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Semantic Wave Update

5th Semantic Interoperability for E-Government Conference

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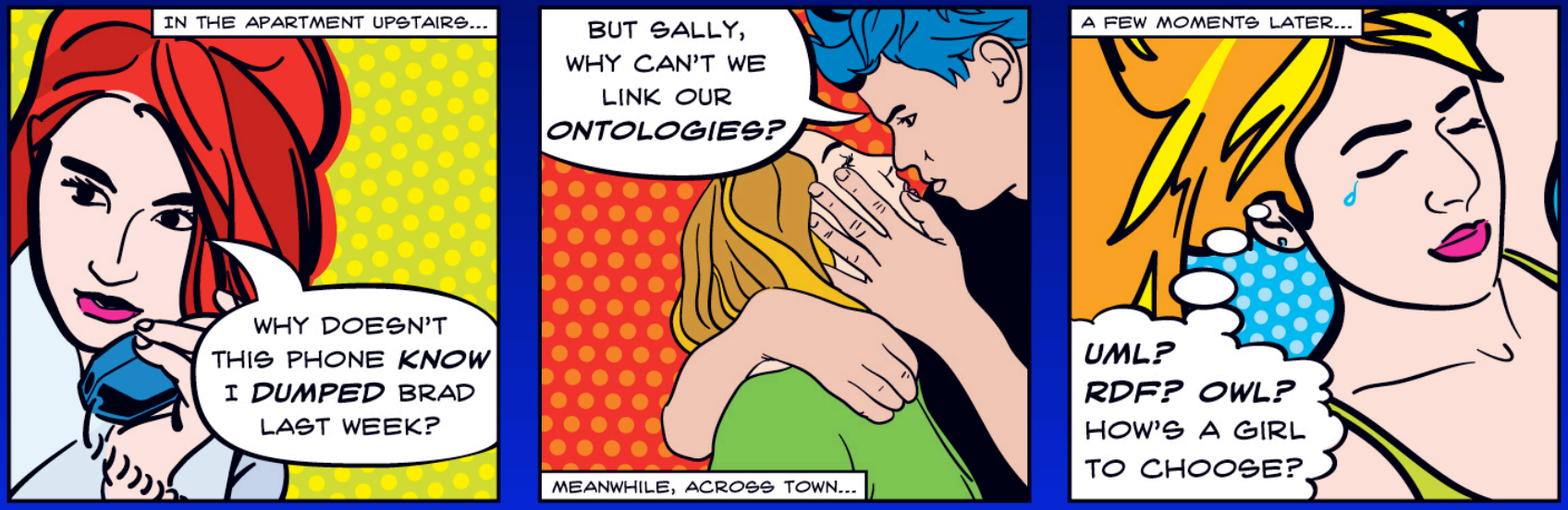
So, what happens when you have lots of web, lots of semantics, & lots of social interaction with it?



Mills Davis

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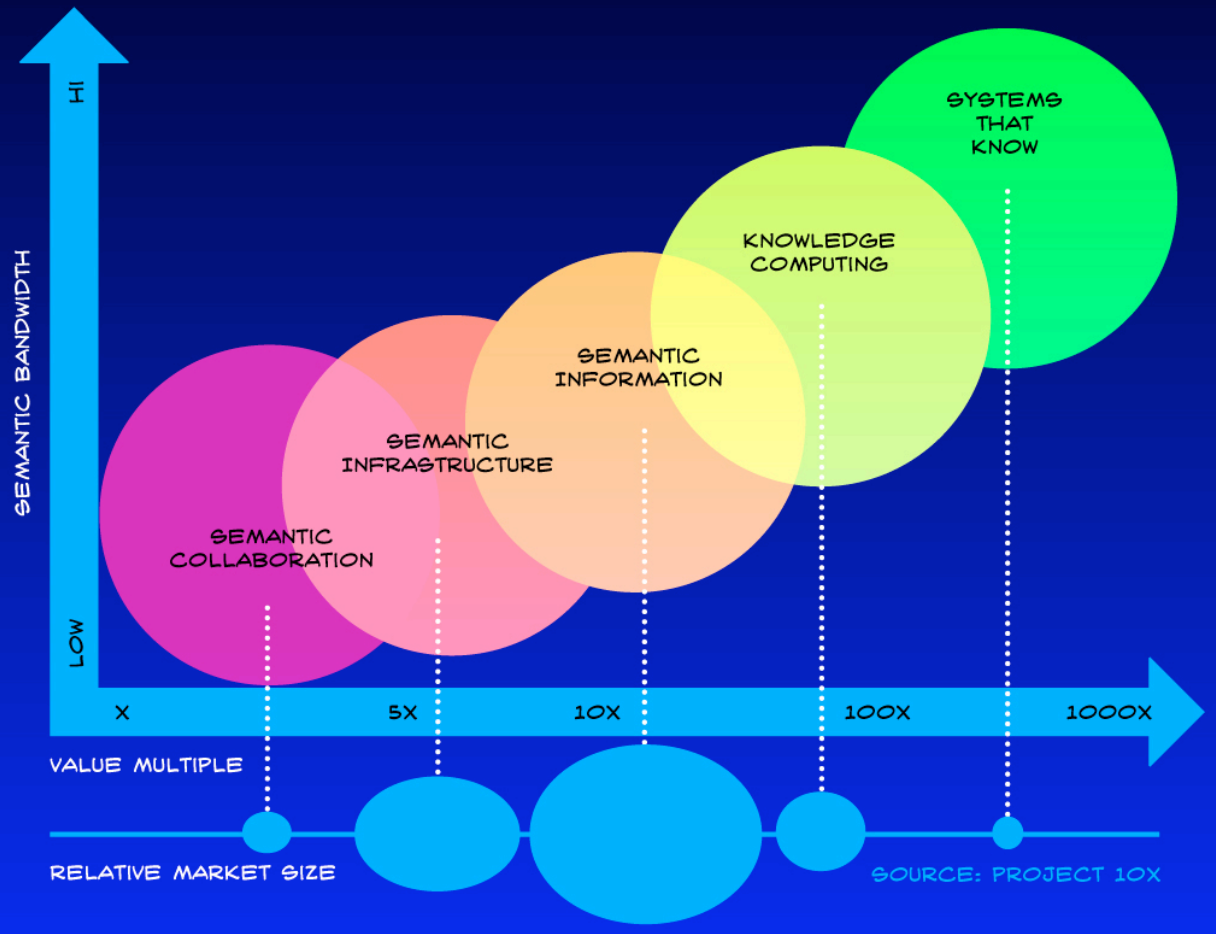
- Mills Davis is **Project10X**'s founder and managing director for industry research and strategic programs. He consults with technology manufacturers, global 2000 corporations, and government agencies on next-wave semantic technologies and solutions.
- Mills serves as co-chair of the Federal CIO council's **Semantic Interoperability Community of Practice** (SICoP) where he leads research into the business value of semantic technologies and the Semantic Wikis for Information Management (SWIM) working group. Also, Mills is a founding member of the AIIM interoperable enterprise content management (iECM) working group, and a founding member of the National Center for Ontology Research (NCOR).
- A noted researcher and industry analyst, Mills has authored more than 100 reports, whitepapers, articles, and industry studies.

Topics

- Semantic Wave
- Semantic Development
- Semantic Infrastructure
- Semantic Information
- Knowledge Computing

Semantic Wave

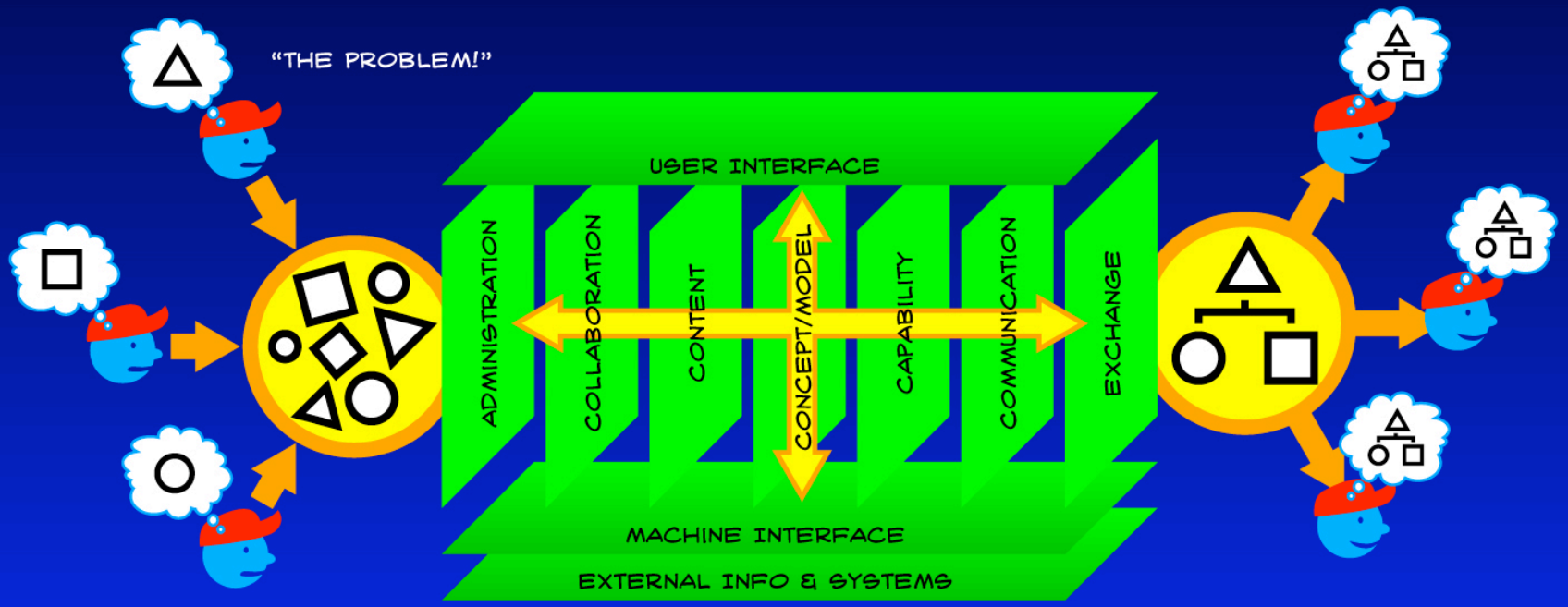
Semantic Wave



Semantic Development

Semantic Development

Seven Dimensions



SOURCE: PROJECT 10X

Themes

	Semantic Development
Challenges	Techno-social-economic collaboration across boundaries
Motivation	Lightweight, easily used, net-centric environment for synthesizing information, media, conceptual models, and behaviors
End Game	Ecosystem for both knowledge development and micro-commerce in capabilities
Value vector	Reduce labor intensivity for development, improve life cycle economics, enhance user experience, monetization of digital IP

Semantic Development

Aspects

1. **Administration** — Policy, roles, access, security, governance
2. **Communication** — website and, UI. semantic applications for voice, data, image, audio, video, multimedia across the net. contextual communication (people & machine)
3. **Collaboration** — meetings, events, group activities, project management
4. **Content** — natural & visual language
5. **Concept** — standards, schemas, concept models, ontologies
6. **Capability** — behaviors,agents, software functionality
7. **Exchange** — ecosystem for micro-commerce in intellectual property; agent based knowledge assets

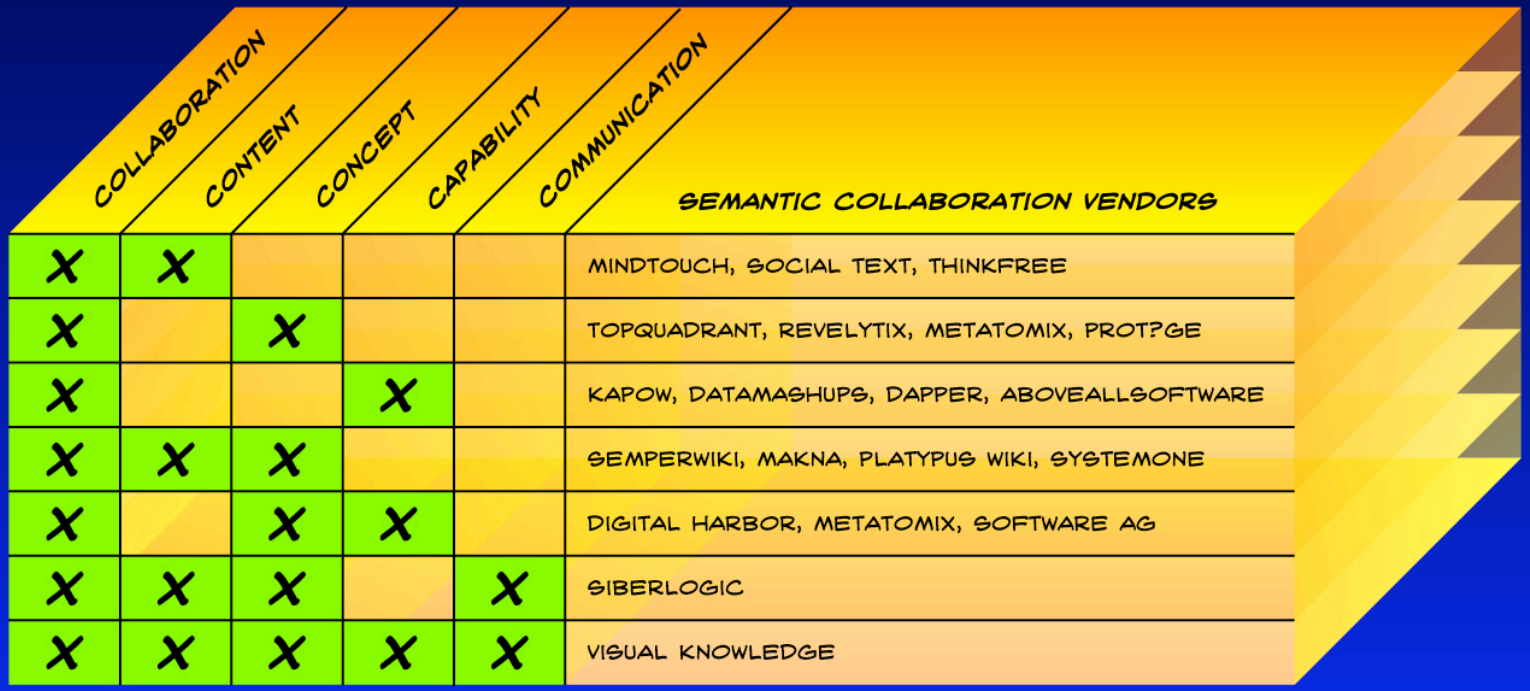
Applications

- Website & UI
- Personalization
- Blogging
- Social networking
- Social bookmarking
- Semantic wiki
- Search and navigation
- Research & document analysis
- Discovery & harvesting
- Content & media development
- Conceptual model development — schema, policy, ontology, logics
- Software development — declarative, model-driven, and do-it-yourself paradigms
- Desktop info mgmt
- Project management
- Meetings, events, threads, governance
- Digital rights & monetization
- Semantic exchange of IP

Semantic Development

Vendors

40+ vendors developing semantic collaboration solutions

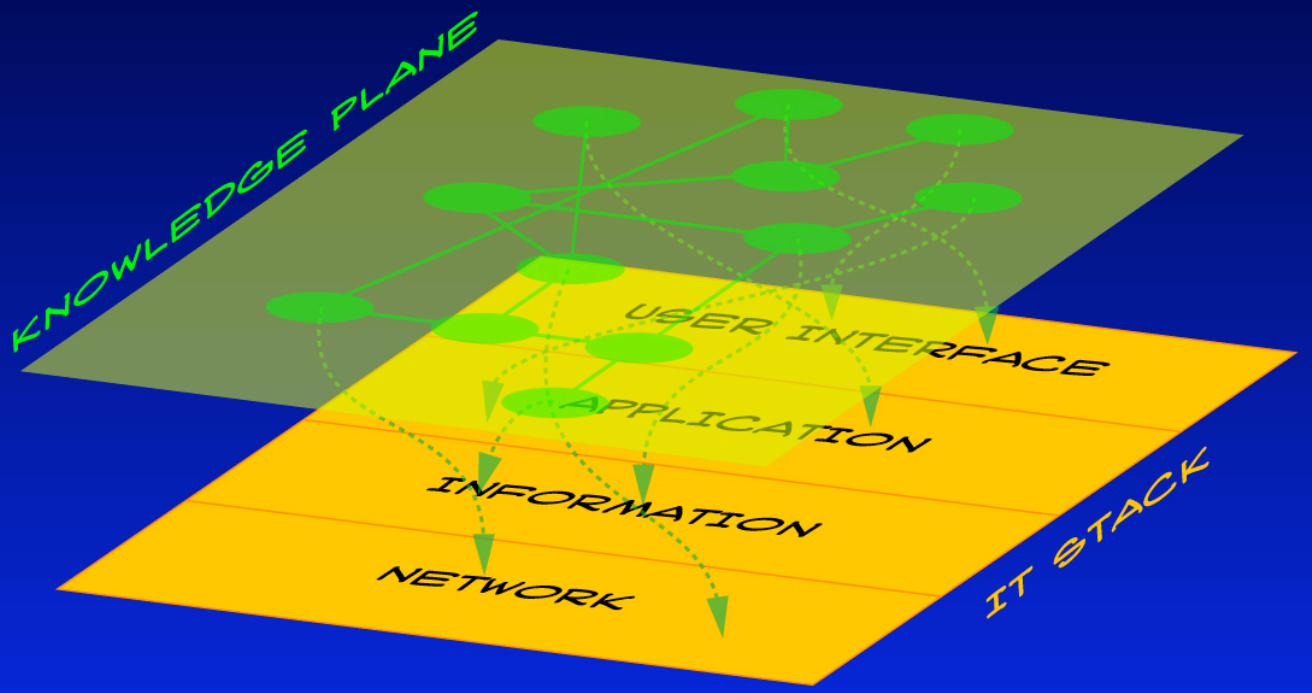


COLLABORATION	CONTENT	CONCEPT	CAPABILITY	COMMUNICATION	SEMANTIC COLLABORATION VENDORS
X	X				MINDTOUCH, SOCIAL TEXT, THINKFREE
X		X			TOPQUADRANT, REVELYTIX, METATOMIX, PROT?GE
X			X		KAPOW, DATAMASHUPS, DAPPER, ABOVEALLSOFTWARE
X	X	X			SEMPERWIKI, MAKNA, PLATYPUS WIKI, SYSTEMONE
X		X	X		DIGITAL HARBOR, METATOMIX, SOFTWARE AG
X	X	X		X	SIBERLOGIC
X	X	X	X	X	VISUAL KNOWLEDGE

SOURCE: PROJECT 10X

Semantic Infrastructure

Semantic Infrastructure



SOURCE: PROJECT 10X

Themes

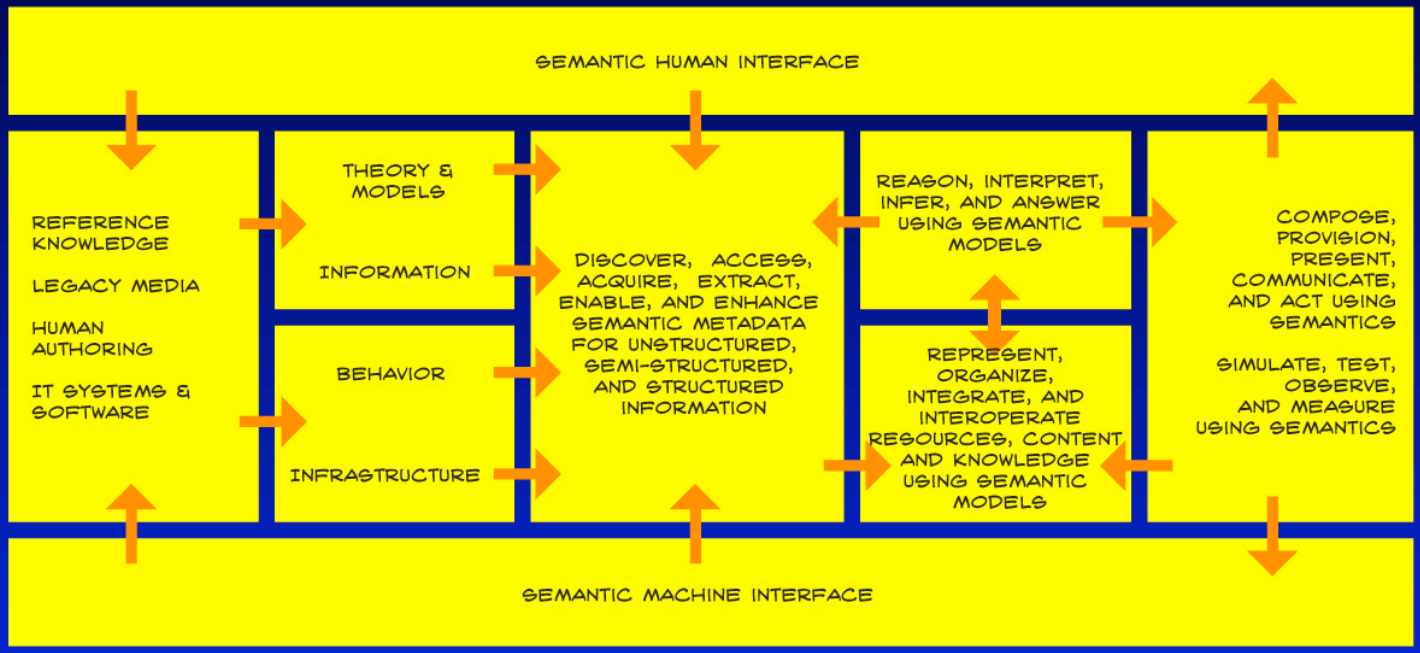
	Semantic Infrastructure
Challenges	Network and systems interoperability
Motivation	Semantic enablement and orchestration of transport, storage, and computing resources: EA, SOA, WS, EAI, EII, BPM, P2P, Grid, IPv6.
End Game	Adaptive and autonomic ITC infrastructure
Value vector	Economics of mobility, scale, complexity, and security become intractable without semantics

Applications

- IT discovery and search
- Enterprise architecture
- Service oriented architecture — SOA, EAI, EII, BPM
- Semantic data management — federated storage, virtual warehouse, semantic mediation
- Net-centric operations & management — IPv6, Grid, Sensor nets, RFID, Mobility, ubiquitous-ambient communication, mesh networks;
- Policy-based networking, storage, computing & security
- Virtual infrastructure — transport, storage, processing, telepresence, unified communications infrastructure

Semantic Information

Semantic Information Functions



SOURCE: PROJECT 10X

Themes

	Semantic Information
Challenges	Information fusion, intelligence, and composite applications (mashups) for knowledge work automation and improved user experience
Motivation	Semantic enablement and interoperability of information and knowledge representation formats, sources, processes and standards. Discover, access, and understand information in context of use
End Game	Killer apps for knowledge work automation, semantic search, information intelligence, and question answering
Value vector	Order of magnitude improvements in economics of digital information

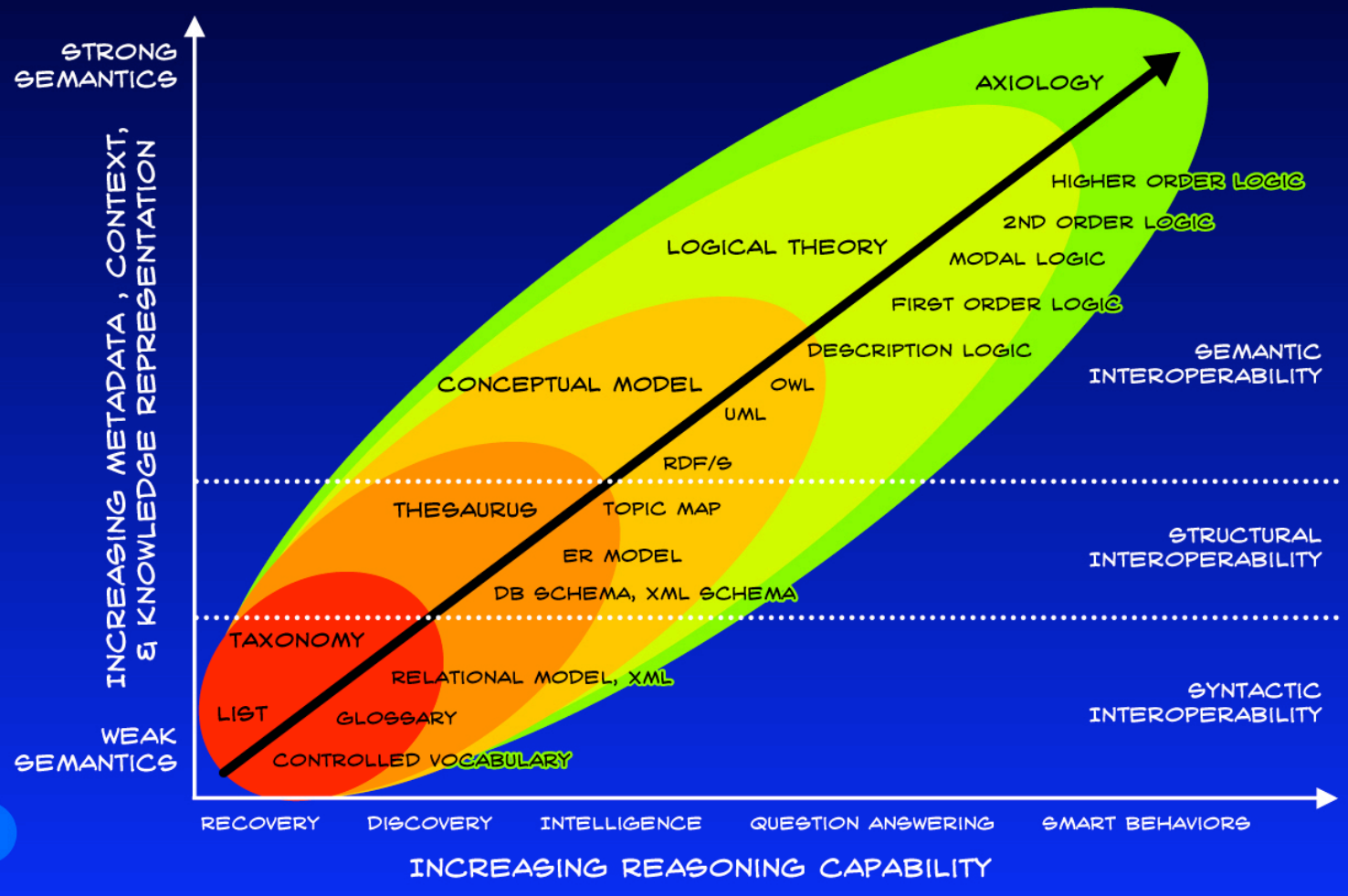
Applications

- Discovery & information extraction
- Semantic search & navigation
- Semantic information services
- Mash-ups, composite apps & semantic portals
- Domain ontologies
- Scalable information integration
- Sustainable information interoperability

Knowledge Computing

Knowledge Computing

From Search to Knowing



SOURCE: DR. LEO OBRST, MITRE; MILLS DAVIS, PROJECT10X

Themes

	Knowledge Computing
Challenges	Putting knowledge to work for decisioning and knowledge-centered processes
Motivation	Knowledge-centered processes for authoring, research, design, engineering, simulation, eScience, professions, logistics, virtual manufacturing, policy & decision support, and cognition
End Game	Knowledge superiority Labor substitutions & super-productivity Hi-yield concepts of operation Systems that know, learn, and reason as humans do
Value vector	Multi-order of magnitude gains in performance through knowledge computing versus contemporary approaches. Transformation of industries Trillion-dollar global economic expansion

Knowledge Computing

Applications

- Semantic COTS — ERP, CRM, SCM, HR
- Ontology-based discovery— law, medicine, science, defense, intelligence, research, investigation, real-time document analysis
- Risk, compliance and policy-driven processes — situation awareness, exceptions, fraud, case management, emergency response
- Knowledge-centric processes — modeling & simulation, acquisition, design, engineering, virtual manufacturing
- Network & process management — diagnostics, logistics, planning, scheduling, security, event-driven processes
- Adaptive, autonomic, & autonomous processes — robotics, games, intelligent systems
- Systems that know, learn & reason as people do — e-learning, tutors, advisors, cognitive agents

High Priority Applications for Semantic Technology in E-Government

- We conducted an informal survey of 25 experts.
- We asked each to describe 5 hi-priority applications where semantic technology would deliver superior value for government, industry, &/or consumers, plus comment on how these might be funded.
- Survey results are available at: http://colab.cim3.net/file/work/SICoP/2006-10-10/Presentations/MDavis10082006.pdf
- We discuss these findings in an open forum at the 5th Semantic Interoperability for e-Government Conference.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Semantic Wave Vendors

Semantic Development

Vendors

AboveAllSoftware	Digital Harbor	Mind-Alliance	SchemaLogic
Altova	Discovery Machine	Modulant	Semantic Research
Apelon	Epistemics	Mondeca	Semper Wiki
BAE systems	Fortent	Ontology Works	SocialText
BBN Technologies	IBM	Ontopia	Stanford University
CognIT	Kapow	Ontoprise	Symansys
Cognium	Language & Computing	Platypus Wiki	ThinkFree
Computas	Makna Semantic Wiki	Procession	TopQuadrant
Cycorp	Metatomix	Radar Networks	VerticalNet
Dapper	Microsoft	Revelytix	Visual Knowledge
DataMashups.com	Mind Touch	RSSBus	Wired Reach
Deepa Mehta		Sandpiper Software	XSB
DFKI Gmbh			

Vendors

Agilense	Conformative Systems	LogicLibrary	SAIC
Aspasia	Contivo	McDonald Bradley	Sandpiper Software
Attensity	Digital Harbor	MetaIntegration	SAP AG
BBN Technologies	DreamFactory Software	Metallect	Semantra
BEA Systems	Enigmatec	MetaMatrix	Software AG
Business Objects	FileNet	Metatomix	SRI International
C24 Solutions	Hewlett-Packard	Métier	Sun Microsystems
Celcorp	Hyperion Solutions	Microsoft	Sybase
CheckMI	IBM Corporation	Modulant	Ultimus
Cisco Systems	Informatica	Modus Operandi	Vignette
Cognos	Intel	Nokia	Vitria
Composite Software	Intellidimension	Northrop Grumman	Webify Solutions
Computer Associates	Interwoven	Ontologent	WebLayers
	Kalido	ontoprise	WebMethods
		Oracle	
		Progress Software	

Semantic Information

Vendors

Amblit Technologies	Convera	Fujitsu	Mark Logic	Serena
Apelon	Correlate	Google	MetaCarta	SiberLogic
APR Smartlogik	Coveo	Groxis	Metatomix	Siderean
Arisem	Crystal Semantics	Gruppometa	Microsoft	SilkRoad
AskMe	CTT	IAC Search & Media	Mondeca	Sirma Group
Aspasia	Cycorp	IBM Corporation	Moresophy	Software AG
ATG	Digital Harbor	Image Matters	nStein	Stellent
Attensity	Digital Reasoning Systems	Infolution	Ontopia	Stratify
Autonomy	EasyAsk	InforSense	Ontoprise	Swoogle
Axontologic	EffectiveSoft	Innodata Isogen	Open Text	Sybase
BBN Technologies	Ektron	Intellesemantic	Oracle	SystemOne
Biowisdom	EMC Corporation	Intellisophic	Profium	Tacit
CheckMI	Empolis	Interwoven	PTC	Témis
ClearForest	ENDECA	Inxight	Readware	Teragram
Cogito	Engenium	ISYS Search Software	SaltLux	Thetus
CognIT	Entopia	Janya	SAP	Ultimus
Cognos	Entrieva	Jarg	SAS	Ultralingua
Composite Software	Epistemics	Knova Software	SchemaLogic	Versatile Info Sys
Connotate	Expert System	KFI	Semansys	Vignette
Content Analyst	Factiva	Language and Computing	Semantic Insights	Visual Knowledge
Contextware	Fast	Leximancer	Semantic Knowledge	WAND
Contivo	FileNet	Mamma.com	Semantic Search	Yahoo!
			Semantra	

Knowledge Computing

Vendors

ACL Services	Expert System	Lego Americas	SAP
AT&T Research	Fair Isaac	Lockheed Martin	SAS
ATG	Fortent	Magenta Technology	Semansys Technologies
BAE Systems	Franz, Inc.	McDonald Bradley	Semantic IQ
BBN Technologies	General Dynamics	Metatomix	Semantic Research
Boeing	H5	NetMap Analytics	Semantic Solutions
Cogito	HP	NeurOK	Soar Technology
Cougaar Software	i2	Nielsen BuzzMetrics	SRA
Cycorp	IBM	Northrop Grumman	SRI
Cyon Knowledge Computing	ILOG	NuTedh Solutions	Synomos
Dassault Systemes	Image Matters	Ontology Works	SYS Technologies
Digital Harbor	InforSense	Ontoprise	Thomson
Digital Reasoning Systems	Intelligent Automation	Profium	Thetus
Discovery Machine	iSOCO	PTC	TopQuadrant
Empolis	Knowledge Based Systems	Raytheon	Versatile Information Systems
Epistemics	KFI	Reengineering LLC	Visual Knowledge
		RuleBurst	Webify Solutions
		SAIC	