

Practical Reasoning's

Core of Discovery

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Asadai Vision

The Asadai vision is realized by

- Powerful knowledge extraction tools,
- Universally and unobtrusively deployed,
- For retrieving relevant information, and
- For discovering meaningful patterns (such as forecasts, and surprising associations)
- In large, heterogeneous collections of documents and data.

These knowledge extraction tools will be used

- For deep exploration and discovery in highly-valuable special collections, then
- As essential functionality to support knowledge workers, then
- Universally.

Outline of presentation

1. What do we do?
2. What's out there now?
3. What's our product?
4. Who needs it?
5. What's the development strategy?
6. Who's on the team?
7. What about the competition?
8. What do we need?

1. What do we do?

- Knowledge management, specializing in information extraction from text
- Extracting: nuggets & needles
- Extracting: patterns, trends, and meanings
- “Tools for discovery. Support for decisions.”
- Progress in mining: more and more from less and less

2. What's out there now?

- For the most part, relatively primitive systems, known to perform poorly
- The better performers rely on special cases, e.g., Google on HTML `<a...`
- Specifics to follow

3. What's our product?

- Called the Core of Discovery
- Rich, multi-faceted capabilities, including features for
 - Plato problem
 - Raynaud problem
 - Practice problem

The Plato problem

Find documents (nuggets, needles) about X where 'X' isn't present, and rank them by relevance.

Why? Because they are relevant and valuable.

- Needed: concept searching, not key word searching
- Can you do this with your favorite search engine?
- With your organizational archives?
- The Core of Discovery finds concepts in the data and searches on them

Also: Find documents relevant to this document; find words relevant to this document but not present in it; find better words for searching.

The Raynaud problem

Find interesting rules not present in any one document.

Why? Because, e.g., you are interested in learning how to treat Raynaud's disease.

- Hypothesis finding
- Reading is necessary
- Automated support
- Documented, non-automated successes

The practice problem

Are Xs and Ys different and if so, how?

Why? Because you want to know, e.g., if doctor X treats patients differently than doctor Y

- Homer/Lewis system
- Patterns and visualization
- Demonstrated effectiveness in controlled experiments
- Speed and quality

4. Who needs it?

- Ultimately everyone

- Developing market

Rôle of Autonomy and others

- Rapid growth of late

- Estimates of > \$3 billion industry within 4 years

... and no dominant player

4. Who needs it? (con't.)

Near-term opportunities include

- Investment and market research
- Secondary publishing
- Legal services
- Content providers, special collections

4. Who needs it? (con't.)

... as well as

- Pharmaceutical companies
- Government agencies

NB Beginnings in the Coast Guard: Congressional Qs & As

- Museums, archives, records managers
- Anyone with a commitment to SGML or XML documents

4. Who needs it? (con't.)

Products such as

- Portals, vortals
- Document management systems
- Collections management systems
- Electronic notebooks
- Other search engines

5. What's the development strategy?

- Incremental, able to be profitable within 2 years or sooner
- Identify customers for whom the Core is a high valued added product
- Substantial beta sites operating within 6 months
- Focus on selling through VARs and OEMs (indirect sales channels)
- Hosting and ASP models
- Focus on continual development and improvement
- Scale up after substantial demonstration of market success
 - Sales & marketing
 - Product development

6. Who's on the team?

- Steven O. Kimbrough, Ph.D.
- Garrett O. Dworman, Ph.D.
- Christopher V. Jones, Ph.D.
- James C. Carpenter
- Chris V. Jacobs

7. What about the competition?

Pattern-, trend-oriented services

Feature	CoD	Autonomy	Excalibur	Verity
Empirical Thesaurus	Yes	No	No	No
Practice problem	Yes (Lewis)	No	No	No
Plato problem	Yes	No	No	No
MOTC	Planned [†]	No	No	No
Concept maps	Planned	No	No	No

[†]Prototyped, published descriptions.

7. What about the competition? (con't.)

Retrieval-oriented services

Feature	CoD	Autonomy	Excalibur	Verity
Boolean searches	Yes	Yes	Yes	Yes
Document ranking	Yes	Yes	Yes	Yes
... with DCB	Yes	No	No	No
... other concept	No, but	Yes	No	Yes
Metadata	Yes	?	?	?
Iterative refinement	Yes	No	No	No
Multiple-service	Yes	No	No	No
(Ds D)	Yes	No	No	No
(Ts D)	Yes	No	No	No

8. What do we need?

- Product development: document preparation, user interfaces, API tightening, large-scale testing
- Business development and customer/beta support
- Sales, marketing, . . . business launch
- Investor relations

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