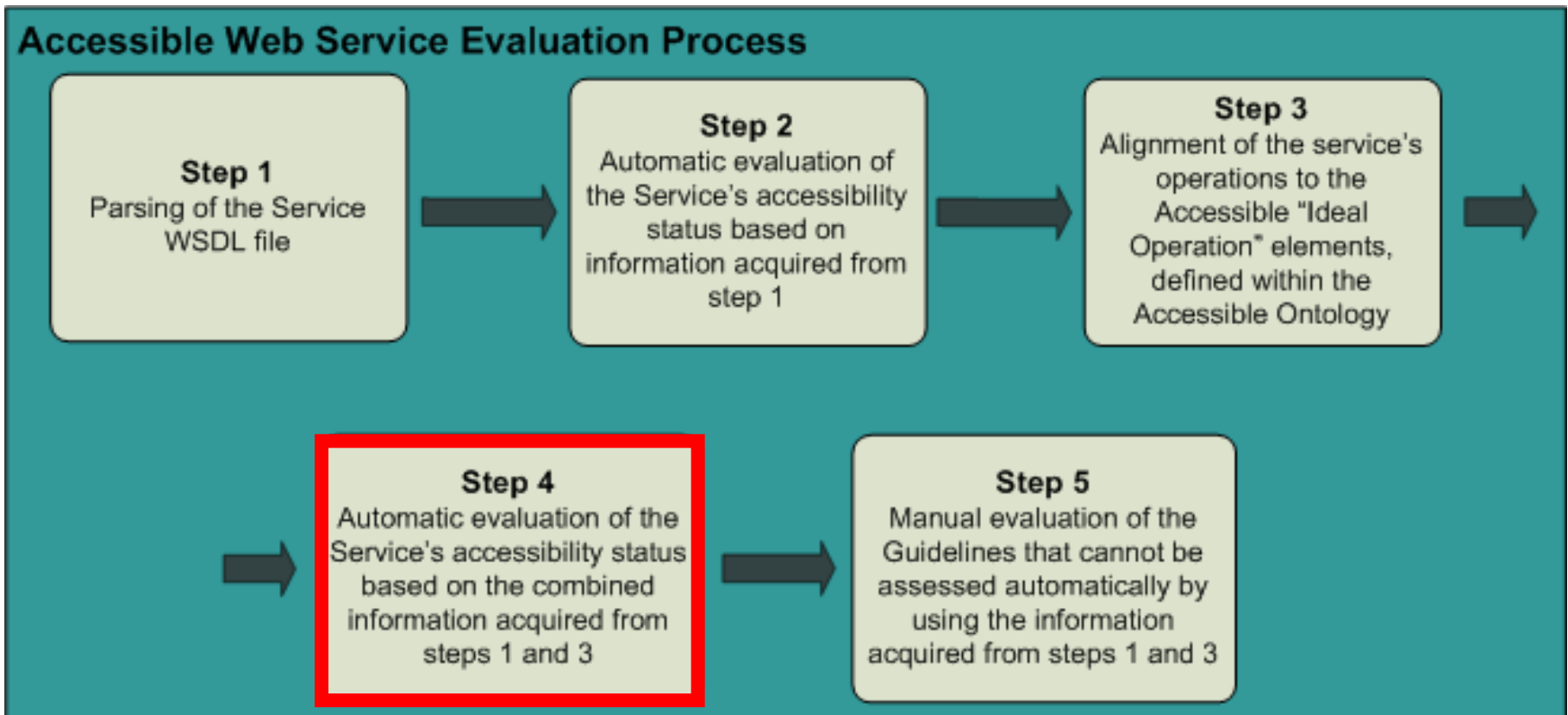
- Image Provider Operation
- Audio Provider Operation
- Video Provider Operation
- Textual Info Provider Operation
- Points of Interest Info Provider Operation
- Route Calculation Operation

In order to proceed with the Accessibility assessment, you have to align your operation to an ACCESSIBLE Ideal one which matches your operation's functionality best. The inputs and outputs of your operation will be automatically matched to the Ideal ones. You will also be able to change the result of the automatic alignment process.

Buttons: Cancel, Proceed

Buttons: Close, Proceed With Assessment, Help

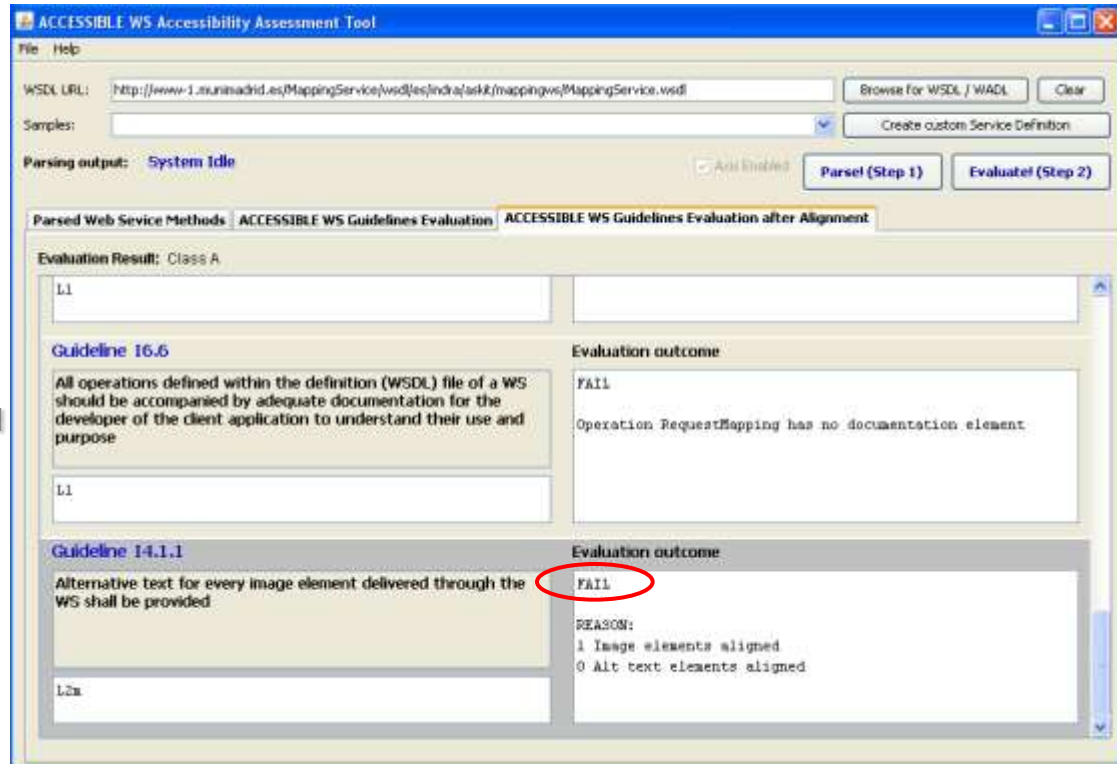
- The Service has no “alternative text” output element that can be aligned to the “Alternative Text” output element of the “Image Provider” Ideal Operation
 - Only an image output element has been aligned
 - No “Alternative Text” corresponding to the aligned image element was aligned



- After Step 3 (alignment) is complete, further Guidelines are assessed, related to the declared type of the WS under evaluation

Result:

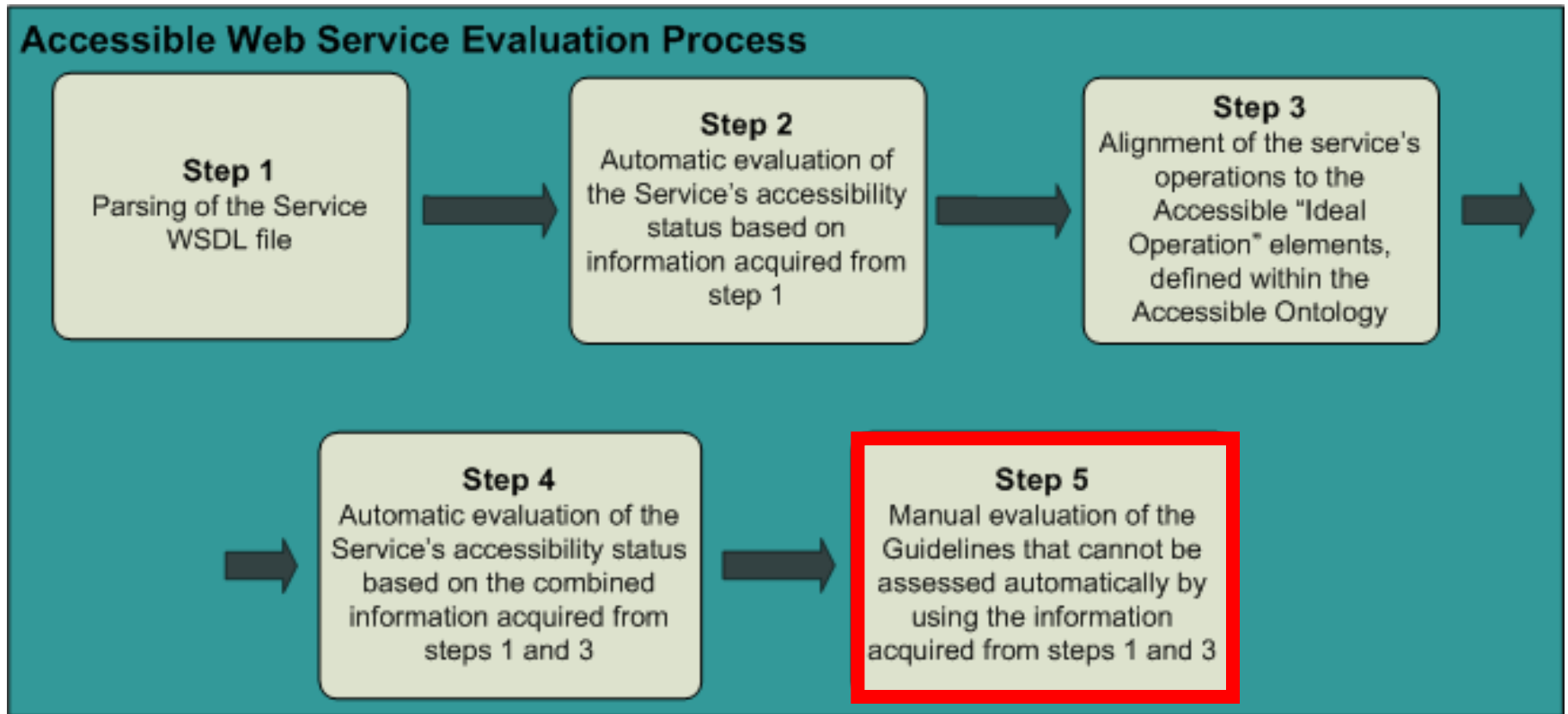
- E.g. In this case Guideline I4.1.1 fails
 - No “Alternative Text” element, corresponding to the aligned “Image” output element was aligned for this service



The screenshot shows the 'ACCESSIBLE WS Accessibility Assessment Tool' window. The 'WSDL URL' is set to 'http://www-1.ibm.com/es/MappingService/wsd/es/indra/askit/mapping/ws/MappingService.wsdl'. The 'Parsing output' is 'System Idle'. The 'Evaluation Result' is 'Class A'. The 'ACCESSIBLE WS Guidelines Evaluation after Alignment' tab is active, showing the following details:

Guideline	Evaluation outcome
Guideline 16.6 All operations defined within the definition (WSDL) file of a WS should be accompanied by adequate documentation for the developer of the client application to understand their use and purpose	FAIL Operation RequestMapping has no documentation element
Guideline I4.1.1 Alternative text for every image element delivered through the WS shall be provided	FAIL REASON: 1 Image elements aligned 0 Alt text elements aligned

The 'FAIL' result for Guideline I4.1.1 is circled in red in the original image.



- Finally, the evaluator should manually evaluate the rest of the Guidelines, which were not automatically evaluated until Step 4