# Gi2MO Types: A Domain Independent Idea Categorization Schema for Idea Management Systems

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# Idea Management Background

[Introduction: what are Idea Management Systems?]

- Origins
  - Open Innovation | ask others for innovation Chesbrough, 2003
  - Crowdsoucring | connect to large audience Howe, 2004
- Goals
  - communicate with community and allow deliberation Bailey and Horvitz, 2010
  - select best ideas available Bailey and Horvitz, 2010; Hrastinski, 2010
- Motivations for use in organizations
  - react to fast changing markets & customer profiles
     Bailey and Horvitz, 2010
  - capture wider scope of ideas (as opposed to closed innovation)
     Gassmann, 2006; Riedl 2009

# Idea Management Problems

[Introduction: Common Problems of IMSes]

- Information overflow | lots of data gathered over long time Jouret 2009; Belecheanu 2009
- Noisy data | similar ideas, lots of simple or obvious input Kornish 2010; Jouret 2009; Belecheanu 2009
- Peaks of data | lots of ideas over short period of time Baumgartner 2008; Turrell 2002
- Rating innovation | lack of proper metrics, lot of effort required Hrastinski 2010; Gangi 2009

**Approach:** research on new data modeling approaches and analysis of gathered metadata

# Different perspectives on IMS

[Introduction: IMS example]



GIZMO	Search ideas
IDEASTREAM - AN OPEN SOURCE IDEA MANAGEMENT PLA Create new ideas and collaborate with us to make se empowered innovation come true	MANTICALLY Create Idea
Ideas 🕐 Idea Contests	My Ideas
Filter Status:	LEMENTED PARTIALLY IMPLEMENTED ALREADY EXISTS
Free Local Transport And Improve The Tram Network Posted by john on 03/11/2013 - 13:20 Idea Contest: Challanges for humainty in the XXI M In the last 5-10 years the prices of taxes for renting / owning an apartment in cities across of My question is where does this money go to ? The cities continues to grow but im not getting better, quite the contrary. My idea is this: take a portion of that money and where possible give free transportation of of people born in the city or for example Category: Daily life	2 votes ▲ ♥ Draft but country have gone crazy high!! g an impression that our lives are getting any itizens that originate from a certain city (i.e. Tags: communication, free, money, tram
Dog Problem In The Local Neighbourhoods Posted by anna on 03/11/2013 - 13:15 Idea Contest: Challanges for humainty in the XXI M Personally I don't have a dog but it is seriously very annoying to see all the dog poop lying an anywhere in the neighbourhood. I understand that people like to have companions and dog are an element of our reality like i My idea is to rise the tax for having a dog so crazy high that its gonna be a) cover the cost of decrease the amount of dog owners (	4 votes A Draft Top Ideas Votes   Comments Dog problem in the (4) I deaStream Mobile (2) Free local transport (2) More donuts for (1) Make a new theme for (-1) Does Yeti really (-1)
Category: Local communities	Tags: dog, poop, problem, tax 🔩

Top Inventors

# Different perspectives on IMS

### [Introduction: IMS example]



IZMD EA STREAM	Search ideas
EASTREAM - AN OPEN SOURCE IDEA MANAGEMENT PLATFORM EATE NEW IDEAS AND COLLABORATE WITH US TO MAKE SEMANTICALLY POWERED INNOVATION COME TRUE	Create Idea Account   Logout
V Ideas 😨 Idea Contests	Wy Ideas
er Status: ALL ACTIVE PENDING REVIEWS CLOSED	
Idea Contest      Super And Hiper Markets In The City Limits      Depending on the city authorities different cities have different layout and pay different amounts of attention to they look and feel. One of the issues often discussed in the modern metropolis is building huge shopping malls inside cities. A lot of people think that those look really bad and should not be allowed in the cities. On the other hand, a lot of people prefer to have it close. What do you think ?  Last Idea on 03/03/2013 - 15:25: Does Yeti really exist ?   Get Data:  Contest posted by admin on 05/03/2013 , closed On: 05/03/2013	Idea Categories Ideas   Comments Gi2MO Research (4) Local communities (4) Daily life (1) Uncategorised (1) e e-government (0)
Animals In Your Neighbourhood, Yay Or Nah ?	Top Ideas Votes   Comments Dog problem in the (4)
Pets are a part of our lives like it or not. People like to get social and pets help them to fulfil this goal in many ways. They keep us company, they help the disabled, they help fill the roles where no technology can fit. At the same time many don't tollerate their	<ul> <li>IdeaStream Mobile (2)</li> <li>Free local transport (2)</li> <li>More donuts for (1)</li> <li>Make a new theme for (-1)</li> </ul>

# Proposed Approach: Gi2MO Project

### [Introduction: Research background]



# Solution overview

[Solution: Taxonomy -> Data Annotation -> Metrics]



### Data Analytics: theoretically grounded model for information classification and deriving metrics

### Research Methodology [Solution: methodology Overview]

### Methodology:

- I. Analysis of the **theoretical models** from Innovation Management area
- 2. Confront **theory vs. practice** of IMSes
- 3. **Taxonomy** for domain independent idea characteristics in IMS
- 4. Annotation of ideas with the taxonomy
- 5. Generate metrics based on annotations to assess content of IMS and compare ideas

### Building the taxonomy (I) [Solution: methodology part I]

### Theoretical Innovation Models (examples)

- product vs. process vs. market vs. input innovation
   Schumpeter 1934; Drejer 2004
- radical vs. incremental innovation Abernathy 1978; Porter 1986; Garcia 2002
- modular vs. architectural innovation Henderson and Clark 1990
- new markets vs. old markets Abernathy and Clark 1985

**Approach:** Innovation Management theory vs. Idea Management System practice (Gi2MO Ontology & Idea Life Cycle research)

# Building the taxonomy (II)

### [Solution: methodology part I]

#### Idea

#### Trigger

- Observation Type
  - Faulty Experience
  - Potential Cause
  - Lack of Feature
  - Potential Opportunity
- Creativity Origin
  - Event
    - Idea Contest
    - Object Release
    - New Object
    - Object Update
    - Promotional Event
    - Object Purchase
    - Object Comparison
    - Object Observation
    - Other Event
  - Object Interaction
- Associated Object
  - Object Of Innovation
  - Other Object
  - Object Relation
  - Competitive
  - Complementary
  - Suplementary
  - Unrelated
  - Offering Placement
    - Own Offering
    - Other Party Ofering

#### Innovation

#### Dependence

Proceeds

Follows

- Encapsulates
- Duplicates
- Excludes
- Is Part Of
- Target Audience
- New Audience
- Existing Audience
- Originality
  - New
  - Incremental
  - Additive
  - Subtractive
  - Replacement
- None
- Relative To
- Current State
  - Organisation
  - Structure
  - Group
  - Department
  - Branch
  - Product Line Product Type

  - Market Local
  - Global
- Innovation Proposals

#### Object

- History Relationship
- Evolutionary
- Regressive
- Type
  - Service
  - Process
  - Product
    - Product Line
    - Product Type
    - Specific Product
- Offering Placement
  - New
  - Existing
    - Additive
  - Subtractive
  - Replacement
- Structure
  - Complete
  - Element
- Characteristic
- Relationships
  - Part Of
  - Complementary With
  - Composed Of

Proposal Type

Solution

Request

Issue Report

Suggestion

# Idea Annotation

#### [Solution: methodology part II]

Idea Title: More buttons on the tablet.

#### Idea Summary:

I would like to propose adding more physical buttons on the 9 inch tablet that is currently available in your offer. When using the tablet I feel that the single 'home' button is not enough for many activities that the tablet is advertised for making the experience bad.

For example, for reading ebooks, it would be very useful to have "back" and "forward" buttons for scrolling pages of the book. I own a e-paper reader and I think those buttons could be also used for different activities (for example web browsing or games).



# Generating the metrics

### [Solution: methodology part III]



### **Experiments: Dataset comparison**

### [Observing differences between IMSes]



# Experiments: Idea Similarity

[Observing idea diversity in IMSes]



## **Practical Appliance**

#### [Implementation in IdeaStream: IMS performance breakdown]



Implementation Constructiveness

CREATE NEW IDEAS AND COLLABORATE WITH US TO MAKE SEMANTICALLY EMPOWERED INNOVATION COME TRUE



0 (Most ideas modify existing objects)

## Practical Appliance

### [Implementation in IdeaStream: Idea Clustering (I)]



CREATE NEW IDEAS AND COLLABORATE WITH US TO MAKE SEMANTICALLY EMPOWERED INNOVATION COME TRUE

	Browse: IDEAS   IDEA CONTESTS	Search ideas	🌹 Create New Idea
	Filter Status: ALL   DRAFT   UNDER REVIEW   EXISTS   ACCEPTED	Filter Status: ALL   DRAFT   UNDER REVIEW   EXISTS   ACCEPTED   REJECTED   IMPLEMENTED	
	Cluster Analysis		👸 Ideas Comments
alytics Management test Management tew Management tion Management ter Analysis ationships unt query v summary ontent ter	Cluster Analysis Overview Cluster analysis compares ideas and attempts to organise them in groups Calculations can be made either based on semantic analysis of natural lar annotations (like tags, categories etc.) Characteristics Calculate Ouster Analysis Visualisation The visualisation shows groups of ideas and semantic Interpretation of the	based on particular criteria of analysis. guage idea description or based on analysis idea es groups related to selected criteria.	Votes Comments
	•		
		•	
	Clustering overview		

202

**Ideas** Comments

admin

- Idea Ani
  - Idea
  - Con!
  - Revi
  - Relation
  - Clust
- Idea Rel
- My according
- SPARQL
- Workflow
- Create o
- Administ
- Log out

Cluster count: 4

### **Practical Appliance**

#### [Implementation in IdeaStream: Idea Clustering (II)]

#### **Clustering overview**

Cluster count: 4 Total idea count: 249 Last idea date: 2011-03-19 17:33:00 Ideas per Cluster - avg: 62.25 max: 86 min: 20 Comments per Cluster - avg: 38.75 max: 80 min: 0

#### Cluster 1

Theme (56): AssociatedObject, Branch, ComplementaryObject, ComposedOf, CreativityOrigin, CurrentState, Department, Dependence, Duplicates, Ecapsulates, Event... Ideas Count: 75 Comment Count: 80 Idea Workflow breakdown: Draft - 52 Under Review - 7 Rejected - 12 Already Exists - 4

#### Cluster 3

Theme (15): CharacteristicChange, IssueReport, None, ObjectInteraction, ObjectOfInnovation, OrganizationsProductLine, PartOf, PotentialCause, ProductLine, Regressive, ReplacementOfElement... Ideas Count: 86 Comment Count: 69 Idea Workflow breakdown: Draft - 62

#### Cluster 2

Theme (6): AdditiveInnovation, ElementChange, ExistingAudience, LackOfFeature, Request, AdditiveChange Ideas Count: 68 Comment Count: 6 Idea Workflow breakdown: Draft - 51 Under Review - 9 Rejected - 6 Implemented - 1 Already Exists - 1

#### Cluster 4

Theme (13): CompetitiveObject, ComplementaryWith, CompleteChange, Evolutionary, New, NewAudience, NewObject, ObjectComparison, Organization, OtherPartyOffering, PotentialOportunity... Ideas Count: 20 Comment Count: 0 Idea Workflow breakdown: Draft = 16

### Thanks for attention!



### Questions ?



http://www.gi2mo.org