

Semantic Technologies in Idea Management Systems: A Model for Interoperability, Linking and Filtering

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- 4. Publications and results | R&D impact

What is Idea Management?

[Introduction]

- **Origins**
 - **Open Innovation** | ask others for innovation
Chesbrough, 2003
 - **Crowdsourcing** | 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: thesis research motivation]


- **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 examples]


**IdeaStorm**
Where Your Ideas Reign





There are currently no **Storm Sessions** active.
Stay tuned!

IdeaStorm **Storm Sessions**

**View**
All posted ideas by the community

**Post**
Your idea for Dell products or services

**Vote**
Promote or demote ideas

**See**
Your ideas in action

Sort Ideas By: **Popular Ideas** Recent Ideas **Top Ideas** All

Comments

118030
Promote
↑
↓
Demote

Pre-Installed OpenOffice | alternative to MS Works & MS Office
By [dhart](#), Feb 17, 2007

Provide [OpenOffice.org](#) for free pre-installation alongside Microsoft Works and Microsoft Office. [OpenOffice.org](#) is more capable than Microsoft Works, and a serious competitor to Microsoft Office, at a fraction of the cost (it's free!)

[OpenOffice.org](#) can open, create, edit and save Microsoft Word, Excel and PowerPoint files.

106450
Promote
↑
↓
Demote

Pre-Installed Linux | Ubuntu | Fedora | OpenSUSE | Multi-Boot
By [dhart](#), Feb 16, 2007

Offer the 3 top free **Linux** versions for free pre-installation on all Dell PCs.

Quality free and open source software drastically lowers the cost of new PCs, and helps prevent

Login to IdeaStorm
Don't have an IdeaStorm account? [Register Now.](#)

Username:

Password:

[Forgot Password?](#)**Your Ideas in Action**
**IdeaStorm Recap - 1/22/2010**
Happy 2010 everyone! I know I'm a little late with the holiday greetings, but there is a lot to share on...


Different perspectives on IMS

[Introduction: IMS examples]

← → ↺

mystarbucksidea.force.com

☆



My Starbucks Idea

FAQ

GOT AN IDEA?




VIEW IDEAS


IDEAS IN ACTION

Hi there,


Sign In

to make a comment.

Share   

Follow us on 

Ideas so far

Search Ideas 

PRODUCT IDEAS

32,886

Coffee & Espresso Drinks

3,367

Frappuccino® Beverages

9,629

Tea & Other Drinks

15,054

Food

7,929

Merchandise & Music

16,166

Starbucks Card

2,812

New Technology

10,636

Other Product Ideas

EXPERIENCE IDEAS

7,898

Ordering, Payment, & Pick-Up

14,250

Atmosphere & Locations

10,911

Other Experience Ideas

SHARE.
VOTE.
DISCUSS.
SEE.

Share your ideas, tell us what you think of other people's ideas and join the discussion.

my
STARBUCKS IDEA

Most Recent Ideas

11 Min(s) Ago

Bogo on regular COFFEE!!!!

Different perspectives on IMS

[Introduction: IMS examples]

The screenshot shows the Ubuntu Brainstorm website. The browser address bar displays 'brainstorm.ubuntu.com'. The site header includes navigation links for 'Ubuntu QA', 'Blog', 'Brainstorm', and 'Package status', along with a 'Log in' button. The main heading is 'ubuntu brainstorm' with a lightbulb icon and a subtext stating 'The Ubuntu community has contributed 22628 ideas, 138010 comments, 2628485 votes'. Below this is a filter bar with 'All', 'Projects', and 'Global categories'. A secondary bar offers filters: 'Idea sandbox' (with a biohazard icon), 'Popular ideas' (with a lightning bolt icon), 'Ideas in development' (with a gear icon), and 'Implemented ideas' (with a checkmark icon). On the right, there are search fields for 'Keywords' and 'Tags', and a 'Submit your idea' button. A banner for 'Most popular in 30 days' is visible. The featured idea is 'Scroll speed in mouse options', written by 'triletri' on Feb 13 at 16:26, related to the 'Unity' project. It has 11 votes and a green progress bar. The description states: 'Mouse scroll wheel should have an option (like in Windows) to set scroll speed - how many "lines" to scroll in one flip of a mouse wheel.' The solution proposed is 'Solution #1: Add scroll speed slider to mouse settings panel', also by 'triletri' on the same date. The solution text reads: 'Add a simple mouse wheel scroll speed so you can set scroll speed to 1,2,3,4,5,6... lines of text for scrolling'. A link 'Add a comment or propose a solution >>' is provided. Below this is another idea titled 'Shortcuts and configuration usability reduced', written by 'AIXI' on Jan 13 at 01:09, related to the 'Nautilus' project. Its description notes that in Nautilus 3.6, the UI was revamped to be simpler, but this change made shortcuts less discoverable. It explains that in previous versions, shortcuts could be enabled via a menu, but in the new version, users must go to a drop-down menu to enable them, which is less intuitive for new users. It concludes that this makes the file manager less usable for new users and suggests that help or references to shortcuts should be included.

Ubuntu QA: Blog Brainstorm Package status Log in

ubuntu brainstorm

The Ubuntu community has contributed 22628 ideas, 138010 comments, 2628485 votes

All Projects Global categories

Idea sandbox Popular ideas Ideas in development Implemented ideas

Keywords Search...
Tags Search

Submit your idea

Most popular in 30 days

Scroll speed in mouse options

Written by [triletri](#) the 11 Feb 13 at 16:26. Related project: [Unity](#). New

Mouse scroll wheel should have an option (like in Windows) to set scroll speed - how many "lines" to scroll in one flip of a mouse wheel.

11 votes

Solution #1: Add scroll speed slider to mouse settings panel

Written by [triletri](#) the 11 Feb 13 at 16:26.

Add a simple mouse wheel scroll speed so you can set scroll speed to 1,2,3,4,5,6... lines of text for scrolling

[Add a comment or propose a solution >>](#)

Shortcuts and configuration usability reduced

Written by [AIXI](#) the 17 Jan 13 at 01:09. Related project: [Nautilus](#). New

With the 3.6 version of nautilus the UI get revamped to be more simply.
This changes made that almost all shortcuts are not displayed on any menu and so if a new user start to use it there is no way that he will learn how to use them.
For an example control+h will make the hidden files to show and in previous versions when you open the menu button to enable it you could see the shortcut that will enable it but there is no such possibility on the new version, now you have to go to the drop-down menu and check the option and go again there to disable every time you want to make it. If you already know the shortcuts they still work but for a new user there is no way to learn them.
This way a new user that need to use the file manager a lot(like many working environments) will have a huge time loss for very simple actions and makes the file manager less usable under heavy use.
I check the help(at least the spanish one) and also there are no references to the shortcuts so the only way to learn them is searching on the net or by using another file manager.

Thesis objectives

[Introduction: from motivation to goals]

- propose a **single conceptual model** for Idea Management Systems
- **summarize data** of Idea Management Systems
- deliver **indicators for idea assessment**

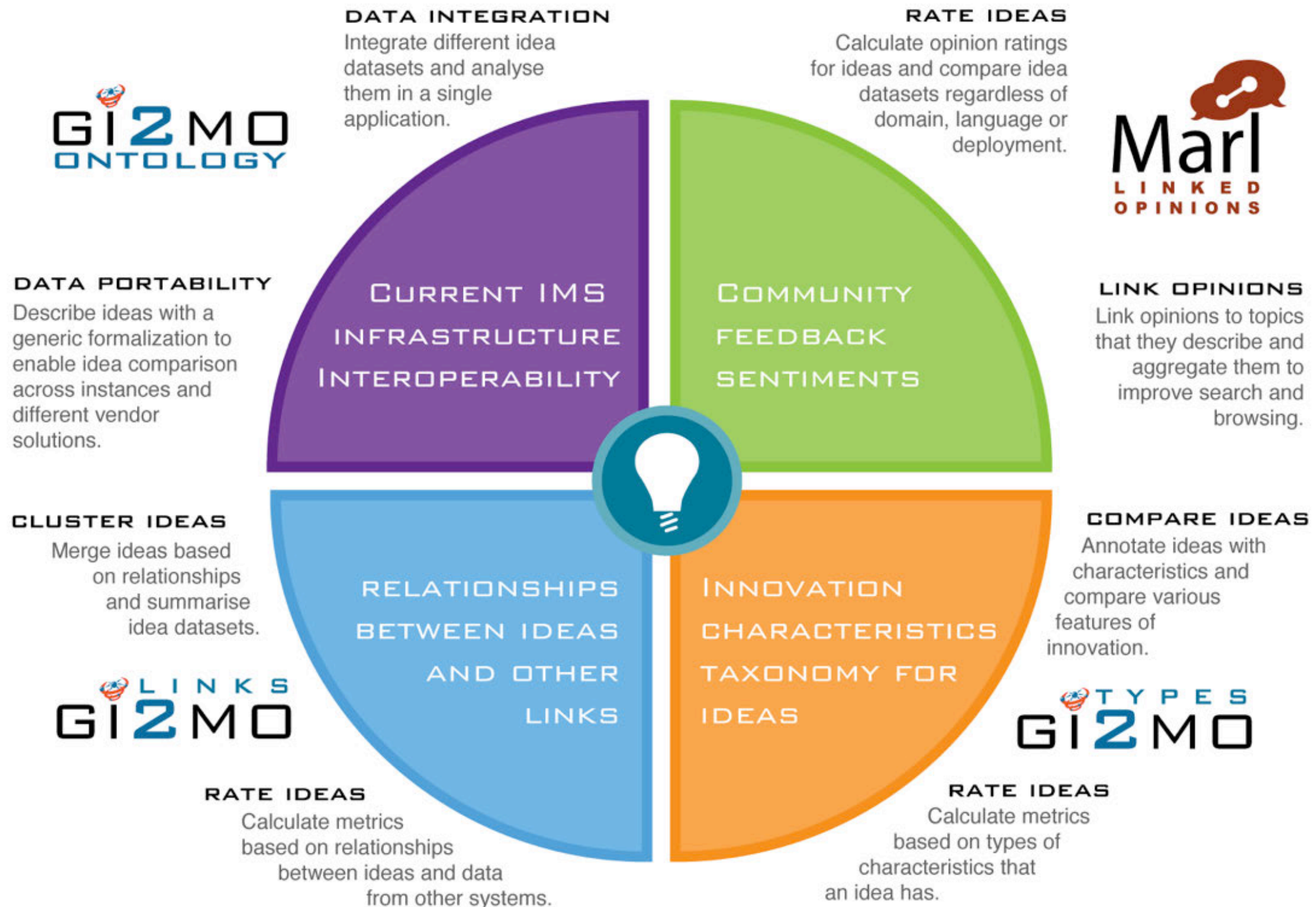
Thesis research questions

[Introduction: research motivation]

- *can the contemporary IMSES be generalized into a **single model** ?*
- *can **community activity** related to ideas be modeled, summarized and measured regardless of the system or domain ?*
- *can ideas be modeled, **summarized and compared** independently of the domain or use of IMS ?*
- *can the content of IMS be summarized based on the basis of **relationships between ideas** ?*

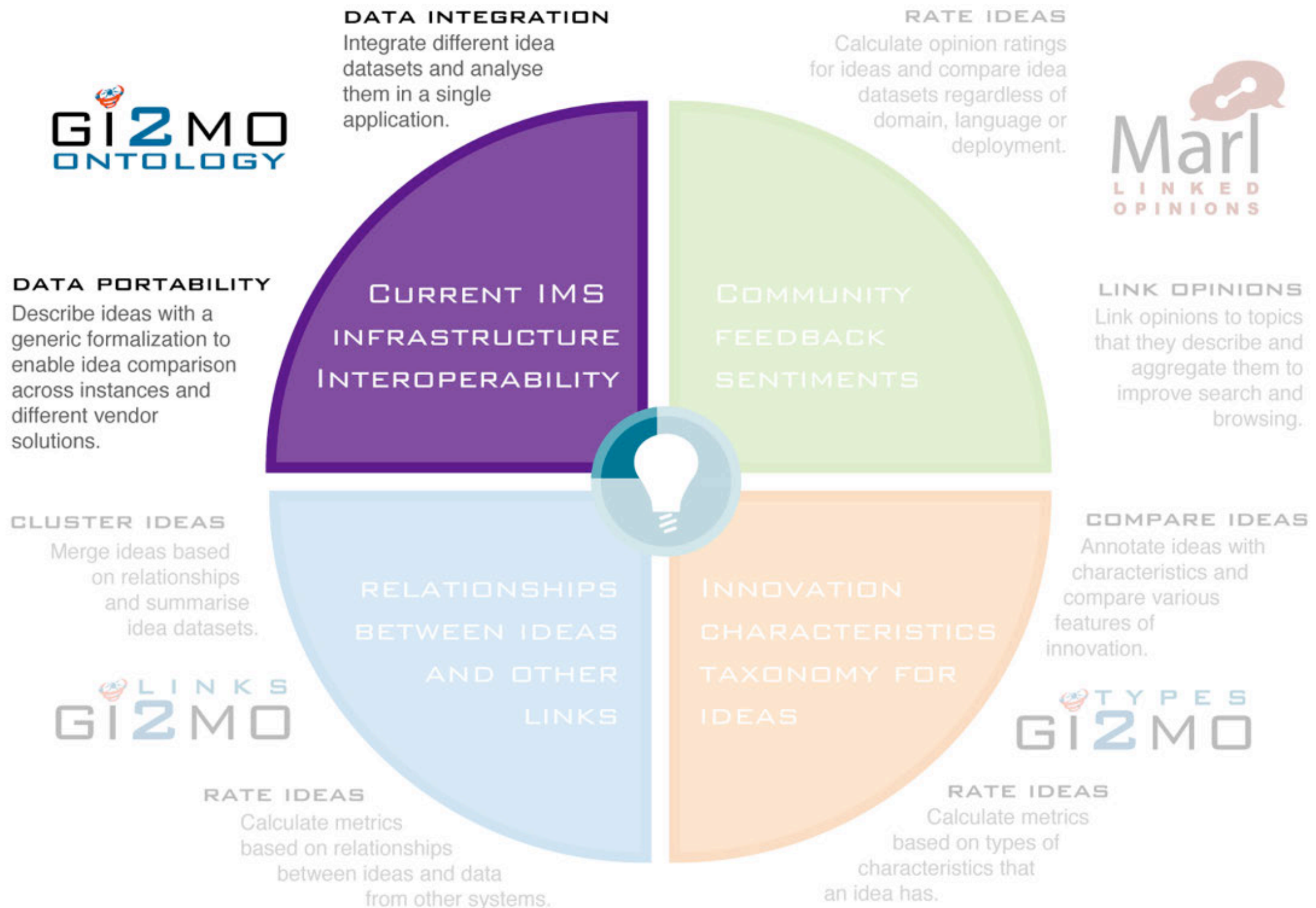
Thesis Contribution Areas

[Introduction: solution architecture]



Generic Model for Idea Management

[Solution - Part I]



Generic Model for Idea Management

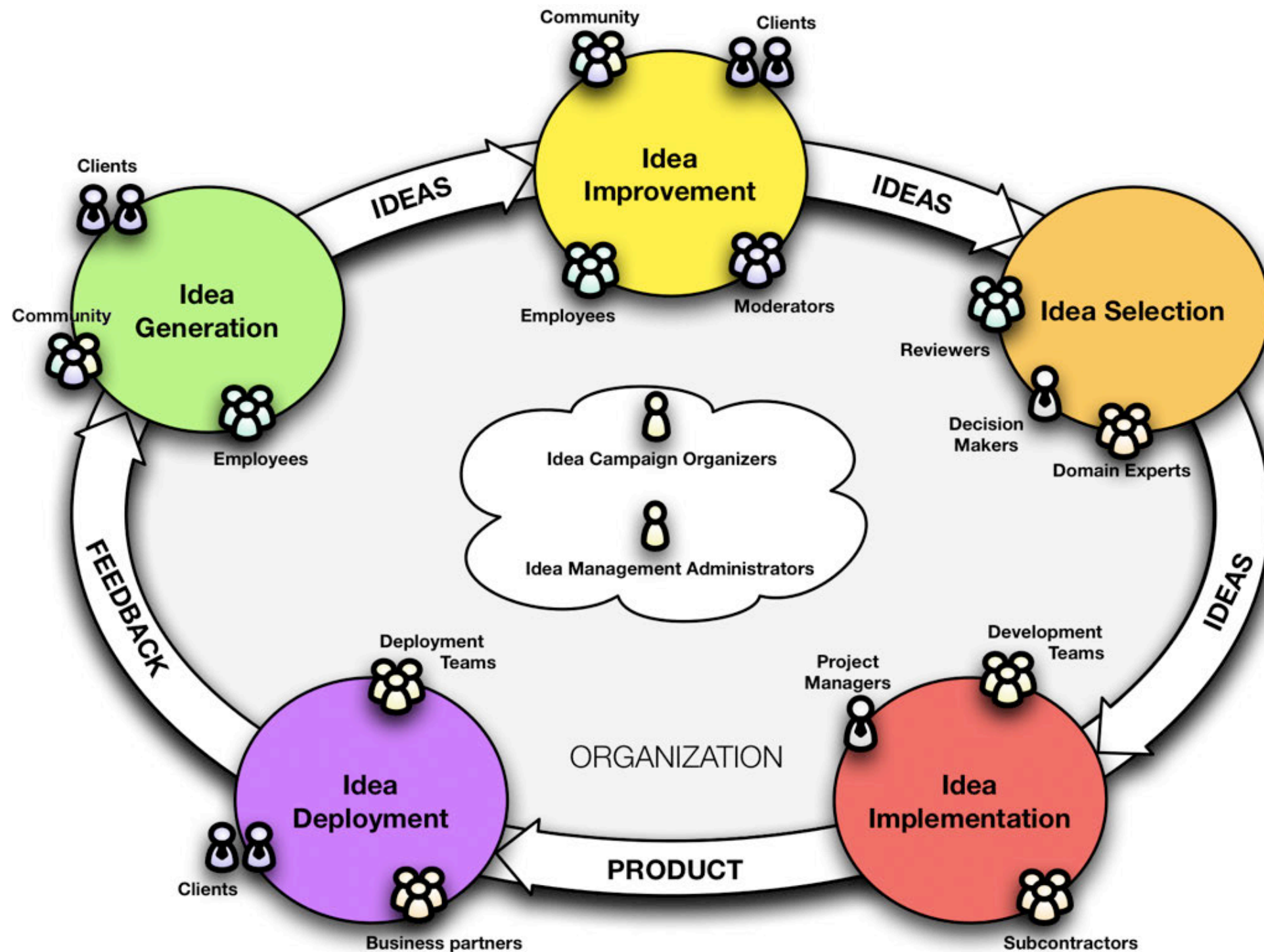
[Solution - Part I]

Methodology:

1. Analyse Industrial Systems and State of the Art in research
2. Capture common elements and dynamics in a form of **Idea Life Cycle**
3. List all **common data properties** for each stage of the Idea Life Cycle
4. Formalize the Life Cycle as an **ontology**
5. Evaluation for multiple systems

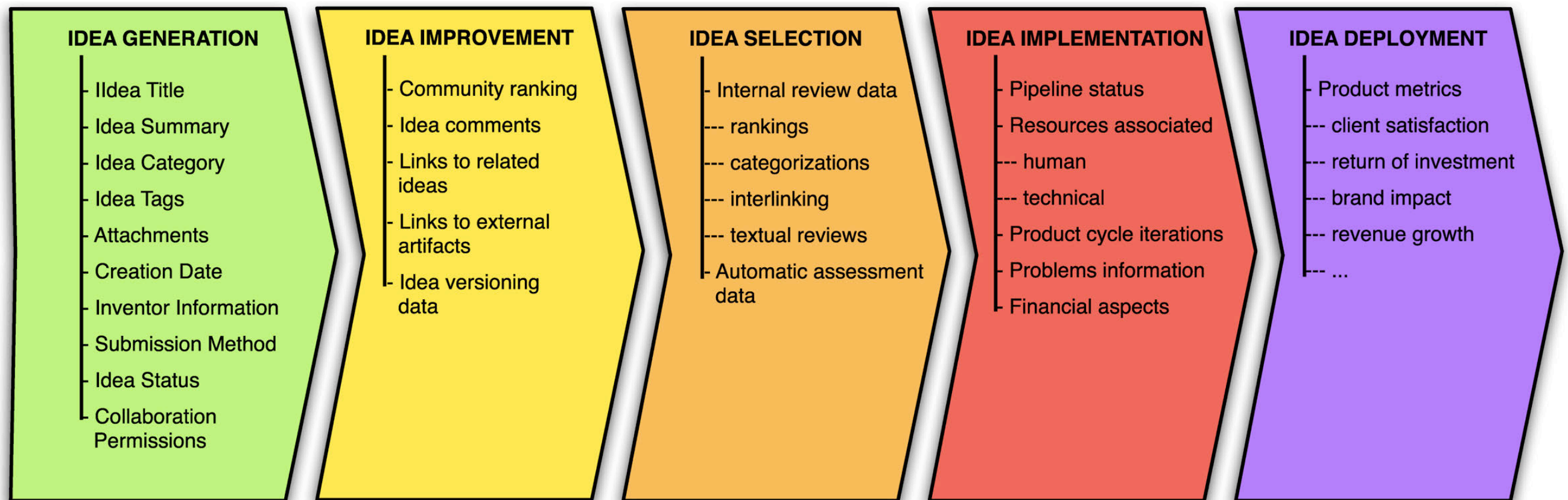
Idea Life Cycle

[Solution Part I: Generic Model for Idea Management Systems]



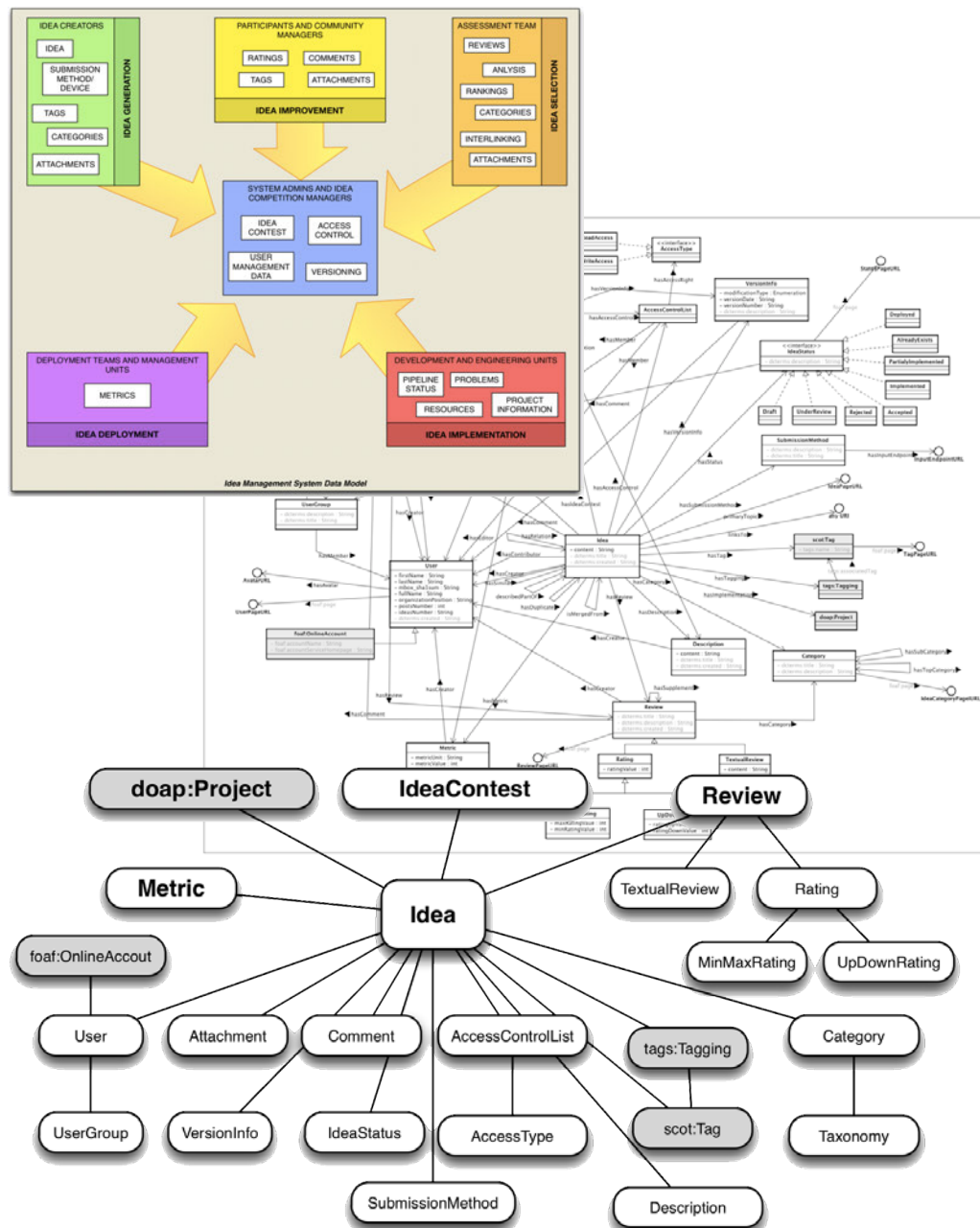
Idea Life Cycle: Idea Metadata

[Solution Part I: Generic Model for Idea Management Systems]



Gi2MO Ontology: Life Cycle Formalization

[Solution Part I: Generic Model for Idea Management Systems]



gsi
UPM
Grupo de Sistemas Inteligentes

GI2MO ONTOLOGY SPECIFICATION

V0.3 - 09 JUNE 2010

This version: <http://purl.org/gi2mo/0.3/ns> (RDF/XML, HTML)

Latest version: <http://purl.org/gi2mo/ns>

Previous version: <http://purl.org/gi2mo/0.2/ns>

Editors: Adam Westerski

Authors: Adam Westerski

Contributors: See acknowledgements

This work is licensed under a [Creative Commons Attribution License](#). This copyright applies to the GI2MO Ontology Specification and accompanying documentation in RDF. This ontology uses W3C's RDF technology, an open Web standard that can be freely used by anyone.

ABSTRACT

Generic Idea and Innovation Management Ontology (GI2MO) is a standardised data schema (also referred as "ontology" or "vocabulary") designed to annotate and describe resources gathered inside Idea Management facilities. The following document contains the description of ontology and instructions how to connect it with descriptions of other resources.

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1. Introduction
 1. Idea Management Systems and Innovation Management Process
 2. The Semantic Web
 3. What is GI2MO for?
2. GI2MO ontology at a glance
3. GI2MO ontology overview
 1. Example
4. Cross-reference for GI2MO classes and properties

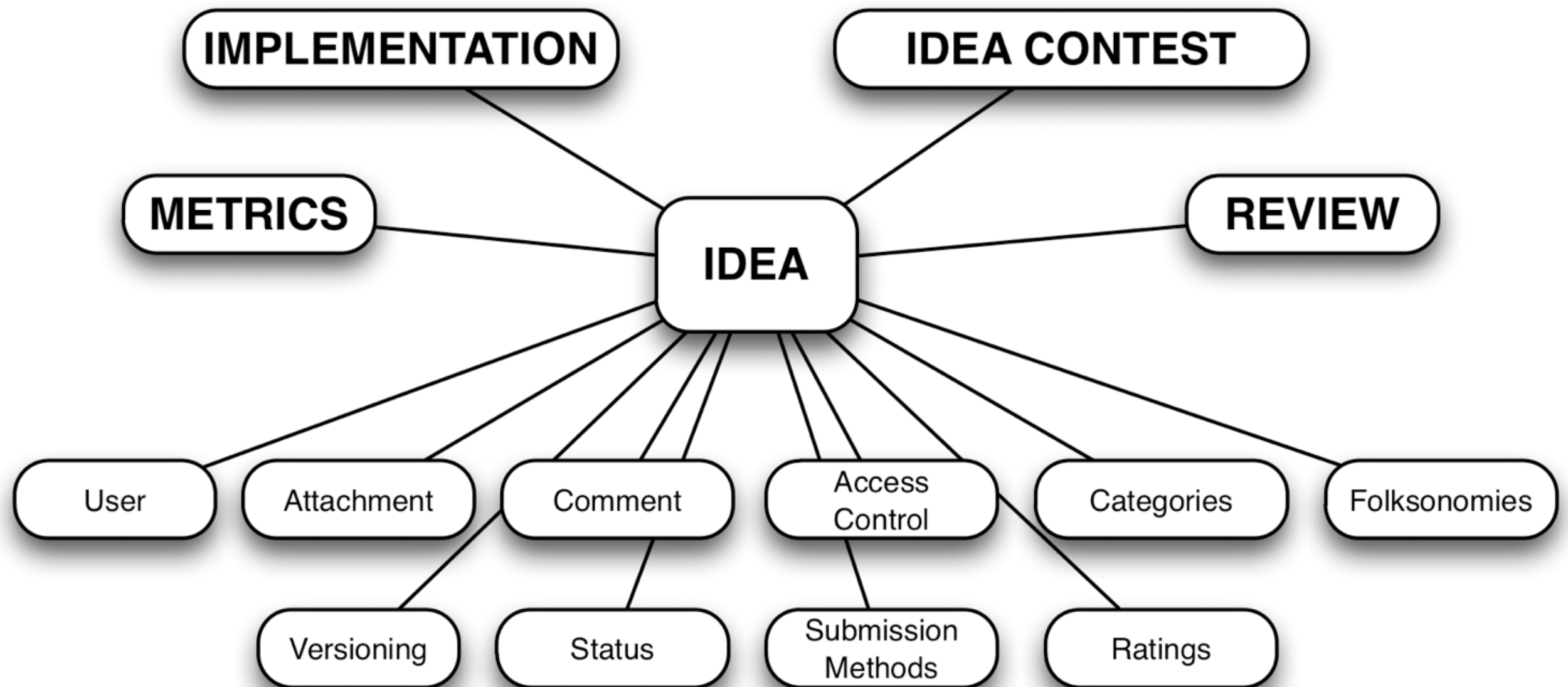
APPENDICES

- A. Changelog
- B. Acknowledgements

1 INTRODUCTION

Gi2MO Ontology: Overview

[Solution Part I: Generic Model for Idea Management Systems]



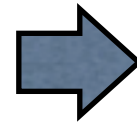
[Solution Part I: Generic Model for Idea Management Systems]



Gi2MO Ontology: Experiments

[Solution Part I: Generic Model for Idea Management Systems]

HTML scraping
ideas in the wild



Gi2MO Mappings

System Name	ideas/ comments/ users	Area	Characteristics
Dell IdeaStorm	15k / 90k / 2k	Computers, teleco hardware, related services	indefinite/ existing products/ focus sessions
myStarbucks Ideas	8k / 80k / 3k	Coffee, related products and services	indefinite/ products & services
Cisco i-Prize	1k / 4k / 1k	Networking and communications equipment	fixed time / abstract ideas on future products/ money incentives
Adobe Acrobat Ideas	500 / 2k / 600	Computer software	indefinite/ single product

Results: the model covers on average 87% of metadata

Progress beyond SoA

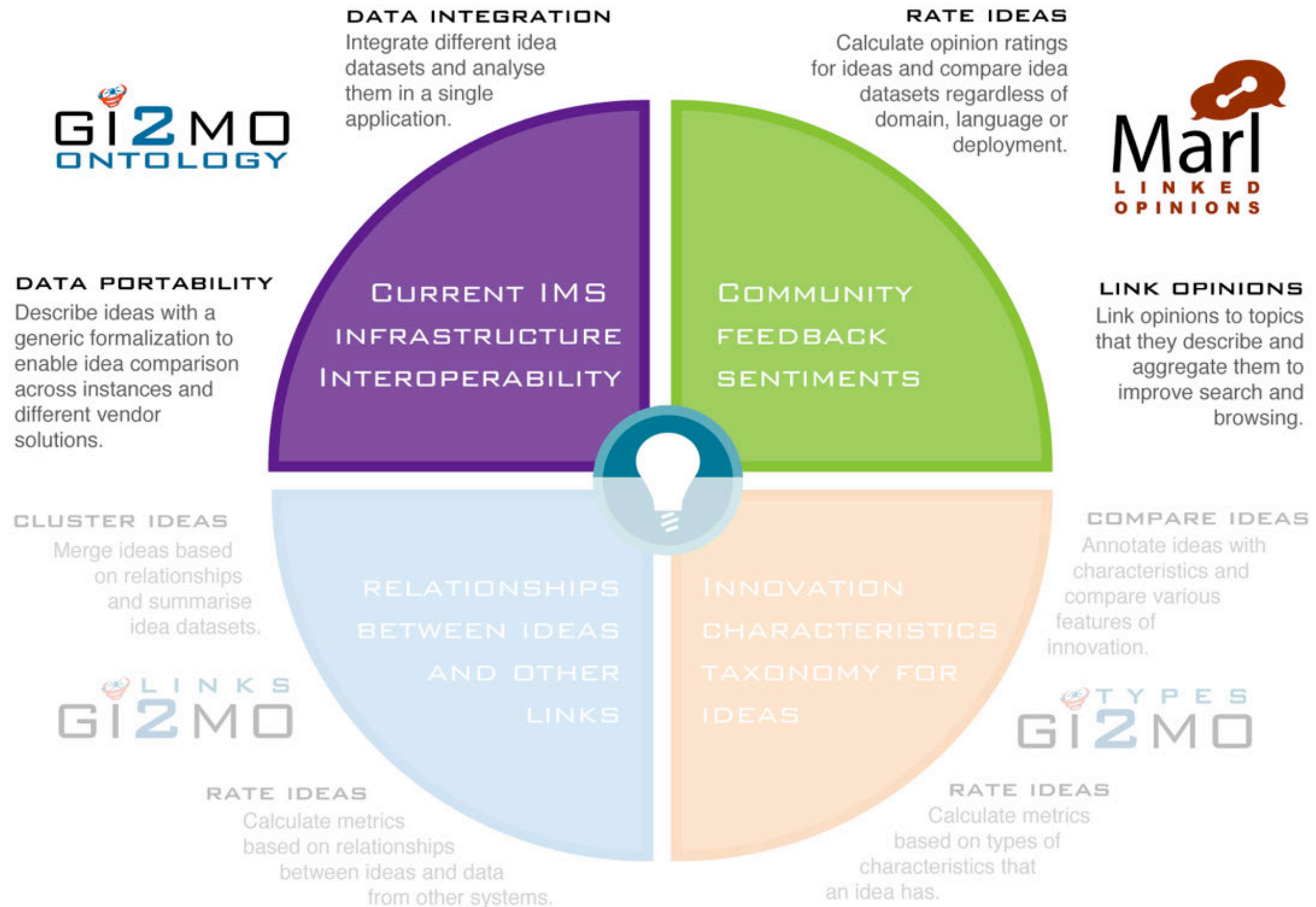
[Solution Part I: Generic Model for Idea Management Systems]

- Riedl et al., 2009, **An idea ontology for innovation management**, International Journal on Semantic Web and Information Systems
- Bullinger, A. C., 2008, **Innovation and Ontologies**, Gabler

Thesis approach: data interoperability as a goal, wider scope, different modeling approach

Community Opinions in Idea Management

[Solution - Part II]



Community Opinions in Idea Management

[Solution - Part II]

Methodology:

1. Analyse opinions posted in variety of industrial systems & **available indicators** in related research areas
2. Capture common elements in a form of **ontology**
3. **Evaluate** the use of ontology in a number of case studies
4. Evaluate the value of identified data properties **in Idea Management Systems**

Measuring Opinions: Sentiment Analysis

[Solution Part II: Community Opinions in Idea Management Systems]

Comment:

I like this is idea and I totally support it!

Polarity: **positive**

Polarity rating: **1.4**

Comment:

I think this idea is terrible and putting a bigger screen will make the product worse

Object: Screen

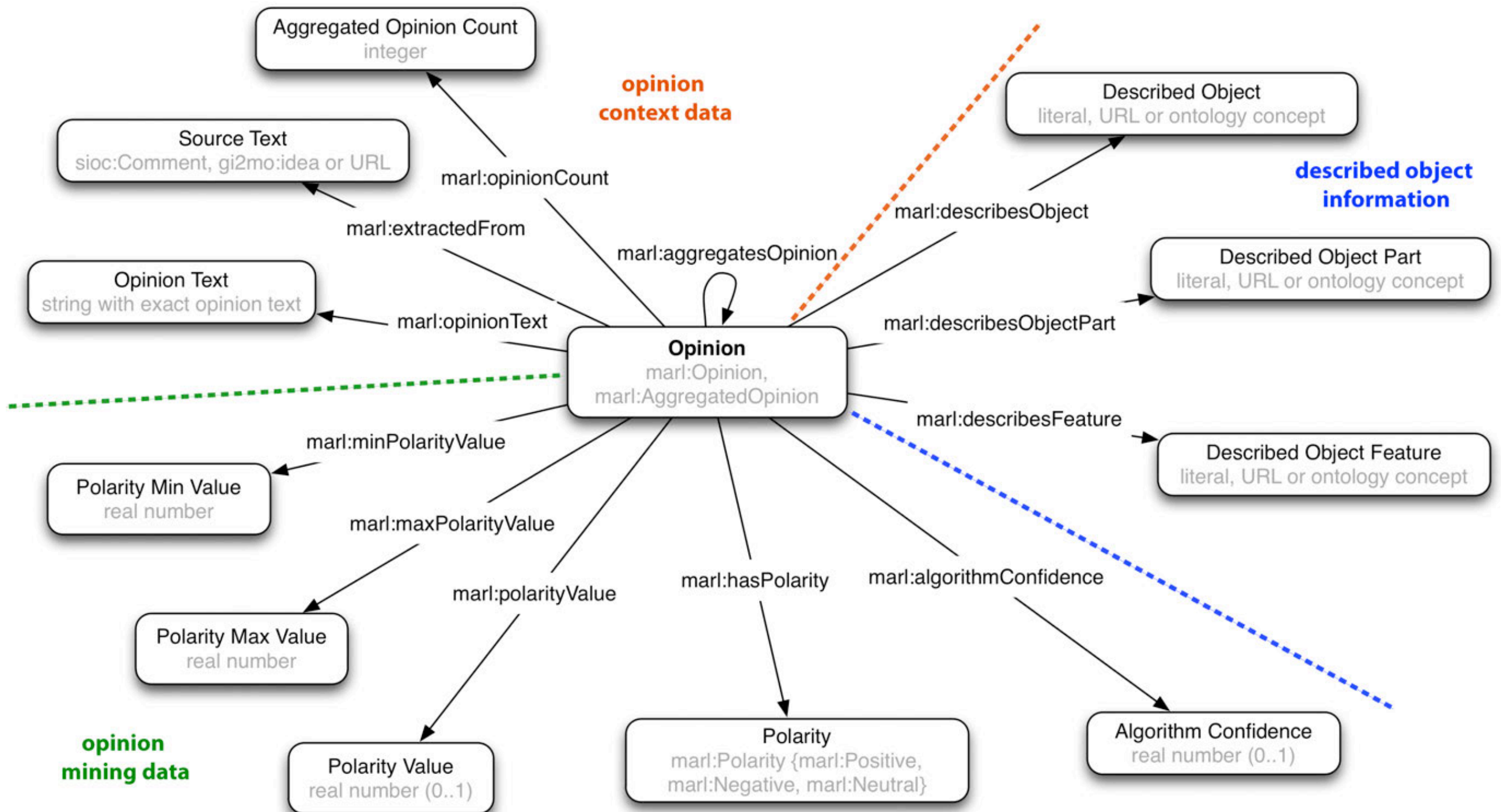
Feature: Size

Polarity: **negative**

Polarity rating: **-2.1**

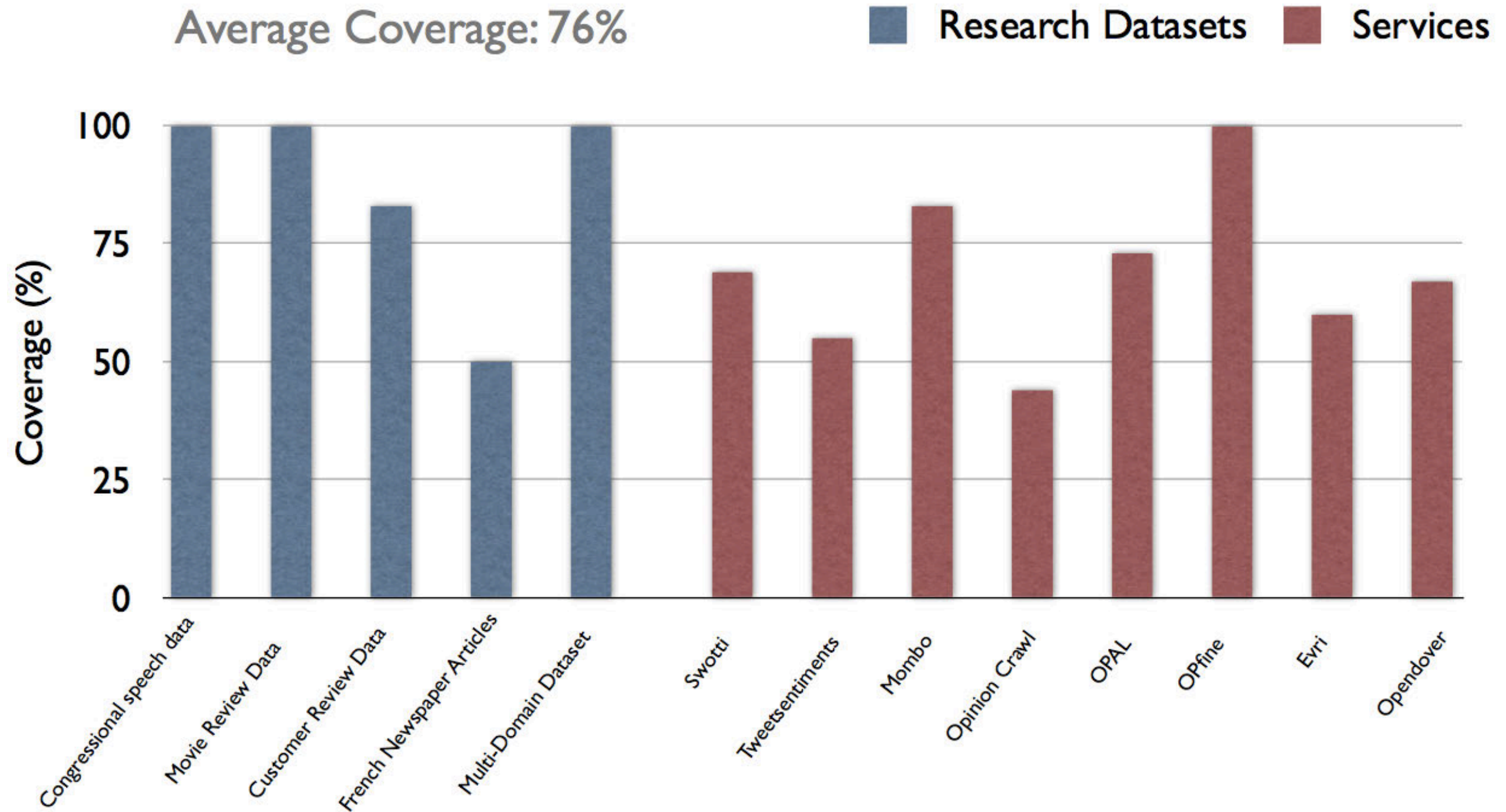
MARL: Describing and Linking Data

[Solution Part II: Community Opinions in Idea Management Systems]



Evaluation part I: Ontology Coverage

[Solution Part II: Community Opinions in Idea Management Systems]



Evaluation part II: Opinion Analysis in IMS

[Solution Part II: Community Opinions in Idea Management Systems]

Can structured OM data be useful in the context of IMS ?

- **H1:** sentiments in idea comments are an indicator if idea is accepted or not (by IMS managers)
 - **EX1:** measure correlation between opinion rating and idea adoption (1 = implemented , 0 = not)
- **H2:** analyzing comments with opinion mining delivers a new assessment tool in comparison to current metrics
 - **EX2:** measure correlation between opinion rating and IMS metrics: comment count, solution count, max. /min. / avg. solution rating, idea age

Evaluation part II: Results

[Solution Part II: Community Opinions in Idea Management Systems]

Metric	Correlation with idea adoption
Comment count	0.03
Solution count	0.04
Max. solution rating	0.3
Min. solution rating	0.24
Avg. solution rating	0.37
Idea age	0.12
Opinion rating	0.04

do decision makers take all community comments
into account ?

Evaluation part II: Results (II)

[Solution Part II: Community Opinions in Idea Management Systems]

Metric	Correlation with opinion rating
Comment count	0.28
Solution count	-0.08
Max. solution rating	0.25
Min. solution rating	0.38
Avg. solution rating	0.41
Idea age	0.19

does opinion rating duplicate other metrics ?

Progress beyond SoA

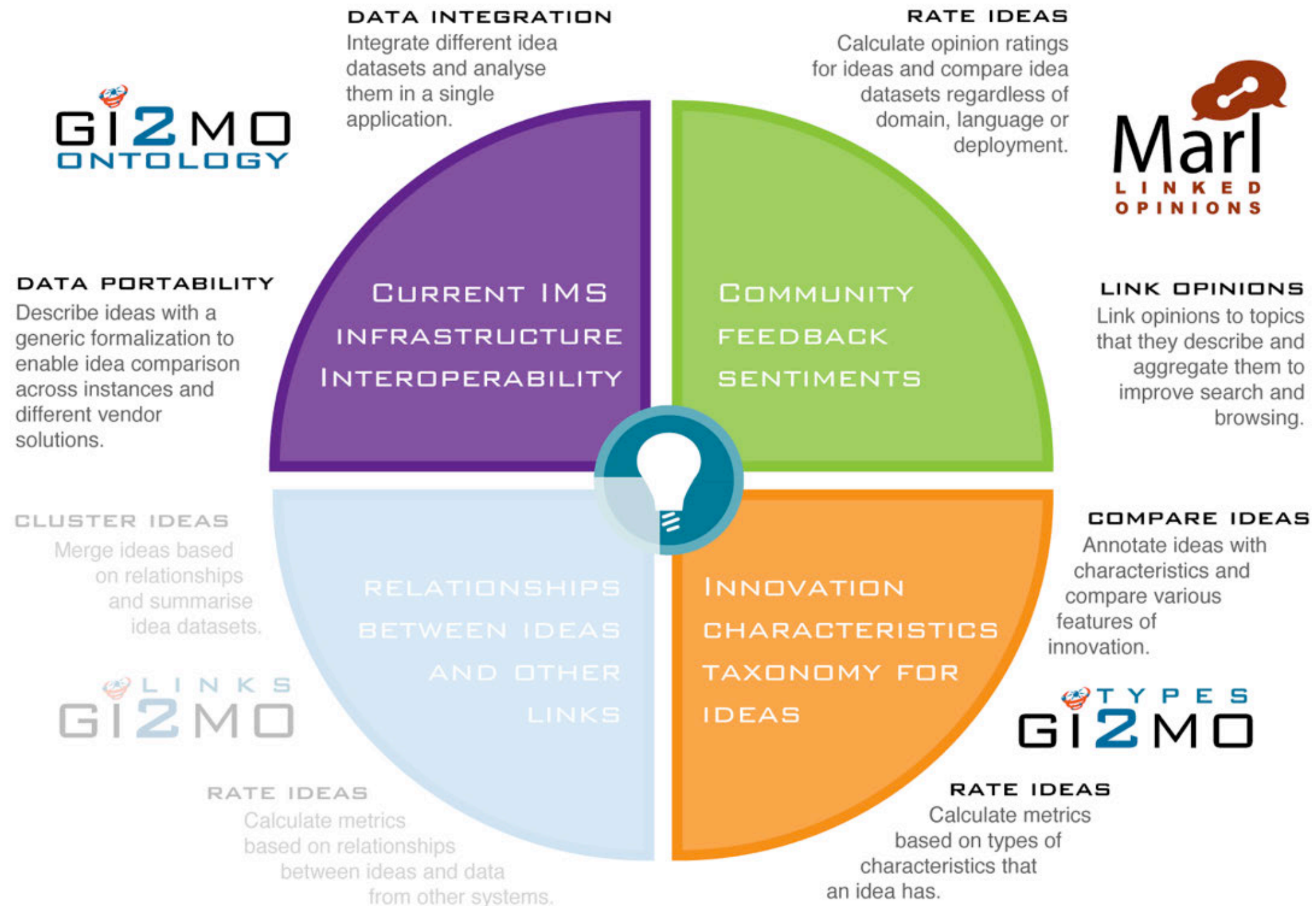
[Solution Part II: Community Opinions in Idea Management Systems]

- opinion modeling:
 - Softic, S., and Hausenblas, M., 2008, **Towards opinion mining through tracing discussions on the web**, SDoW, 7th International Semantic Web Conference (ISWC)
- industry approaches: hReview, Schema.org ...
- community activity measures:
 - targeted at particular areas: movie reviews, product reviews, business intelligence
 - IMS: Bothos et al, Hrastinski et al ...

Thesis approach: opinions are not the same as reviews; add modeling of polarity; use OM to generate new metric for IMS

Idea Characteristics Model

[Solution - Part III]



Idea Characteristics Model

[Solution - Part III]

Methodology:

1. 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 Part III: Idea Characteristics Model]

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 Part III: Idea Characteristics Model]



Idea Annotation

[Solution Part III: Idea Characteristics Model]

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).

Trigger

Observation Type **Faulty Experience**

Creativity Origin **Object Interaction**

Associated Object **Other Object** **Object Relation** **Competitive**

Associated Object **Other Object** **Offering Placement** **Other Party**

Innovation

Target Audience **Existing Audience**

Originality **Incremental** **Additive**

Relative to **Current State** **Organisation** **Product Line**

Proposal Type

Request

Object

History Relationship **Evolutionary**

Structure **Element**

Type **Product** **Specific Product**

Offering Placement **Existing** **Additive**

Generating the metrics

[Solution Part III: Idea Characteristics Model]

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



Idea Dependability



Idea Adaptiveness = $\begin{cases} 1 = \text{Existing audience} \\ 0 = \text{New audience} \end{cases}$



Idea Originality



Idea Originality Scope

Experiments & Results

[Solution Part III: Idea Characteristics Model]

- Manual and Automatic Annotation Experiments:
 - manual:
 - 10 ideas x 10 annotators - full agreement in 34% cases
 - 2x (200 ideas x 1 annotator) - 70% annotations the same ($\alpha = 0.613$ = substantial agreement)
 - automatic: 400 ideas - single annotator vs. machine learning algorithm - 0.46 f-measure, various experiments to improve, final result: trigger and object only applicable with f-measure above 0.6

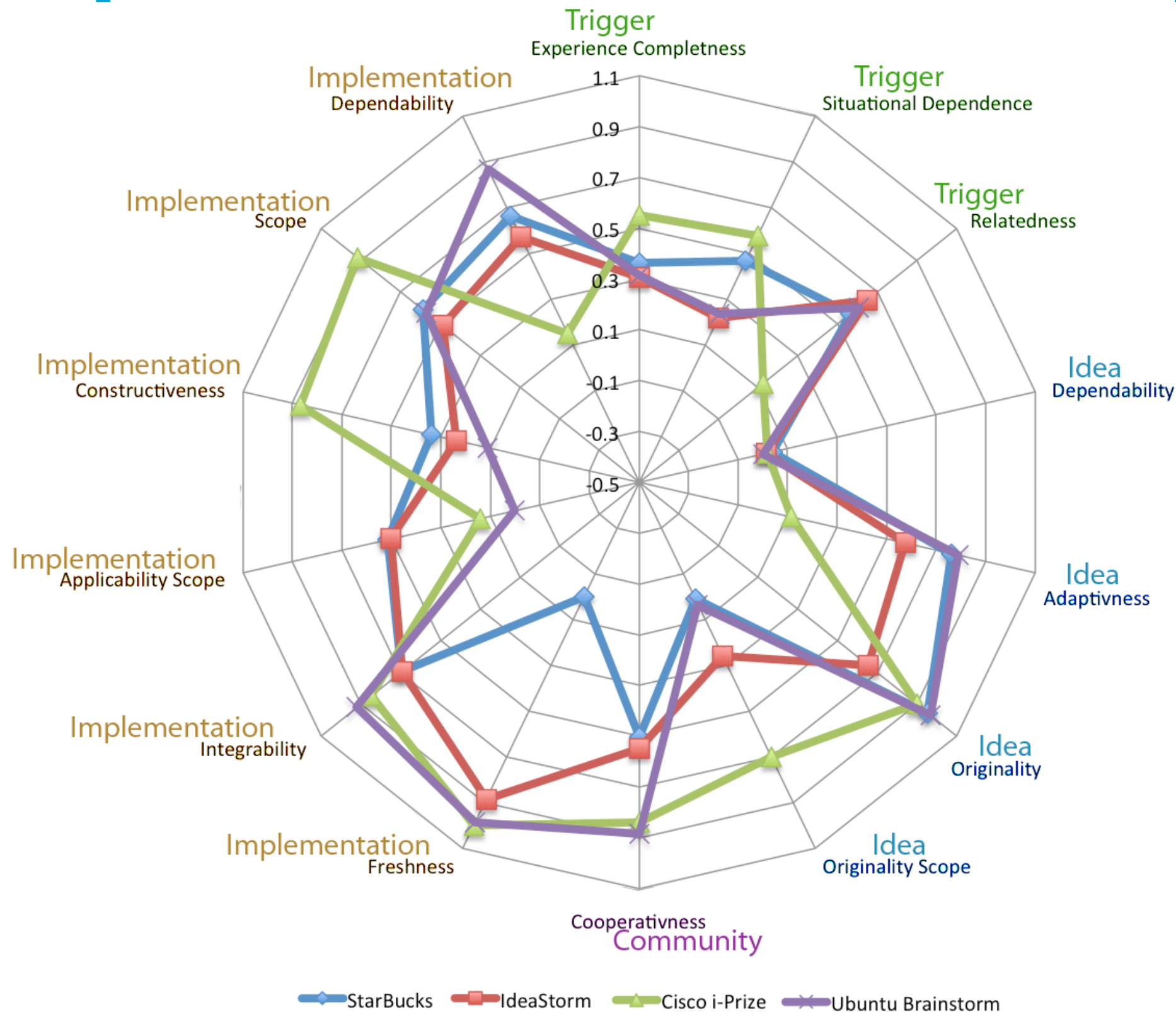
Experiments & Results

[Solution Part III: Idea Characteristics Model]

- Usage for Idea Comparison and Idea Assessment
 - (200 ideas x 1 annotator) x 4 datasets
- Experiments:
 - correlation between Gi2MO Types metrics and idea adoption - same as for legacy metrics
 - differences in metrics vs. expected characteristics as described in case studies - new approach

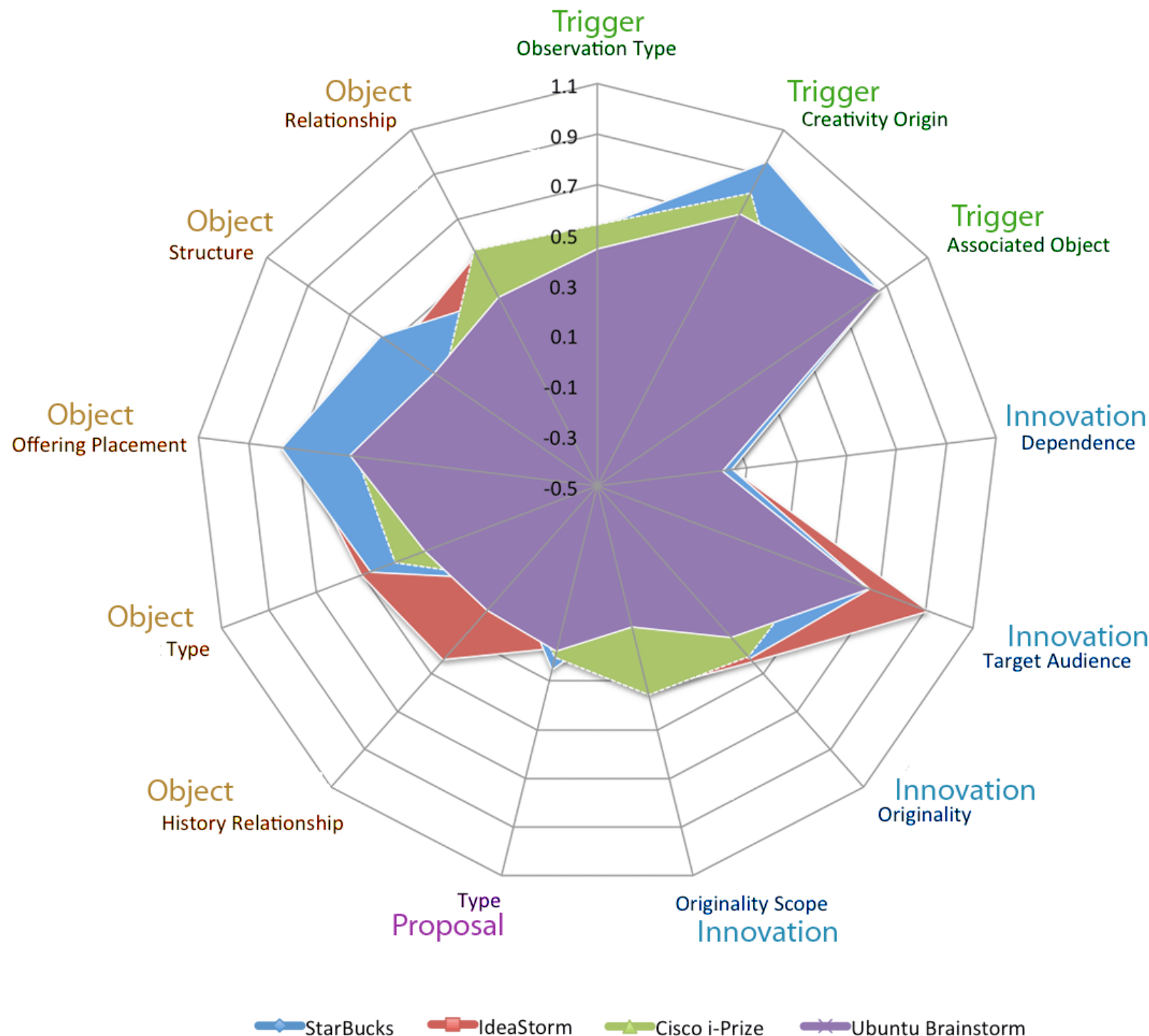
Experiments: Dataset comparison

[Solution Part III: Idea Characteristics Model]



Experiments: Idea Similarity

[Solution Part III: Idea Characteristics Model]



Use of information entropy
as term diversity measure

Masisi 2008; Ghosh 2011;
Huang 2008

number of term
combinations in a
taxonomy branch

term
combination

$$E(tb_x) = - \sum_{i=1}^n p(i) \log_2 p(i)$$

frequency of annotations

Progress beyond SoA

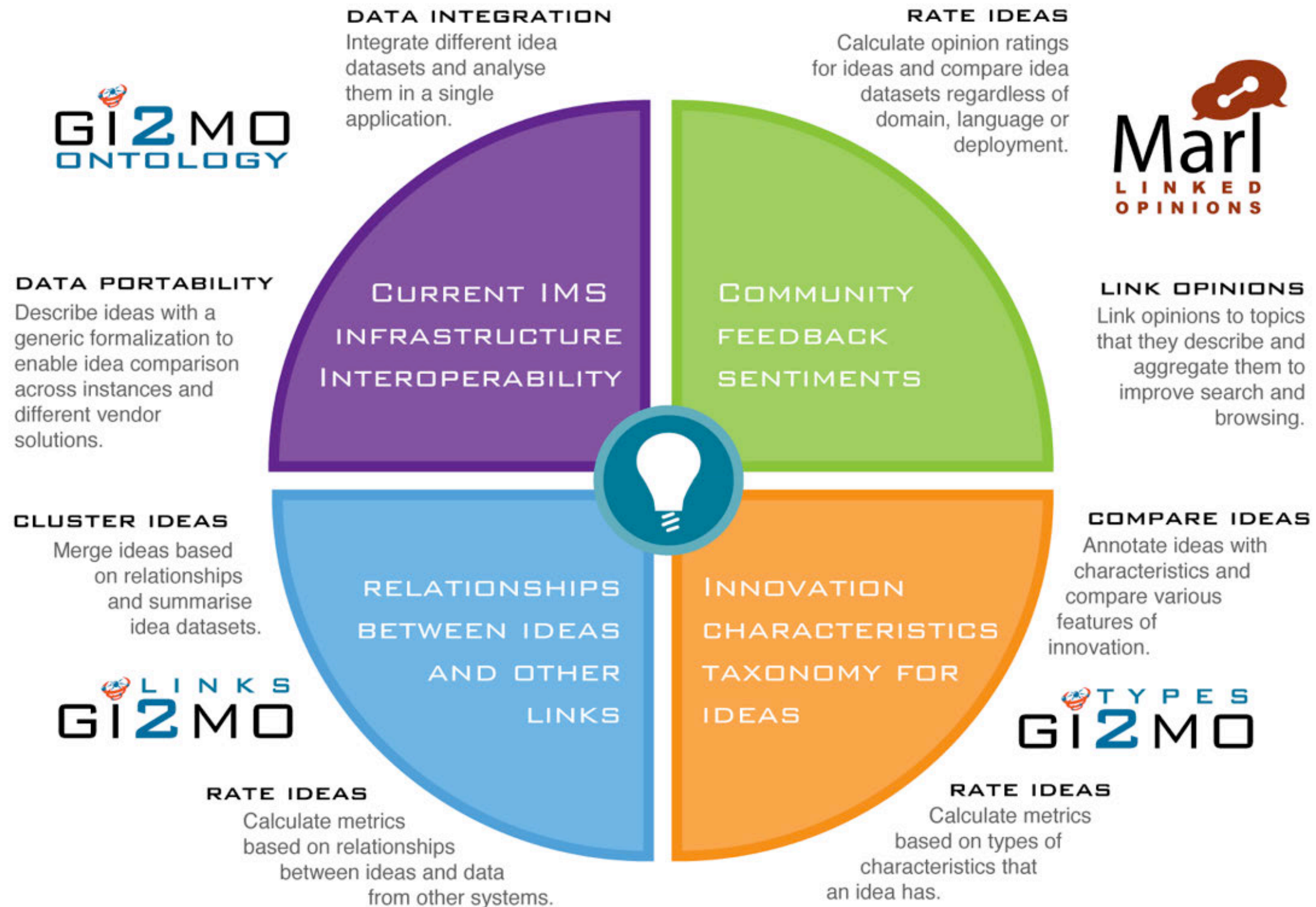
[Solution Part III: Idea Characteristics Model]

- Schumpeter, J., 1934, **The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle**, Harvard University Press
- Henderson, R. M., and Clark, K. B., 1990, **Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms**. Administrative Science Quarterly
- Abernathy, W. J., Clark, K. B., 1985, **Innovation: Mapping the winds of creative destruction**, Research Policy

Thesis approach: apply the well known models for Idea Management Systems to allow cross domain system comparison

Idea Relationship Model

[Solution - Part IV]



Idea Relationship Model

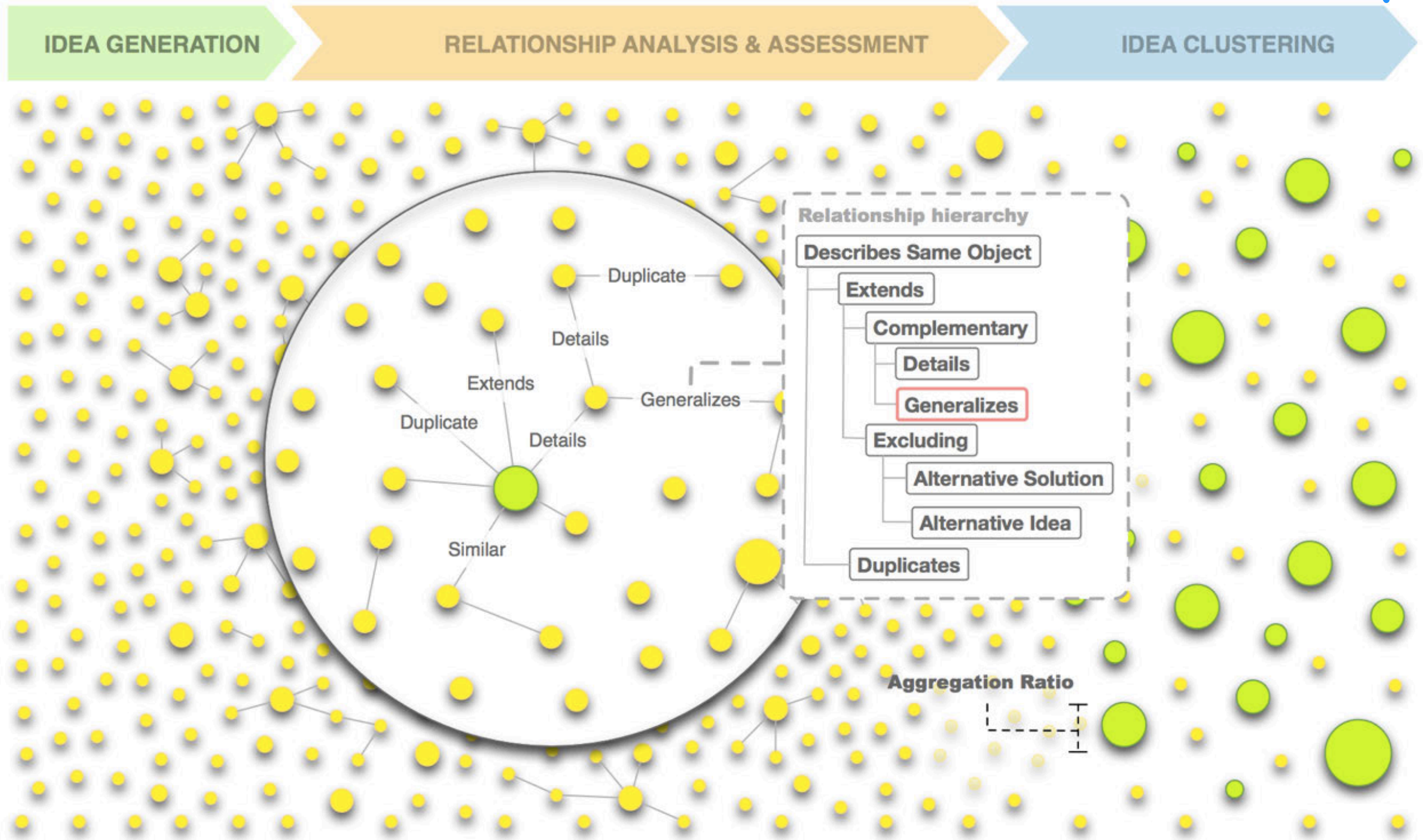
[Solution - Part IV]

Methodology:

1. Analyse state of the art on **relationship modeling** in various domains (Semantic Web domain ontologies, e-Learning metadata etc.)
2. Propose a **relationship hierarchy** for Idea Management Systems
3. Use of hierarchy to **annotate ideas** in available datasets from case studies
4. **Evaluation:** amount of relationships detected, clustering capabilities etc.

Idea Relationships: IMS Scope

[Solution Part IV: Idea Relationship Model]

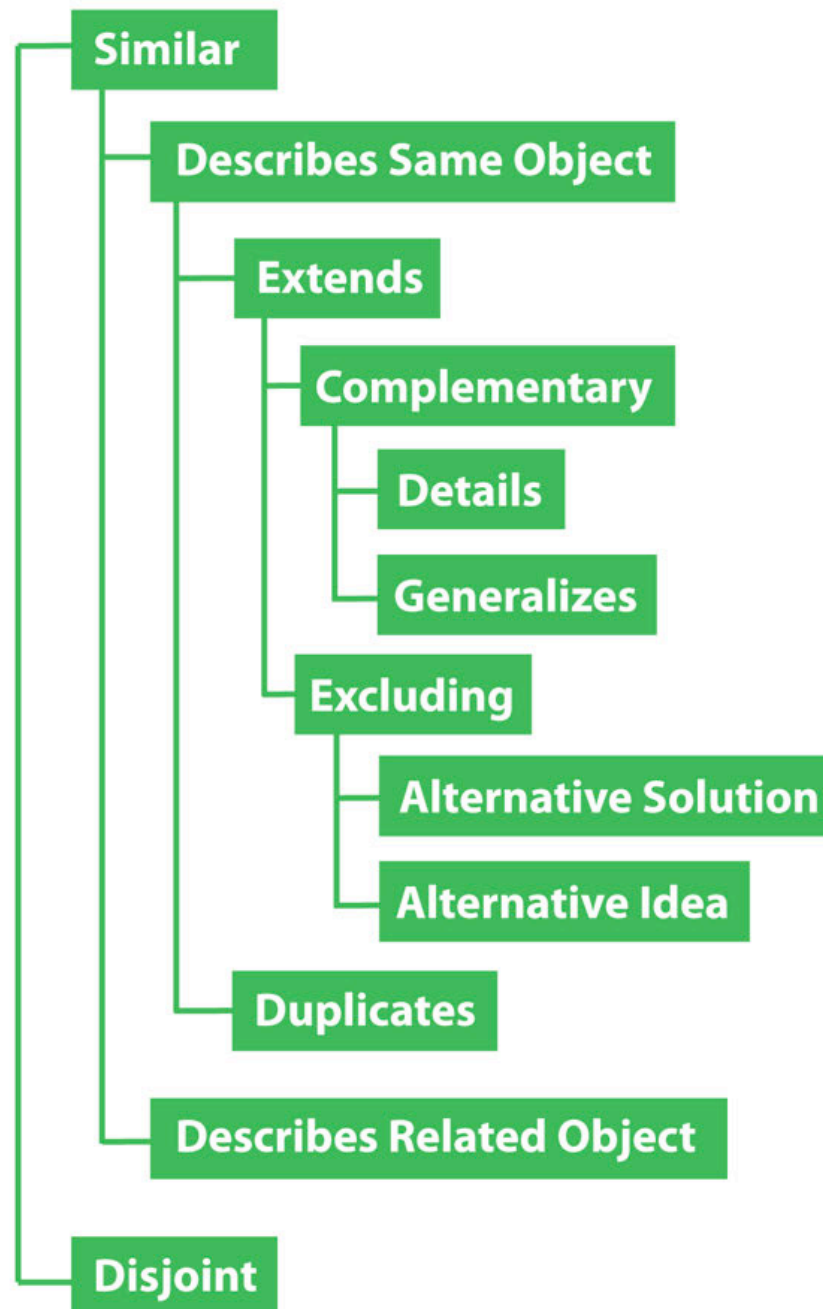


Idea Relationships: Hierarchy Proposal

[Solution Part IV: Idea Relationship Model]



Knowledge Based
Idea Relationships



Action Based
Idea Relationships



Idea Relationships: Evaluation Dataset

[Solution Part IV: Idea Relationship Model]

Data

- dataset size: 21k Ubuntu Brainstorm ideas
- manual annotation: 200 ideas - single annotator

Annotation experiment

- each idea was given 5 suggestions of similar ideas
- suggestions based on keyword similarity between idea texts
- annotator to choose the type or relationships (or its lack)

Output

- 200x5 relationship annotations
- “duplicate” annotations from the original Ubuntu dataset

Idea Relationships: Dataset Annotation

[Solution Part IV: Idea Relationship Model]

[Settings] [Logout]



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

Browse: IDEAS | IDEA CONTESTS

Search ideas...

Filter Status: ALL | DRAFT | UNDER REVIEW | EXISTS | ACCEPTED | REJECTED | IMPLEMENTED

Idea title: User always confused about software update

[Full-text Search | Taxonomy dist=1 Search]

Similar Idea by Title:

Enter similar Idea title

Suggestions:

Instead of typing Idea title, choose a related Idea from the suggestions list.

- ☐ The update process becomes exhausting.: --Select Relationship--
- ☐ update open arena in the repository: --Select Relationship--
- ☐ Improve update process: --Select Relationship--
- ☐ Ask for application restart after security update: --Select Relationship--
- ☐ update the blog: --Select Relationship--

Add Relationships

Cancel

- ✓ --Select Relationship--
- Alt_idea
- Alt_solution
- Complements
- Details
- Disjoint
- Duplicates
- Excludes
- Extends
- Generalizes
- Iss_duplicated
- Iss_extended
- Related_topic
- Similar

Relationship Type:

--Select Relationship--

Create New Idea

Idea Categories

Ideas Comments

- Uncategorised (10821)
- System (3102)
- Others (2036)
- LookAndFeel (2035)
- Usability (1449)
- Internet
- amp;Networking (1024)
- Multimedia (971)
- Installation (903)
- HardwareSupport (716)
- Accessibility (683)
- Graphics (401)
- Office (375)
- Marketing (371)
- Security (341)
- Gaming (258)
- Programming (228)
- Server (196)
- Documentation (111)
- Quality (107)
- Education (90)
- Ideas/commentsModeration (90)
- IdeaStructure (67)
- WebsiteStructure (57)
- WebsiteNavigation (51)
- AdditionalSoftware (25)
- DeveloperFeedback (23)
- Brainstorm (1)
- Scientific_methodHttp://en (1)
- Free_web_browsersSuchAsMidori,Epiphany
- Strange-----
- SomeIdeasAreVeryStrange (1)

Idea Relationships: Evaluation

[Solution Part IV: Idea Relationship Model]

3 hypotheses & 3 experiments:

- **H1:** semantics of relationships are more complex than “duplicate”
 - relationship amount comparison - 76.7% increase
- **H2:** wide range of relationships can be used to summarize datasets more than the current techniques
 - idea aggregation - 95% increase
- **H3:** apart of idea topic there are characteristics that impact how annotators perceive idea similarity
 - relationships vs. idea characteristics - 8 out of 14 metrics had small correlation with similar/dissimilar

Progress beyond SoA

[Solution Part III: Idea Characteristics Model]

- Kornish, L. J., and Ulrich, K. T., 2011, **Opportunity spaces in innovation: Empirical analysis of large samples of ideas**, Management Science
- industry: BrightIdea, IdeaCentral, SpigitEngage etc.

Thesis approach: define a hierarchy of relationships, extend the current state where only “duplicate” is used

Contributions Overview

[Conclusions and future work]

- **Generic Model for Idea Management Systems**

- **Idea Life Cycle**: proof for IMS data being highly interconnected and mutually dependent
- **Gi2MO Ontology**: a single formalization based on Semantic Web methodologies that covers majority of IMS data and contributes to interoperability

- **Community Opinions in Idea Management Systems**

- **MARL**: a model for structuring opinion data in IMS and Web
- **opinion rating** - a new tool for analysis of community activity that brings new unique information into the idea assessment process

Contributions Overview

[Conclusions and future work]

- **Idea Characteristics Model**

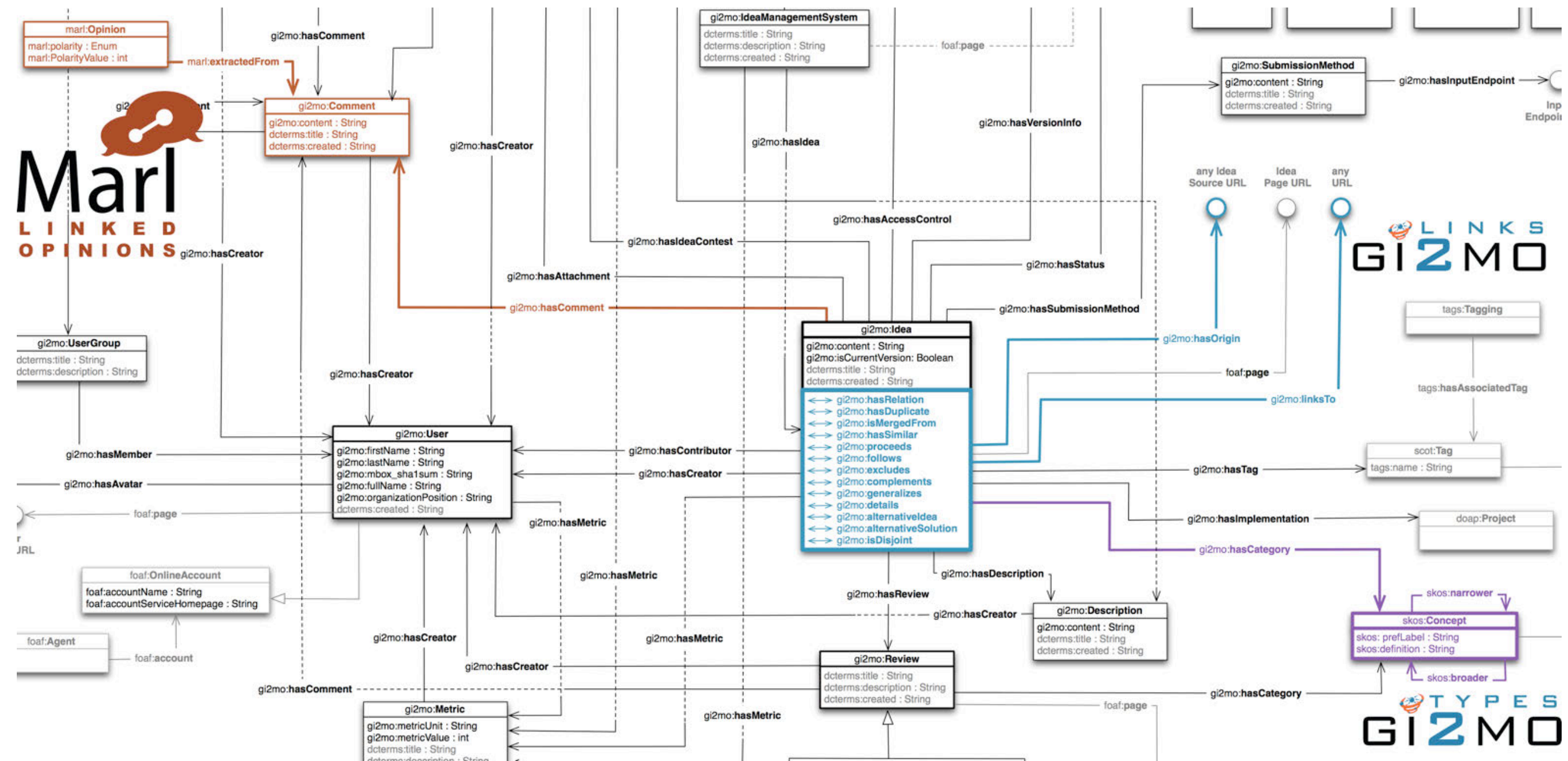
- **Gi2MO Types:** a taxonomy for domain independent characteristics derived from innovation management theories
- **Types metrics:** a new solution for idea assessment based on analysis of characteristics of IMS instances or data subsets

- **Idea Relationships Model**

- **Gi2MO Links:** a hierarchy of relationships, proven as hugely omitted topic by contemporary systems
- **Gi2MO Links vs. Gi2MO Types:** non-domain characteristics can be used to determine general similarity or dissimilarity

Contributions Overview: Data Model Synergy

[Conclusions and future work]



Future work

[Conclusions and future work]

- **Established lines of research to continue in the future**
 - automatic idea annotation experiments
 - use of structured opinion data in other domains
 - ...
- **New possibilities opened based on work done**
 - use of relationships for idea assessment
 - interoperability between IMS and other systems
 - ...

Results: Publications

[Publications and results]

- **Generic Idea Management System Model** [2010-2012]
- [Journal] The Road from Community Ideas to Organisational Innovation: A Life Cycle Survey of Idea Management Systems *Journal Web-Based Communities* 2011
- [Conference] A Model for Integration and Interlinking of Idea Management Systems, *MTSR* 2010
- **Community Opinions in Idea Management Systems** [2011]
- [Workshop] Linked Opinions: Describing Sentiments on the Structured Web of Data *SDoW2011 @ ISWC* 2011
- [Workshop] Mining Sentiments in Idea Management Systems as a Tool for Rating Ideas *LSDeliberation @ COOP* 2012
- **Idea Characteristics Model** [2011-2012]
- [Journal] Taxonomy usability study *Decision Support Systems Journal* 2013 (JCR Q1 Impact Factor: 1.667 / CORE-A*)
- **Idea Relationships Model** [2010 & 2012]
- [Workshop] Exploiting Structured Linked Data in Enterprise Knowledge Management Systems *VORTE2011 @ EDOC* 2011
- [Poster] Gi2MO: Interoperability, Linking and Filtering in Idea Management Systems *ESWC* 2011
- [Conference, Poster, Demo] Idea Relationship Analysis in Open Innovation Crowdsourcing Systems *CollaborateCom* 2012
- **Co-authors publications on Gi2MO extensions** [2011-2012]
- [Workshop] Building Consensus via a Semantic Web Collaborative Space *WWW* 2012
- [Conference] Application of Semantic Search in Idea Management Systems *ICITST* 2012

Results: Software

[Publications and results]



- Gi2MO Ontology | [IMS Interlinking](#), [Data Portability](#)



- **RDFme** (PHP/Drupal) [2010-]
- **Idea Browser** (Flash) [2010/2011]
- **Gi2MO RDF2HTML** (Javascript, PHP) [2010]
- **Gi2MO IdeaStream** (PHP/Drupal) [2011-]
- **Gi2MO Stats** (Objective-C/iPhone) [2012]
- **Gi2MO Reader** (HTML5/Windows 8) [2013]

- Enterprise Linked Data Model | [Enterprise Data Interlinking](#)



- **Idea Analyst** (Flash) [2010]
- **Google Wave Plugin** (Python/Wave) [2010]
- **IdeaStream Recommender** (PHP/Drupal) [2011]

- Marl Opinion Ontology | [Opinion Analysis](#)



- **OPAL** (PHP/Drupal) [2010]

- Gi2MO Types, Gi2MO Links | [Idea Assessment](#)



- **IdeaStream Analytics** (PHP/Drupal) [2011-]
- **IdeaStream Similarity** (PHP/Drupal) [2012-]
- **Relationship Vis** (JavaScript/PHP) [2013]

Results: Referencing & Use

[Publications and results]

References to research contributions of the thesis

- Mondragon Univeristy | [Use of Idea Management in technological clusters of enterprises](#)
↳ Larrinaga et al., 2011
- IMC Technologies | [Use of Idea Management for question answering in large scale deliberation spaces](#)
↳ Anadiotis et al. 2012
- INRIA | [Research on Green Services and citizen participation](#)
↳ Leitzellman et al., 2011; Negri, 2012
- DERI | [Research on structuring information from brainstorming processes](#)
↳ Lorenzo et al., 2011

Use of software from Gi2MO Project

- large enterprises | e.g. Saab group for gathering ideas from employees
- small-medium companies | e.g. Ericpol consulting for collecting feedback about ongoing projects
- research laboratories | e.g. INRIA, support for experiments in e-government domain
- university associations | e.g. ETSIT UPM Fundatel design competitions for students

Results: Referencing & Use II

[Publications and results]

Contribution to Funded Projects

- RESULTA | Research on improving communication in the enterprise and in consortiums of consulting companies
↳ Gi2MO Ontology, MARL Linked Opinions
- THOFU | Research on hotel services for the future and use of new technologies to improve hotel business and tourism
↳ Gi2MO Types, Gi2MO Links
- EuroSentiment (ongoing) | Research on accessibility, sharing and interoperability of multilingual resources
↳ MARL Linked Opinions

Contributions to thesis research via collaborations

- ATOS Origin, Spain | In-the-house Idea Management solution & case study of Idea Management use in the enterprise
- Athena Research Institute, Greece | Solution for automatic annotation based on machine learning

Semantic Technologies in Idea Management Systems:

A Model for Interoperability, Linking and Filtering

Thanks for attention!

Questions ?

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