



IBM Research

Integration verteilter Informationen in Unternehmen

Integration of Information Spread in Companies

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Business Drivers for Enterprise Search

- **Contact Center**

By understanding the customers problem and linking it to an appropriate resolution leads to increased customer satisfaction and lower support costs.
- **E-commerce**

Providing contextual search and highly targeted merchandising delivers higher transaction rates and increased wallet share.
- **Workforce productivity**

Giving employees efficient access to the right business knowledge, prevents them from wasting their time looking for information, recreating work, or worse, making bad decisions.
- **Issues Analytics**

Detailed analysis of service records, warranty claims, call center logs allow for proactive quality improvement actions and avoid costly product recalls
- **Reputation management**

Proactive notification of trends in customer and consumer opinion leads to increased customer loyalty and can prevent damage to corporate reputation.
- **Risk Assessment**

By correlating lending history, default trends, financial statements, and more, institutions improve risk management resulting in greater capital availability for building the business.

Enterprise Search Differs from Internet Search

“ I want Google for my enterprise ”

■ **Unique enterprise challenges**

- Information variety – Web pages, documents in myriad formats (e.g. .wks, .doc, .ppt, .pdf,...) email, instant message chat, databases, content repositories , file systems, ...
- Information security – Broad user community dictates role-based, document and sub-document granularities, administration complexity
- Information relevancy – Links indicate relationships rather than authoritative information

■ **Unique enterprise advantages**

- Application context – Process-driven search enables domain specific knowledge to be applied

Range of Requirements/Offerings



Desktop

- Desktop scope
- Free/Low cost
- Google, Yahoo, X1

Lightweight/Appliance

- Departmental, scope
- Web page access
- \$3-5K
- Microsoft, Google, dtSearch

High-end/Specialty

- Enterprise scope
- Diverse source access
- Text analysis
- \$150K-\$350K
- IBM, FAST, Autonomy, Endeca

Open Source

- Requires development team
- Limited commercial appeal without support
- Wide use by ISVs and universities
- Lucene/Nutch, UIMA

Moving from Searching to Finding *Contextual Understanding and Delivery*

- **Taxonomies, ontologies, ...**
 - Provide semantic context
 - Widen or narrow search scope
 - Provide navigational framework

Taxonomy and Faceted Navigation

CHEF'S®

THE BEST KITCHENS START HERE

[GIFT REGISTRY](#) | [WISH LIST](#) | [YOUR ACCOUNT](#) | [HELP](#) | [SHOPPING CART](#)

Search for:

You clicked: silo: Cutlery

New Search Search within these results layout: Flat List

COOKWARE

CUTLERY

KITCHEN ELECTRICS

KITCHEN TOOLS

BRAND INDEX

BAKEWARE

ENTERTAINING

GIFTS & FOOD

HOUSEHOLD HELPERS

CLEARANCE

REFINE BY: Category

- Anolon (106)
- Block Sets (52)
- Calphalon (80)
- Chef's Knives (56)
- Cuisinart (134)
- Cutlery Sets (77)
- Gifts (69)
- J. A. Henckels (110)
- Kitchen Tools and Cookware (113)
- Open Stock (147)
- Utensils (83)
- Wusthof (224)
- [\[more...\]](#)

REFINE BY: Price

- \$0 - \$1,000 (808)
- \$1,000 - \$2,000 (1)

REFINE BY: Brand

- Anolon (92)
- Calphalon (49)
- Cuisinart (119)

Uncheck to remove: silo: Cutlery

Results: 1-15 of 518 Show 15 per page Sort by:

	Image	Brand	Price	Name	Department
<input type="checkbox"/>		Unspecified	\$199.99	Grand Prix II 5-Piece Flat Set	Cutlery
<input type="checkbox"/>		Cuisine		Cuisine 8" Bread Knife	Cutlery

Wusthof Set Specials

- Wusthof
- 49.99
- Steak Knife Set in Aluminum Case
- Cutlery Sets
- Gift Sets
- Steak Sets
- Wusthof
- cprod7930006

Faceted navigation allows users to quickly find the results which most interest them

javascript:drillerDown('0','silo',encodeURIComponent('e:3//silo//eq//Clearance'))

Local intranet

Moving from Searching to Finding *Contextual Understanding and Delivery*

- **Taxonomies, ontologies, ...**

- **Integrating domain expertise through business rules**
 - Set stop words
 - Define cross-sell rules
 - Manage escalation

Business Rules Guide Shoppers with Merchandising

The screenshot shows the eLUXURY website interface. At the top, there are navigation links: Register, Sign in, My Account, Request a Catalog, Help, Shopping Bag, Search, and GO. Below this is a category menu with options: WOMEN'S READY-TO-WEAR, HANDBAGS & ACCESSORIES, MEN'S ESSENTIALS, BEAUTY & FRAGRANCES, eLUXURY GIFT GUIDE, and SHOP BY BRAND. The main content area is titled 'SEARCH RESULTS' and shows the search term 'purse' with 152 items found. A sidebar on the left provides filters for BRAND (listing Louis Vuitton with 128 items), GENDER, and DEPARTMENT. The main product grid displays several Louis Vuitton purses. A 'TOP SELLERS' sidebar on the right lists items like the Hardcore Dior Bag and Montsouris Backpack. A 'CAN WE HELP YOU?' sidebar at the bottom right offers live chat and a phone number.

Business rules prioritize featured brands

Business rules provide targeted promotions based on customers' immediate interest improve conversion potential

Moving from Searching to Finding *Contextual Understanding and Delivery*

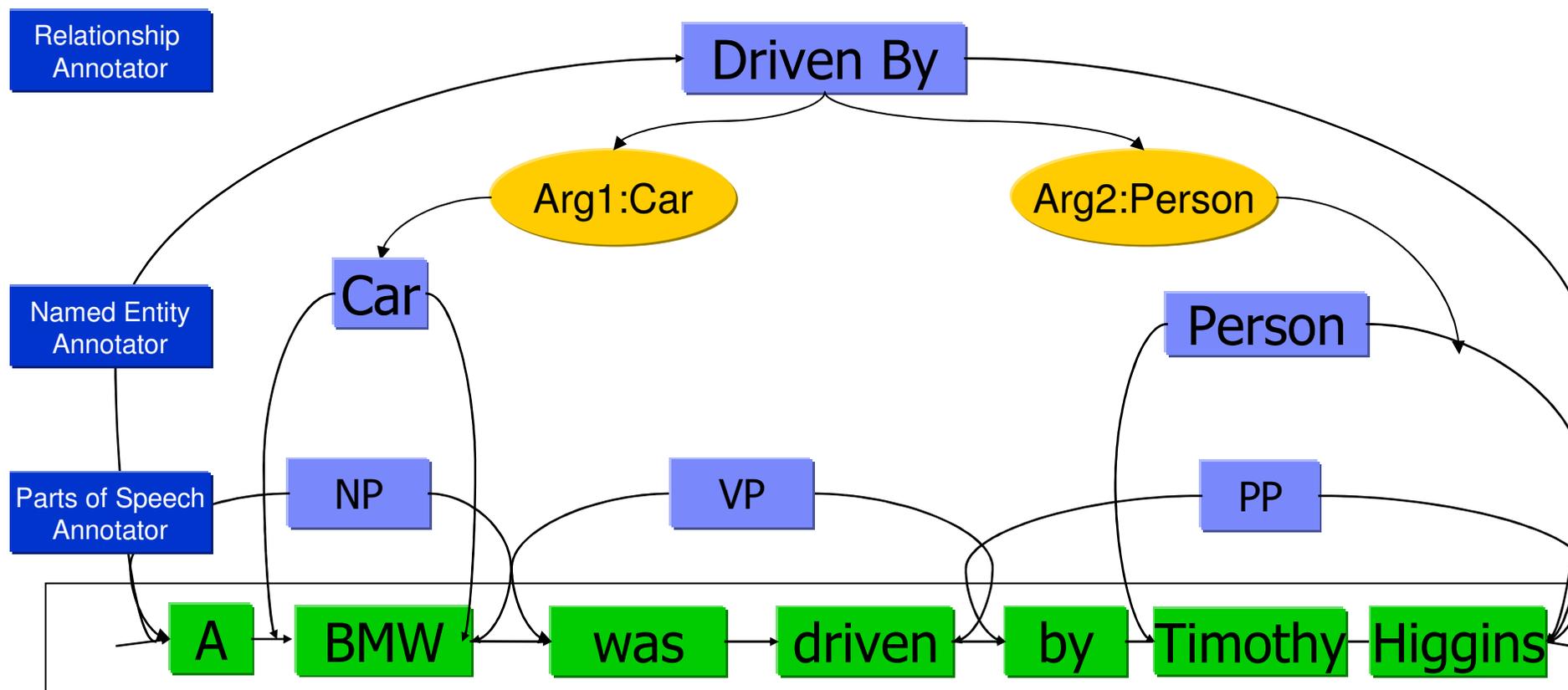
- **Taxonomies, ontologies, ...**

- **Integrating domain expertise through business rules**

- **Analytics and analytic frameworks**
 - Distinguish between different meanings of the same term
 - rock (stone) vs. rock (music) vs. rock (to sway) vs. ROCK (an acronym)
 - Find documents referencing concepts and facts
 - People, places and organizations or parts, problems, conditions and actions
 - Is the person "located at" a place or are they "talking about" it?
 - Did the condition "cause" the problem or "prevent" it?
 - Provide an understanding of domain specific terms
 - Financial products – what is a “Riester-Produkt” or a “sell order”
 - Automotive parts – what is an alternator, and what does a “squeak” infer
 - Drug discovery – “BIKE” is gene, not a bicycle
 - Legal terms – “indemnification” is a clause and “discovery” is a process

Text Analysis Services

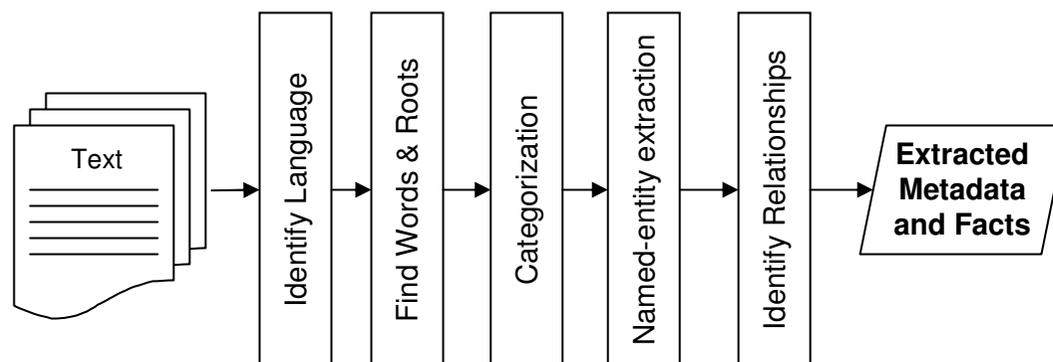
Advanced processing and analytics can enable identification and indexing of more than just words...



Unstructured Information Management Architecture

Providing interoperability for broad solution delivery

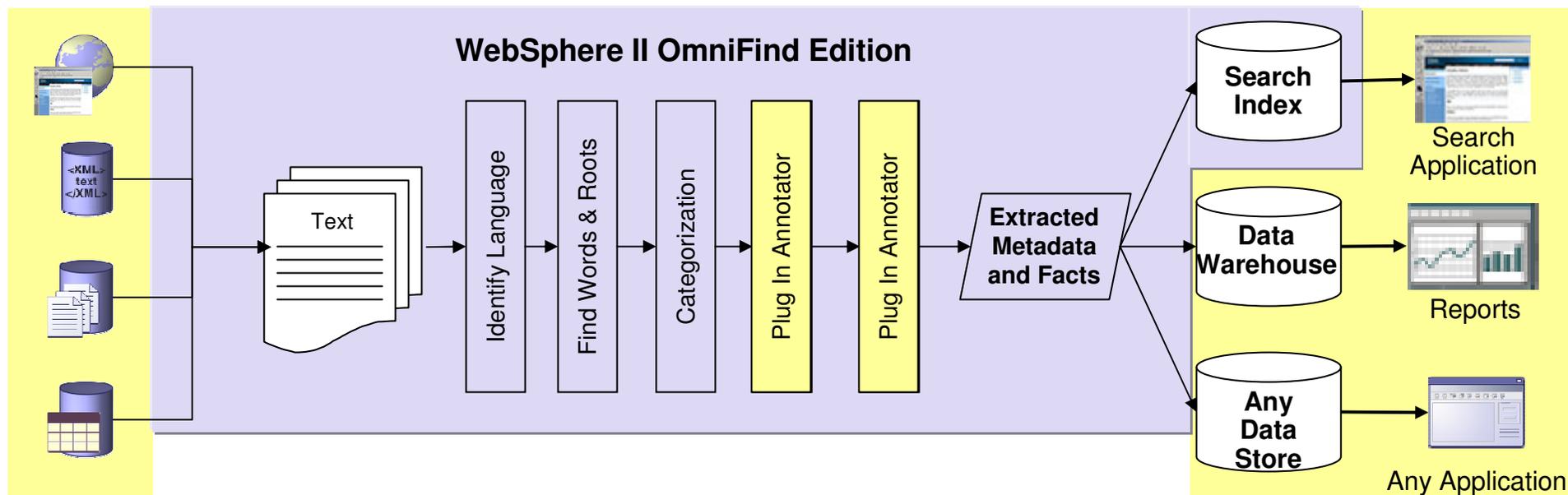
- **Enables plug and play of third party components for advanced text analysis**
- **Broad support from government, industrial research, academic institutions, and independent solution vendors**
- **Platform increases asset value and return on investments**
 - Deliver content from myriad sources to the platform for analysis
 - Process different collections with different analytics
 - Enable a broader set of enterprise applications to leverage analysis results
- **Available in open source at <http://uima-framework.sourceforge.net>**



Text Analysis Modules – aka “Annotators”

Commercial Implementations and Vendor Support

- WebSphere II OmniFind Edition provides first commercial platform for deploying UIMA-based text analytics applications
- IBM Quality Insight Solution for automotive
- Public Image Monitoring Solution
- Over 15 ISVs developing support for UIMA



ISVs Supporting UIMA and OmniFind Platform

Deliver content to platform for analysis

Provide components that perform text analysis

Provide applications that leverage text analysis and enhanced search



Discover Acronyms

The screenshot shows the IBM Workplace For Customer Support interface. At the top, it says "IBM Workplace For Customer Support" and "Welcome Christopher from The Capital Group Companies, Inc." There is a search bar with "LIM" entered. Below the search bar, there are navigation tabs: "Support Home", "Product Library", "Community", "Advanced Search", "Customize", and "Exit". The "Advanced Search" tab is active. The search results are displayed in a list format. The first result is "Knowledge Collection: Lotus Instant Messaging Gateway" and the second is "Instant Messaging Gateway: Are Reverse Proxies Supported". A callout box points to the search results with the text: "Rich text analytic capabilities allowed us to discovery acronyms in the content for automatic query expansion".

Rich text analytic capabilities allowed us to discovery acronyms in the content for automatic query expansion

Search results for "LIM":

1. Knowledge Collection: Lotus Instant Messaging Gateway
... to educate readers about the IBM Lotus Instant Messaging (LIM) Gateway.. Knowledge Collection: Lotus Instant Messaging ... To educate readers about the IBM Lotus Instant Messaging (LIM) Gateway Background The IBM Lotus Instant Messaging ...
Lotus Sametime , Platform Independent , 6.5.1 Knowledge Collections : Oct 19, 2004
2. Instant Messaging Gateway: Are Reverse Proxies Supported
... with the Lotus Instant Messaging Gateway. The Lotus Instant Messaging Gateway cannot connect to a Lotus Workplace ... available to transmit instant messages between the Lotus Instant Messaging Gateway and the Lotus Workplace environment. ...

Recent Searches:

1. LIM
2. Domino
3. activex
4. activex
5. was > activex
6. ActiveX
7. Modem
8. server > hangs > NT > Family: Messaging Applications > Product: Lotus Notes/Domino > Platform: Windows 2000
9. server > hangs > N
10. Domino > Server > hangs > NT

Discover Sentiment, Hot Topics, Vocal Sources,...

AUGUST 15, 2005

Today This week This month

OVERALL PRESS TONE

Month	Positive	Negative	n/a
June 2005	28	6	66
July 2005	20	5	75
August 2005	38	8	54

Today This week This month

NEWS TYPES

News Type	Percentage
Bus.	54%
Leg. & Res. Mat.	17%
Pro. & Ser.	17%
Cor.	13%

Today This week This month

MOST VOCAL

+/-	Sources	Freq.	
+	ArriveNet (press release), CO	3/3	M A
+	Computing, UK	1/1	S
+	IT Week, Netherlands	1/1	S
+	Business Wire (press release), CA	1/2	S
-	Corante	1/1	G
-	Computer Business Review, UK	1/3	C G S

Today This week This month

HOT TOPICS

Gluecode, Support, Geronimo

Grid computing, Starter pack

Open source technology, Analytics framework

Today This week This month

PEOPLE SAID...

CMOS image sensors are catching up with traditional CCD (charge coupled device) - based and have the potential to play role more professional applications

IBM's copper CMOS technology delivers size benefits

Our copper technology has yielded some benefits and provides advantages over aluminum wiring by providing total package of color filter, microlens ... optimal performance terms quantum efficiency capture light

The market for image sensors is growing at rapid rate and IBM views this technology as key manufacturing opportunity 2005 beyond,

This will help us ensure we keep the ink... have and

Today This week This month

PR IMPACT

Most Talked About

IBM Offers Free Technologies to Universities

IBM Expands Business Partner Program

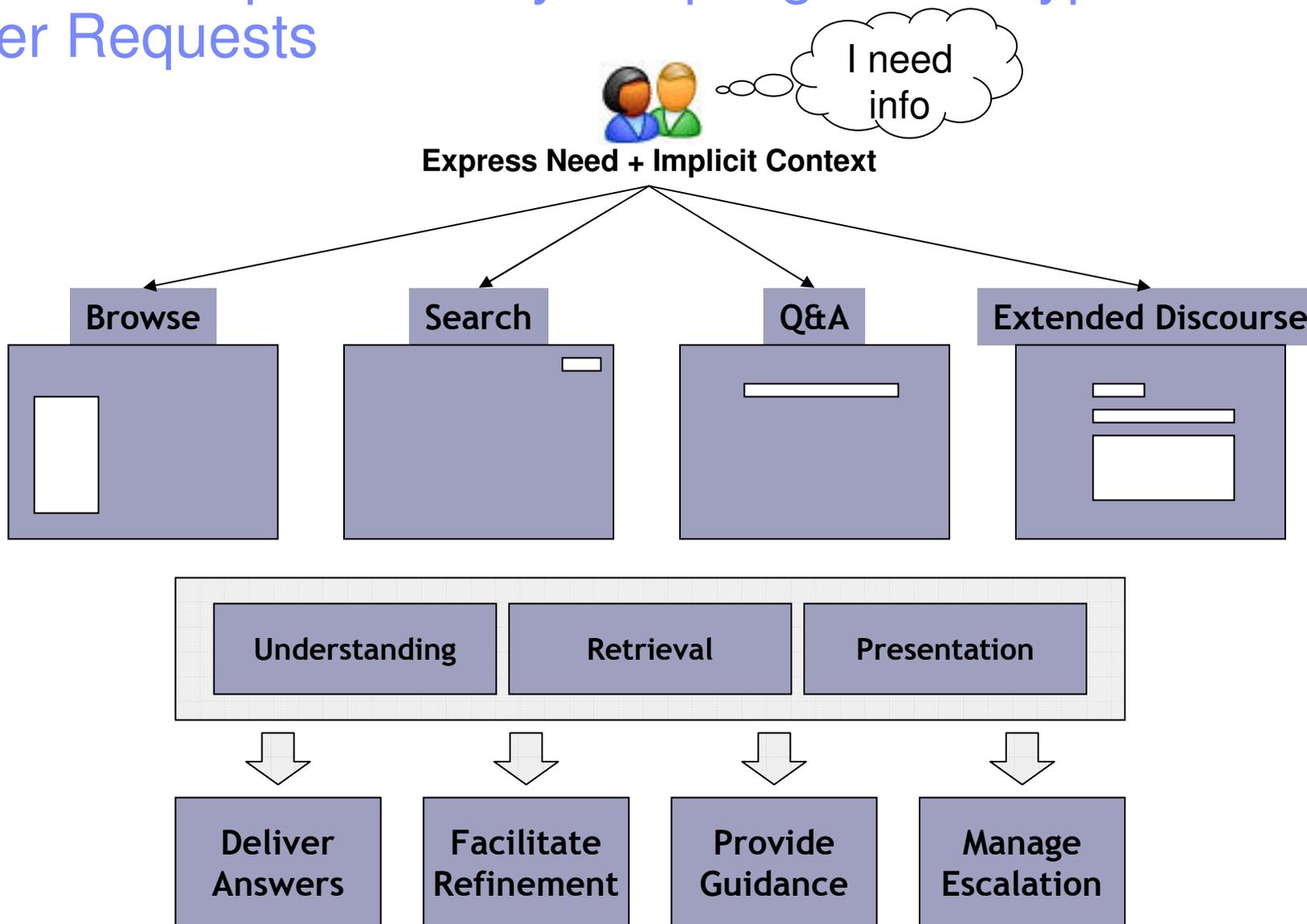
IBM Academic Initiative Boosts Mainframe Community

Moving from Searching to Finding

Contextual Understanding and Delivery

- **Taxonomies, ontologies, ...**
- **Integrating domain expertise through business rules**
- **Analytics and analytic frameworks**
- **Adaptive presentation**
 - Search or navigation
 - Matching presentation to question type
 - Visualization options

Optimize Experience By Adapting To All Types of User Requests



Adaptive Presentation

The screenshot shows a search results page for 'ankle sprain' on the MerckMedicus website. The page includes a search bar, navigation tabs (Home, Medical LIBRARY, Professional DEVELOPMENT, Patient RESOURCES, mobile MERCKMEDICUS, WhiteCoat e-ASSISTANT, Specialty PAGES), and search options (Search Tips, Advanced Search). The search results are displayed in a list format, with the first result being 'Ferri - Ankle Sprain (PTG) - BIBLIOGRAPHY'. The right sidebar contains 'Related Terms' and 'Refine Your Search' sections.

SEARCH results

MERCKMEDICUS SEARCH: within current results

You asked for: **ankle sprain** You clicked: per page: 15

Showing results 1-15 of 1361

<<Previous 15 Results [Next 15 Results>>](#)

Related Terms

- [sprain of calcaneofibular ligament](#)
- [sprain of distal tibiofibular ligament](#)
- [sprain of lower extremity](#)
- [sprain of ligament of joint](#)

Refine Your Search

Merck Medicus

- ☑ Images and Slides (9)
- ☑ Journals (669)
 - [ACP Journal Club \(2\)](#)
 - [Advances in Skin and Wound Care \(49\)](#)
 - [American Family Physician \(3\)](#)
 - [Angiology \(72\)](#)
 - [Annals of Internal Medicine \(5\)](#)
 - [Chest \(26\)](#)
 - [Clinical Pediatrics \(15\)](#)
 - [Diabetes \(16\)](#)
 - [Journal of Bone and Joint Surgery \(246\)](#)
 - [Journal of Family Practice \(6\)](#)
 - [Journal of Hand Surgery \(57\)](#)
 - [Journal of Orthopaedic Surgery \(40\)](#)
 - [Pediatric News \(21\)](#)
 - [Pediatrics \(46\)](#)

Ferri - Ankle Sprain (PTG) - BIBLIOGRAPHY

Ferri - Ankle Sprain (PTG) - BIBLIOGRAPHY REFERENCES Bachman LM, Kolb E et al: Accuracy of Ottawa ankle rules to exclude fractures of the ankle and ...

Resource Found in: Textbooks > Ferri's Clinical Advisor

Initial Tx is key with lateral ankle sprains

... Saint Francis Memorial Hospital in San Francisco. The mechanism of ankle sprains is usually straightforward: 85% of ankle injuries are inversion ...

Resource Found in: Journals > Pediatric News

Ferri - Ankle Sprain (PTG) - BASIC INFORMATION

Ferri - Ankle Sprain (PTG) - BASIC INFORMATION DEFINITION An ankle sprain is an injury to the ligamentous support of the ankle. ...

Resource Found in: Textbooks > Ferri's Clinical Advisor

Ferri - Ankle Sprain (PTG) - TREATMENT

Ferri - Ankle Sprain (PTG) - TREATMENT ACUTE GENERAL Rx Ankle sprains are often graded I, II, or III, ...

Resource Found in: Textbooks > Ferri's Clinical Advisor

Therapeutic ultrasound for acute ankle sprains (Cochrane Review)

Therapeutic ultrasound for acute ankle sprains (Cochrane Review) From The Cochrane Library, Issue 2, 2005. ...

Resource Found in: Reference Guides > Cochrane Abstracts

Contextual understanding capabilities allow us to present alternative queries related to concepts in the search request

Adaptive presentation capabilities offers intuitive refinement options across multiple taxonomies.

Summary

- **Enterprise search has unique challenges and advantages**
- **Quality of enterprise search has a direct business impact**
 - Online revenue generation
 - Support costs
 - Business insights
 - Workforce productivity
- **Contextual understanding enables shift from searching to finding**
 - Taxonomy exploitation
 - Business rules
 - Semantic analytics
 - Adaptive presentation
- **New standards are being proposed to accelerate innovation that will deliver greater value from an organization's unstructured assets.**