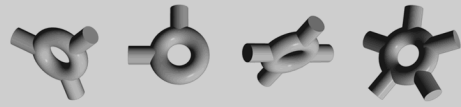


elements



## Industries Package

TARMS Inc.

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## Package Description

This package enables an organization to be considered as being part of one or more industries. Some “classifying” organizations will disseminate a set of mutually exclusive industry classifications. This has been modeled through the IndustryClassificationSet interface. System users may want to model a particular organization as consisting of some portion of other existing industry classifications. This has been modeled through the WeightIndustry interface.

### 1 Interfaces

#### 1.1 Industry

An industry is a type of activity, generally a product or service, that has been defined by a classification organization (such as the MSCI). An industry consists of both the activity and the region in which this activity occurs. The activity may be “all” indicating a regional overview of all activities, or the region can be “all” indicating a worldwide overview of a particular activity. There may exist industries with the same activity and region, but that are defined within different classification sets.

### 1.1.1 Relationships

	Class	Description	Notes
↑	Identifiable		
↓	IndustryModel §2.3		
↔	WeightedIndustryModel §2.4	industry	
↔	OrganizationModel	externalIndus- tryClassifica- tions	
↔	IndustryClassificationSetModel §2.1	industries	

↑:Inherits ↓:Realized by ↔:Association →:Navigable ◇:Aggregate ◆:Composite

### 1.1.2 Operations

#### String identifier()

identifier

Returns the activity string concatenated with the region name string.

#### String activity()

activity

An activity is a category of product or service as defined by some categorizing organization.

#### Location region()

region

The region is the location in which the activity occurs.

#### Boolean availableMarketIndex()

availableMar-  
ketIndex

Is there a market index (that comes from this industry's classifier) associated with this industry?

#### IndustryClassificationSet classificationSet()

classificationSet

The classification set (as disseminated by some classifying organization) that this industry is defined within.

#### Reportable validate()

validate

This method returns an object of type Reportable which will contain all the errors and warnings generated from this method. Below is a list of the axioms that must hold for an instance of a class that realizes this interface to be valid. Each statement is followed by the error or warning message that will be issued if the axiom is violated.

- This object must have a non null activity. If not, then the following error message should be added to the Reportable: “Industry <I1> has a no activity”, where I1 is the identifier of the industry.
- This object must have a non null region. If not, then the following error message should be added to the Reportable: “Industry <I1> has a no region”, where I1 is the identifier of the industry.

## 1.2 IndustryClassificationSet

An industry classification set is a collection of industries that have been grouped or classified by some “classifying organization”.

### 1.2.1 Relationships

	Class	Description	Notes
↑	Identifiable		
↓	IndustryClassificationSetModel §2.1		
↓	IndustryClassificationSetReference-DataModel §2.2		
↔	IndustryModel §2.3	classificationSet	
↔	IndustryClassificationSetReference-DataModel §2.2	model	

↑:Inherits ↓:Realized by ↔:Association →:Navigable ◇:Aggregate ◆:Composite

### 1.2.2 Operations

**String identifier()** identifier  
Returns the name of this industry classification set.

**Organization classifier()** classifier  
The classifier is the organization that classified this set of industries.

**String category()** category  
The category is one of a number of groups of industry classifications made by the one classifying organization.

### Collection industries()

industries

The set of industries in this industry classification set.

### Reportable validate()

validate

This method returns an object of type Reportable which will contain all the errors and warnings generated from this method. Below is a list of the axioms that must hold for an instance of a class that realizes this interface to be valid. Each statement is followed by the error or warning message that will be issued if the axiom is violated.

- This object must have at least one industry in its collection of industries. If not, then the following error message should be added to the Reportable: “Industry Classification Set <id1> has no industries.”, where id1 is the identifier of the industry.
- All the industries of this object must have a classificationSet equal to this object. If not, then the following error message should be added to the Reportable: “Industry Classification Set <id1> is holding industries which don’t refer back to itself.”, where id1 is the identifier of the industry classification set.

This method also calls the validate method on all of its held industries, and composes them with the Reportable generated from this method.

## 1.3 WeightedIndustry

A collection of weighted industries can be used to define a more accurate estimation of a relationship between an organization and a series of industries. This is used to help provide risk analysis such as J.P. Morgan’s credit methodology.

### 1.3.1 Relationships

	Class	Description	Notes
↓	WeightedIndustryModel §2.4		
↔	OrganizationModel	internalIndustryClassification	

↓:Realized by ↔:Association →:Navigable ◇:Aggregate ◆:Composite

### 1.3.2 Operations

#### Industry industry()

industry

The industry that composes this weight-industry pair.

#### Number weight()

weight

The weight part of the weight-industry pair.

## 2 Classes

### 2.1 IndustryClassificationSetModel

This class is a concrete realization of the IndustryClassificationSet interface.

#### 2.1.1 Relationships

	Class	Description	Notes
↑	IndustryClassificationSet §1.2		
↔	Organization	classifier	→
↔	Industry §1.1	industries 1..n	→

↑:Realizes ↔:Association →:Navigable ◇:Aggregate ◆:Composite

#### 2.1.2 Attributes

**identifier: String** The name of the industry classification set.

**category: String** The name of the category given to a group of industry classifications.

### 2.2 IndustryClassificationSetReferenceDataModel

This class implements its interface by delegating to the associated model.

#### 2.2.1 Relationships

	Class	Description	Notes
↑↑	ReferenceDataModel		
↑	IndustryClassificationSet §1.2		
↔	IndustryClassificationSet §1.2	model	→

↑:Inherits ↑:Realizes ↔:Association →:Navigable ◇:Aggregate ◆:Composite



## 2.2.2 Operations

### Reportable validate()

validate

This method calls the “validate” method on the superclass, and the “validate” method on the associated model. Both methods will return a Reportable. This method returns the first Reportable composedWith the second.

## 2.3 IndustryModel

This class is a concrete realization of the Industry interface.

### 2.3.1 Relationships

	Class	Description	Notes
↑	Industry §1.1		
↔	IndustryClassificationSet §1.2	classificationSet	→
↔	Location	region	→
↔	Location	region	→

↑:Realizes ↔:Association →:Navigable ◇:Aggregate ◆:Composite

### 2.3.2 Attributes

**activity: String** An activity is a category of product or service as defined by some categorizing organization.

### 2.3.3 Operations

#### Boolean availableMarketIndex()

This implementation of this operation is not yet defined.

availableMarketIndex

## 2.4 WeightedIndustryModel

This class is a concrete realization of the Weighted Industry interface.

### 2.4.1 Relationships

	Class	Description	Notes
↑	WeightedIndustry §1.3		
↔	Industry §1.1	industry	→

↑:Realizes ↔:Association →:Navigable ◇:Aggregate ◆:Composite

## 2.4.2 Attributes

**weight: Number**

## 3 Associations

Table 1: Industries— Associations

Association	Role	Class	Card.	Notes
industry		Industry §1.1		→
		WeightedIndustryModel §2.4		
externalIndustryClassifications		Industry §1.1	0..n	→
		OrganizationModel		
classificationSet		IndustryClassificationSet §1.2		→
		IndustryModel §2.3		
classifier		Organization		→
		IndustryClassificationSetModel §2.1		
industries		Industry §1.1	1..n	→
		IndustryClassificationSetModel §2.1		
model		IndustryClassificationSet §1.2		→
		IndustryClassificationSetReference-DataModel §2.2		
		Location		→
region		IndustryModel §2.3		
		Location		→
internalIndustryClassification		WeightedIndustry §1.3	0..n	→
		OrganizationModel		
region		Location		→
		IndustryModel §2.3		

→:Navigable ◇:Aggregate ◆:Composite

### **3.1 industry**

**Role:** *Navigable* Industry.

**Role:** WeightedIndustryModel.

### **3.2 externalIndustryClassifications**

**Role:** *Navigable* Industry, 0..n.

**Role:** OrganizationModel.

### **3.3 classificationSet**

**Role:** *Navigable* IndustryClassificationSet.

**Role:** IndustryModel.

### **3.4 classifier**

**Role:** *Navigable* Organization.

**Role:** IndustryClassificationSetModel.

### **3.5 industries**

**Role:** *Navigable* Industry, 1..n.

**Role:** IndustryClassificationSetModel.

### **3.6 model**

**Role:** *Navigable* IndustryClassificationSet.

**Role:** IndustryClassificationSetReferenceDataModel.

### **3.7 region**

**Role:** *Navigable* Location.

**Role:** IndustryModel.

### **3.8 internalIndustryClassification**

**Role:** *Navigable* WeightedIndustry, 0..n.

**Role:** OrganizationModel.

### **3.9 region**

**Role:** *Navigable* Location.

**Role:** IndustryModel.

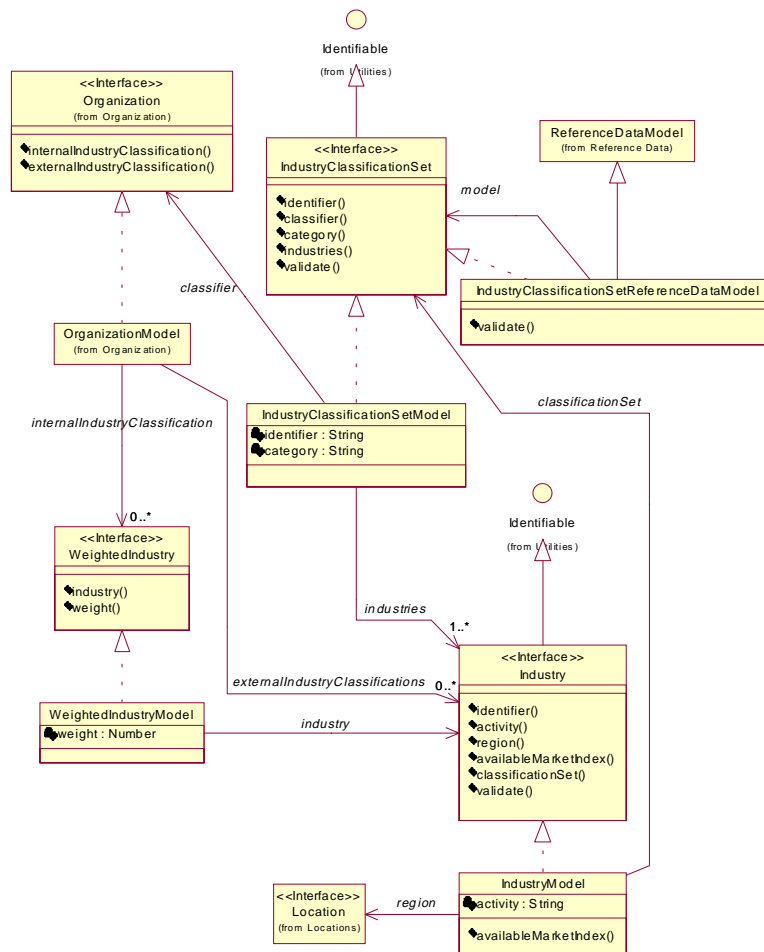


Figure 1: Class Diagram— Industry

## 4 Extensions to the Organization Package

### 4.1 Organization

Organizations can be associated with various industries.

#### 4.1.1 Relationships

	Class	Description	Notes
↓	OrganizationModel		
↔	IndustryClassificationSetModel §2.1	classifier	

↓:Realized by   ↔:Association   →:Navigable   ◇:Aggregate   ◆:Composite

#### 4.1.2 Operations

##### Collection `internalIndustryClassification()`

An internally defined (by the users of the system) classification of an organization.

internalIndustryClassification

##### Collection `externalIndustryClassification()`

A collection of the industries that this organization is classified to be in according to various classifying organizations.

externalIndustryClassification

### 4.2 OrganizationModel

This class is a concrete realization of the Organization interface.

#### 4.2.1 Relationships

	Class	Description	Notes
↑	Organization		
↔	Industry §1.1	externalIndustryClassifications 0..n	→
↔	WeightedIndustry §1.3	internalIndustryClassification 0..n	→

↑:Realizes   ↔:Association   →:Navigable   ◇:Aggregate   ◆:Composite

## References