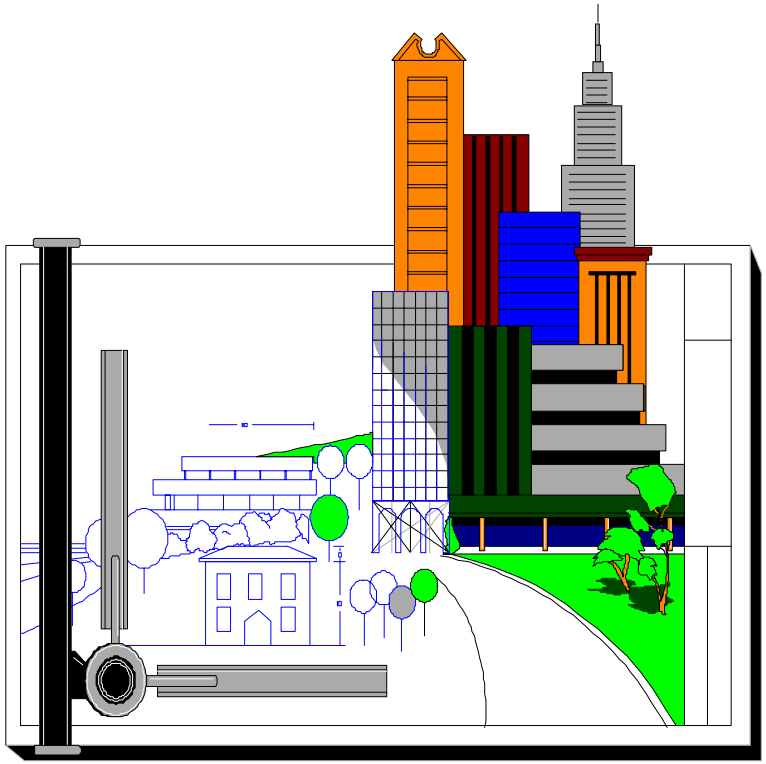
EA Management Tools

Requirements, Design and Application of a comprehensive web-based solution (Archi/WebModeler)



Graham McLeod

Managing Partner

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 2005

Introduction & Coverage

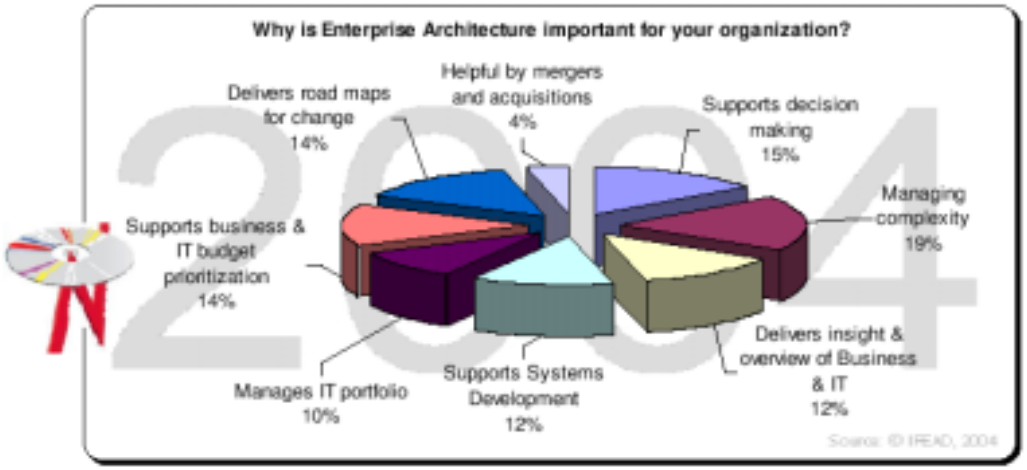
Enterprise Architecture Management is vital to achieving agility, reducing risk, increasing effectiveness and efficiency in today's pressured organisations. Historically, support has been sought in ad-hoc tools (Word, Excel, Access, Visio) or CASE-derived modeling tools originally intended for software, process or data modeling. These lack some essential elements to effectively manage frameworks, document current architectures, develop future scenarios and manage initiatives towards achieving goals: especially when it comes to gaining buy in from non-technical executives and collaborating with sponsors, decision makers and "owners" of various architecture dimensions.

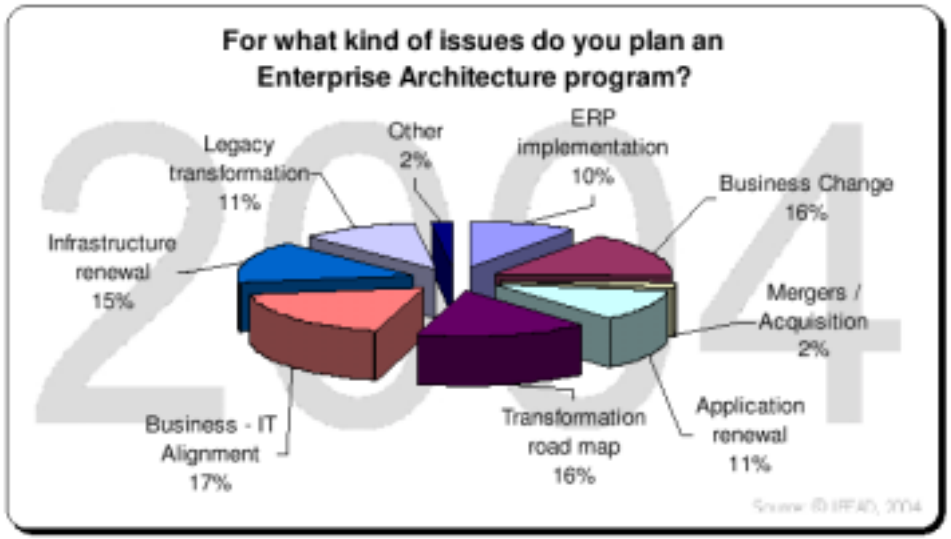
This talk discusses the requirements for a successful EA tool; how these differ from previous approaches; the design of one such "new generation" web/repository based tool capable of supporting a variety of frameworks and user categories. The talk will conclude with a brief demonstration of some unique capabilities followed by questions and discussion (time permitting).

- EA Goals
- EA Support Tool Requirements
- EA Tool Design
- Features to Meet Criteria
- Archi/WebModeler Architecture
- Demonstration
- Contacts
- References

EA Goals

- EA Goals according to *Schekkerman*
  - Managing Complexity
  - Support Decision Making
  - Roadmaps for Change
  - Support Budgeting and Prioritisation
  - Insight and Overview of Business and IT
  - Support Systems Development
  - Manage IT Portfolio
  - Helpful for Mergers and Acquisitions
- CEO Requirements according to *Spewak and Hill*
  - Business to IT Alignment
    - Structural
    - Strategic
    - Inter-Domain





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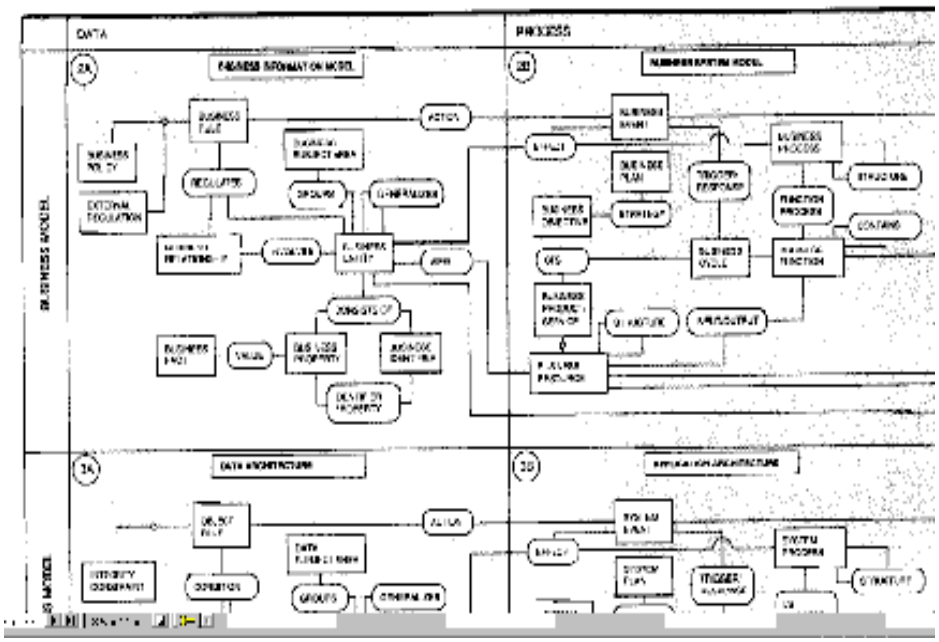
EA Requirements

- Zachman (Enterprise Architecture, the issue of the century) www.zifa.com
  - Only first three levels of framework!
  - Spewak agrees.... (top two layers..)
  - Also see Zachman and Sowa "Extending and formalising the framework for information systems architecture" article for need for integration across the cells (figure 2)



- Systems Thinking (Checkland, Copeland, Avison..)
  - Multiple Perspectives
  - Iterative / Sense Making / Alteration

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EA Requirements*(from Literature and Experience)*

- Comprehensive
  - Coverage of Domains (Business, Process, Application, Information, Technical...)
- Currency/Accuracy
- Add Value
- Comprehensible to all participants
- Sharable
- Distributed
- Involvement of Stakeholders
- Service Oriented Architecture
- Governance (SOxley; COBIT; ITIL ...)
- Manage the EA process
- Secure
- Support Initiative/Transition Management
- Link to other concerns e.g. Risk, Quality Mgmt

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User Communities/Roles Supported

- Enterprise Architects
  - Business Architects
  - Process Architects
  - Applications Architects
  - Information Architects
  - Technical / Infrastructure Architects
  - Integration Architects
- Strategic Planners
  - Business
  - IT
- Programme Managers
  - EA
  - Initiatives
  - Project Office
- Risk Managers
- Methods Engineers
- Software Architects
- Vendors
- Sponsors
- Project Staff
- Quality Assurance

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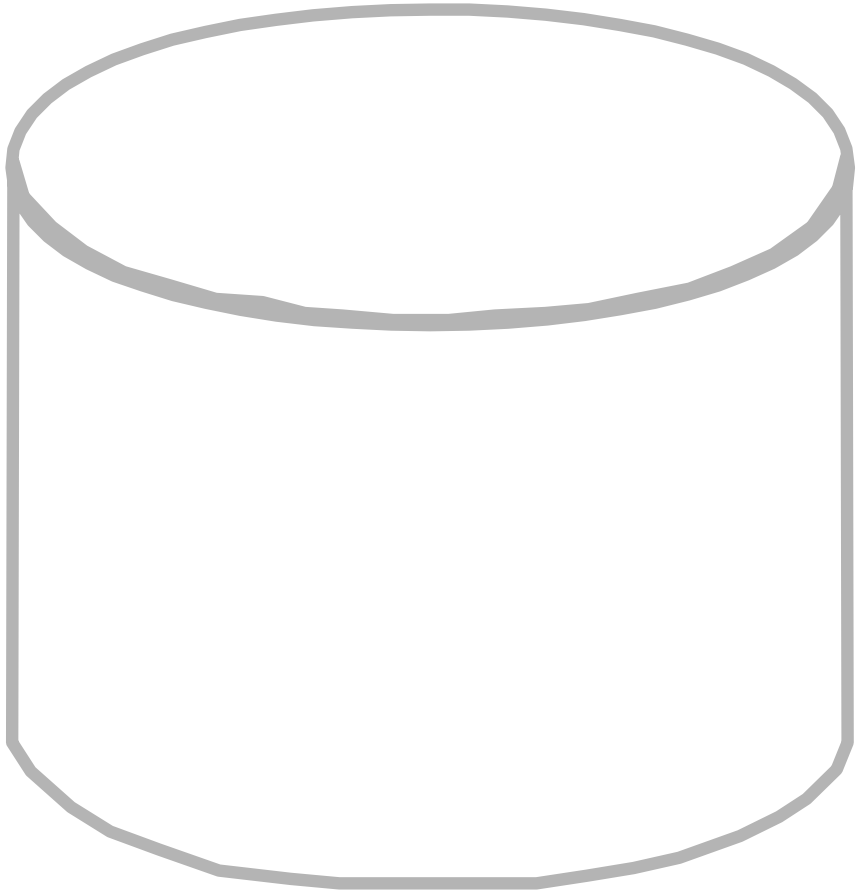
Repository, Knowledge Artefact Requirements

- Object/Semantic Model
- Rich Data Types
  - Dates, Pictures, Documents, Templates, Hypertext, Hyperlinks
- Persistence on Relational (SQL/ODBC)
- Transactional
  - Robust, traceable
- "Soft" Meta Model
  - Runtime extension
- Managed Artefacts
  - Various types (Documents, Presentations, Diagrams, Spreadsheets, Project Plans..)
  - Date/Time Stamping
  - HTTP upload/download
  - Versioning
- Exposed Directories
  - Previously or externally gathered information



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EA Tool Requirements (Shekkerman)

- Functionality
  - Methodologies and Models
    - Frameworks (agnostic)
  - Model Development Interface
  - Tool Automation
    - Import/Scanning
  - Extendibility and Customisation
    - Meta Modeling
    - Security
    - User Interfaces/Programmability
  - Analysis and Manipulation
  - Repository
    - Collaboration
    - Openness
  - Deployment Architecture
  - Cost and Vendor Support
- Utility to Professionals
  - Ent Architect
  - Strategic Planners
  - Enterprise Programme Managers
  - We can add: Project Managers; Implementors; Vendors; Domain specific architects; Process Architects; Risk Analysts etc.

- Checklist
  - Operational and Technical Fit
    - Platform
    - Performance and Availability
    - Security/User Admin
    - Software Distribution
    - Release Management
    - Tool Architecture
    - Technical and operational Requirements
  - Vendor Support
  - Functional Fit (Specific)
    - Support Analysis
    - Support of EA Frameworks
    - Support of EA Program (time)
    - Simulation
    - Repository Management
    - Validation of Models
    - Support of Standard Languages and Techniques
    - Support for EA Review Management
  - Functional Fit (General)
    - User Interface
    - Customization
    - Import/Integration
    - Reporting
    - Version Management
    - Document Management
    - Help and Tutorials
    - Libraries (Graphics)
    - Code Generation??
  - Commercial and Credibility

He comments that only the relevant level of detail should be attempted in models, otherwise the task becomes unachievable

EA Tool Requirements (Spewak)

- Query
- Analysis (integrity, level, affinity, ranking)
- Methodology compatibility/adaptation
- Kinds of Objects (files, fields, relationships)
- Extensibility
- Ease of learning, using and changing data
- Data entry forms
- Multiple or single access
- Performance/efficiency vs size of database (responsivenes)
- Toolset compatibility and integration - import/export

- Flexibility of output
  - Matrices
  - Indented lists
  - Hierarchy diagrams
  - Simple lists, cross reference lists
  - Full description (formatted text)
  - ER diagrams
  - Gant charts and schedules
  - Dataflow diagrams
  - Presentation Graphics
  - Text (free form)

EA Tool Requirements (TOGAF)

- Functionality
  - Framework Support - Customizable or own
  - Deliverable Support
  - Glossary/Taxonomy
  - Non technical views
  - Meta Modeling
  - Multi User Collaboration
  - Drill Down / conceptual/Logical /Physical etc.
  - Traceability
  - Security
  - Report Generation
  - Common Language and Notation
- Intuitiveness/Ease of Use
  - Process Map
  - Online Help
  - Prebuilt models
  - Visual modeling/Drag and drop
- Customization
- Change tracking and auditing
- Organizing Artefacts/Naming standards
- Viewing and relating artefacts
- API available?
- Organizational Factors
  - International/Multi Language
  - Distributed operation
- Tool Capacity/Scaling
  - Size of Data/No of Files/Number of records/objects
  - Upgrade path
- Architecture
  - Repository central or distributed
  - Dynamic repository
  - Standard database or proprietary
  - Backwards compatibility
  - Integration and consolidation into one repository
  - Version control
  - Web Client
  - Platforms?
- Life Cycle Support
  - Full lifecycle support?
  - Basic required views "out of the box"
  - Custom Views
  - Modeling support
  - Simulation
  - Executable output?
- Interoperability Factors
  - Import/Export (including from other tools)
  - Integration with other tools
  - Industry standard APIs
  - Support for industry standards (HTML, XML, UML)
- Financial Considerations
  - Initial cost
  - TCO
- Vendor Factors

EA Tool Requirements (From RFPs)

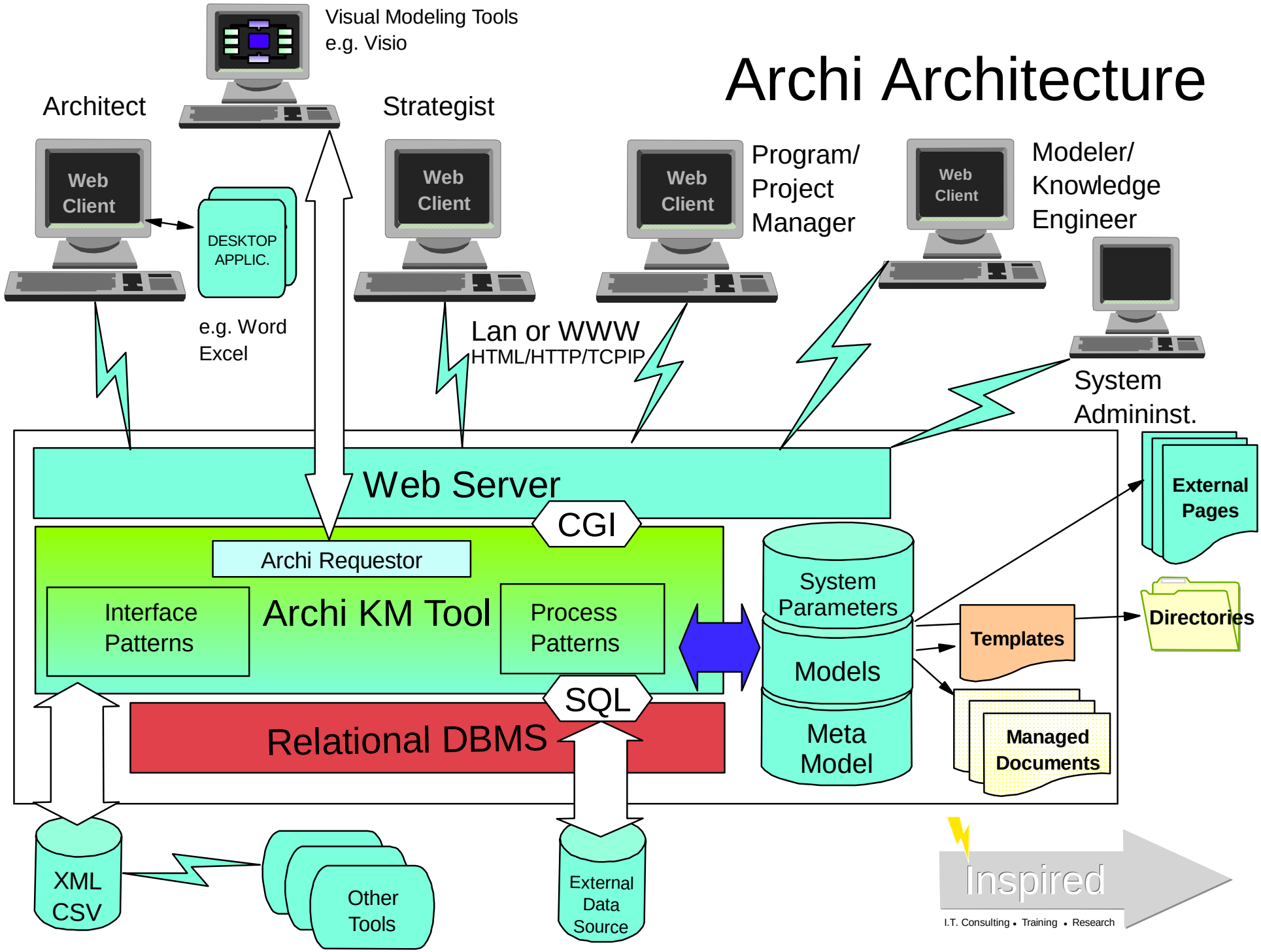
- Meta Modeling capability
  - Types , relationships
  - Aspects
  - Extensibility
- Modeling capability
  - Coverage: Business, Applications, Process, Information, Technology, Risk, Cost...
- Shared, Collaborative
- Ease of installation, deployment
- Structured, Semi-structured, ad-hoc knowledge
- Search Capabilities
- Open, interoperable
- Multiple Perspectives/Frameworks
- Visual Modeling
- Repository Management, evolution
- Reporting
- Analysis
- Inferencing (incl generation of visualization from inferred rels)
- Affordable
- Time dimension
- Filters

- Multiple Scenarios
- Non-redundant
- Auditability
- Version Management
- Asset testing
- Security
- Rich content
  - various data types
- Directory exposure/monitoring
- Meta data management, domains, audit trail
- Content analysis and status reporting
- User customization
- Methods engineering/Program Management support
- Performance/response time
- Standards encouragement
- Easy data capture/import
- Available models (Zachman, TOGAF, Inspired, DODAF, COBIT etc.)
- Reliability
- Support levels of abstraction

Design

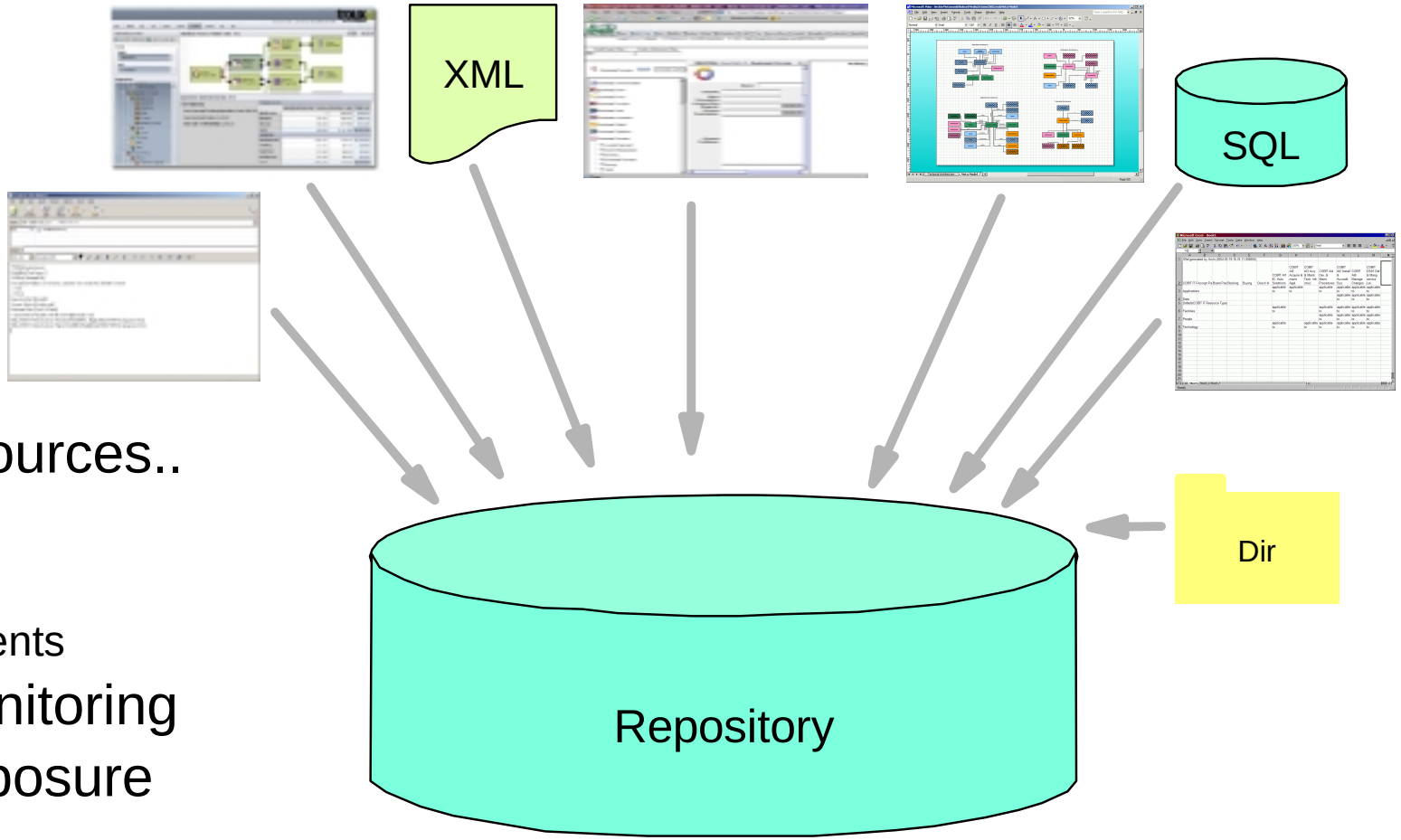
- Support
  - Architecture Management
  - Methods Engineering and Use
  - Strategy and Programme Management
  - Professional, knowledge intensive work
  - Distributed Teams
  - Multiple Frameworks
- Central shared, transactional repository
  - Hold structured, semi structured and unstructured data
  - Support all "document types" client can handle
  - Object Oriented model, relational storage
  - Support links to external content
  - Version management and audit trail
  - Method templates
- Server based product - thin client
  - Web Interface, X Browser
  - "Zero Deployment"
  - Central Installation and Administration (tho latter can be done thru browser interface from anywhere)
  - Provide all necessary management utilities (users, security, performance, import, export, migration, error handling, support etc.)
  - Stateful, sessions, security, currency
- Pattern Based
- Standards Compliant
  - HTML, HTTP
  - XML, XMI
  - CSV
  - Relational Database
  - Standard web server
- Events
  - Support automation, monitoring, collaboration
- Tool integration, API to support other tools
  - Batch, XML, CSV
  - Realtime, WEB Svc, XML, CSV, API
- Easy Loading
  - Web forms, relating tools
  - Import
  - Visual Modeling
  - External DB Access
  - Spreadsheet Integration
  - Directory access / monitoring
- Runtime extensible
  - Meta Model Edit via Browser, internal documentation
  - Calculations
  - Events
  - Custom Views
- Flexible Capture, Viewing, Navigation, Analysis and Output of Data
- Easy Output
  - Report Generation
  - Composite Documents
  - Portal Support
  - Publishing - web site gen
  - Visual Models
  - Status via picture
- Collaboration Support, Discussions
- Customisation
  - Menus
  - Custom Views
  - Settings
- Help

Archi Architecture



Input Mechanisms

- Collectors
- Import
  - XML
  - CSV
- Capture
  - Web
  - Visual Tools
- Read from sources..
  - SQL
- eMail
  - With Attachments
- Directory Monitoring
- Directory Exposure



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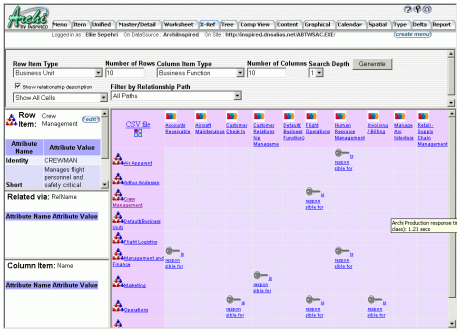
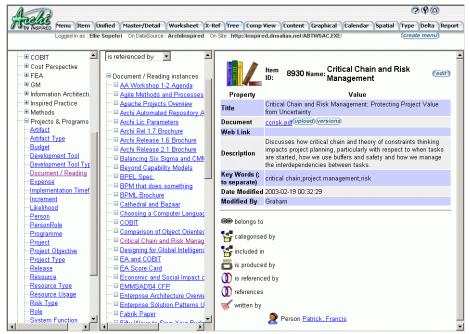
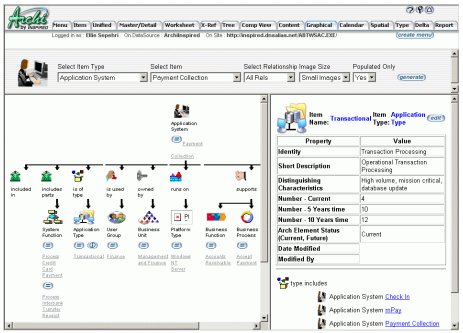
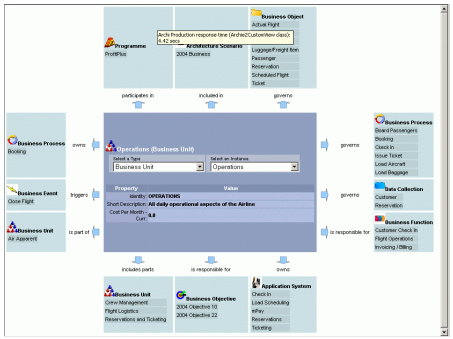
Multiple Analysis Views

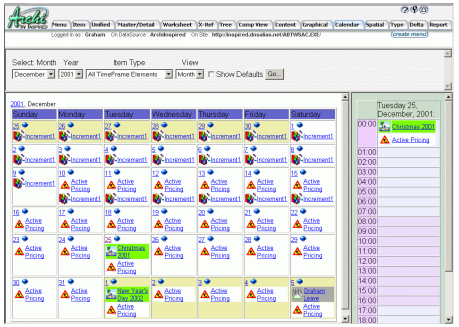
- Item
- Master/Detail
- List/Worksheet
- Hierarchy
- Matrix
- Calendar
- Context/Inferencing
- Computed values
- Filters...
- Visualization
- Search Capabilities

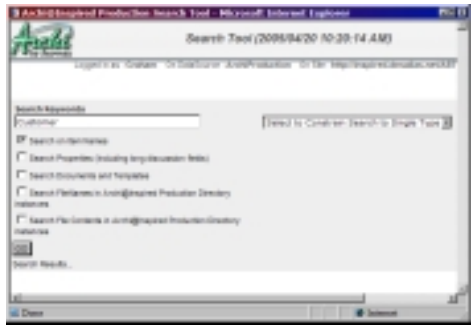


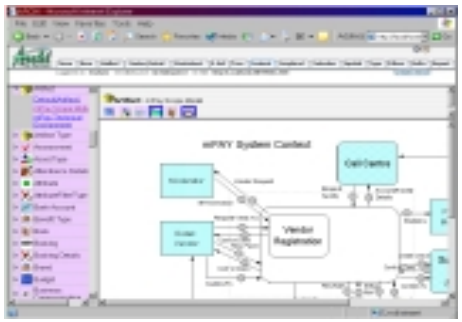












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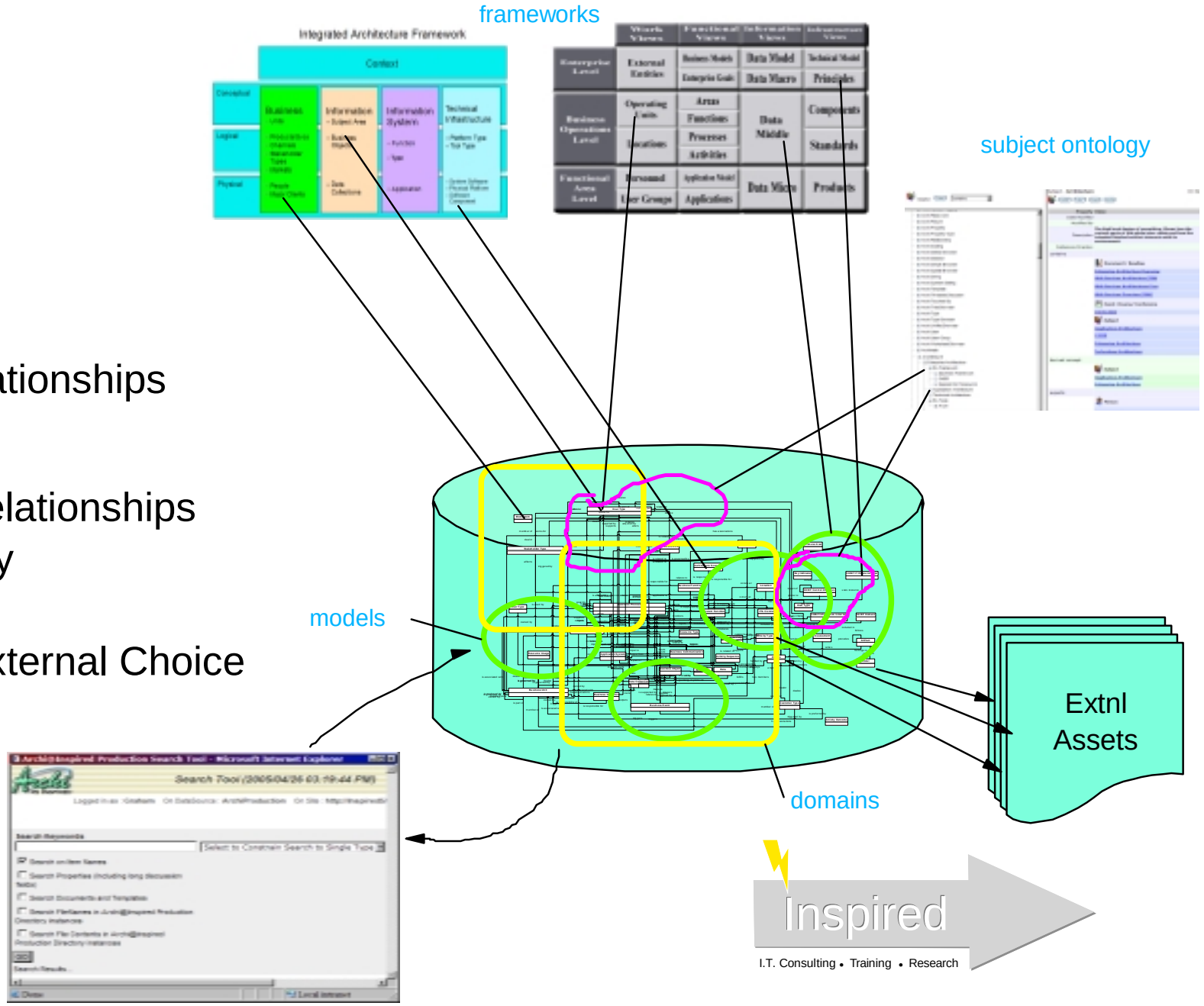
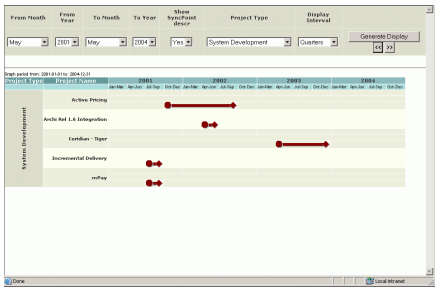
Content Organization

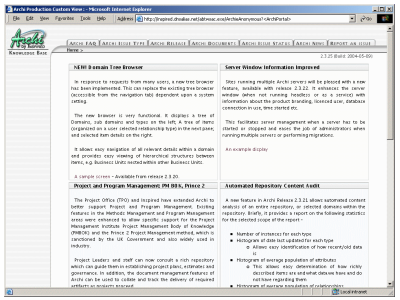
- Models
- Domains
  - Nested
  - Non-exclusive
- Frameworks
  - Visual
  - On top of types
- Same Type Relationships
  - Hierarchies
  - Networks
- User Defined Relationships
- Subject Ontology
- Searchable
- Internal/Local/External Choice

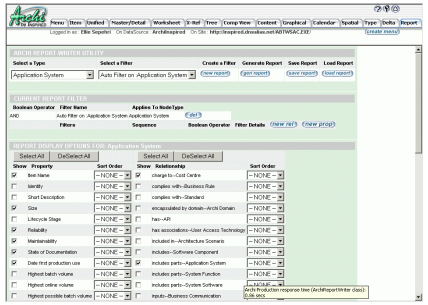


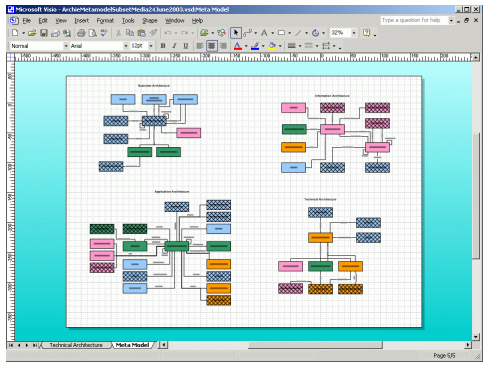
Output Views

- Spatial
- Graphical
- Documentor
- Context
- Report
- Composite Doc
- Portal
- Website
- Visual Model
- Presentation Model
- Export
  - XML
  - CSV









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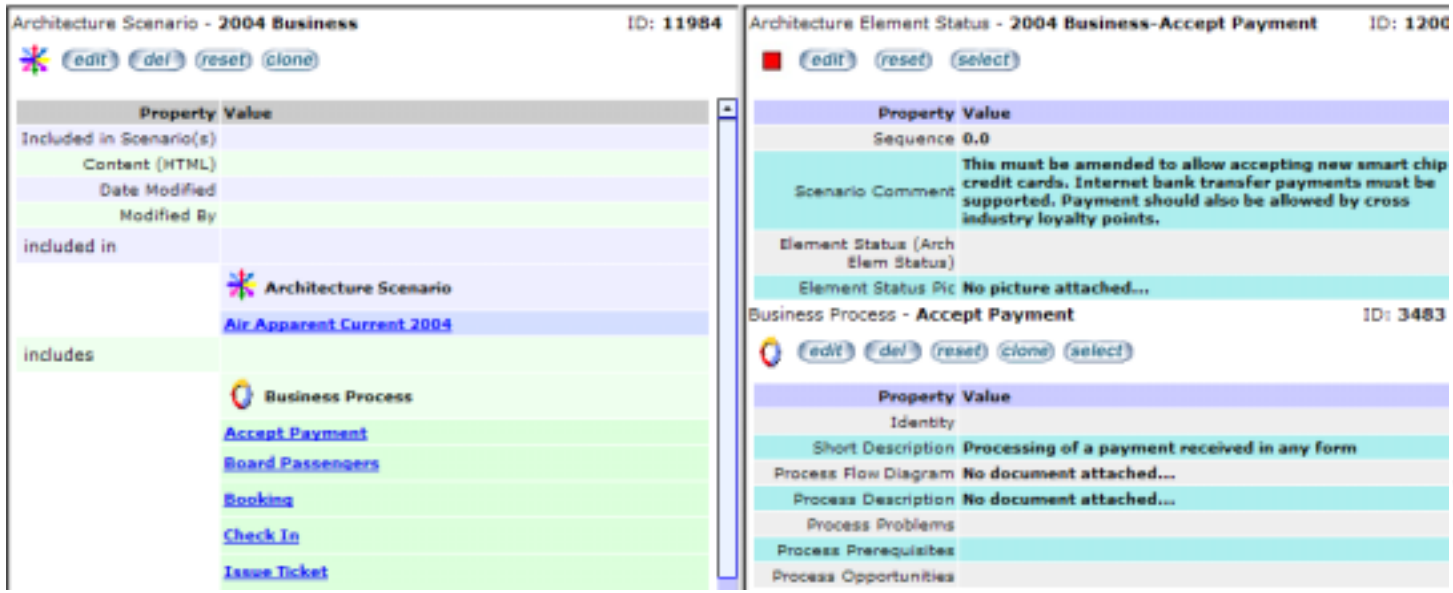
Scenarios and Evolution

- Architecture Elements
  - May satisfy requirement in a variety of scenarios
  - OR may be used in one, but discontinued or under evaluation in another
  - Need a view on the element per scenario...
- Architecture Scenarios
  - Supported via relationships and filtering
  - Allows considering any combination of scenarios
    - No redundancy of shared elements
    - Unique perspective on element within a scenario
- Visual Modeling
  - Allows extracting a model, modifying, generating a new model
  - While sharing all common elements



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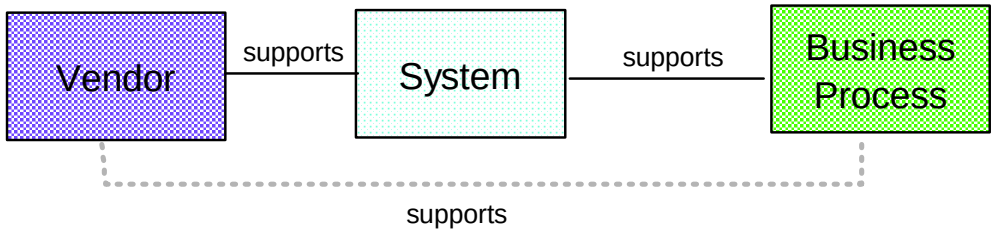
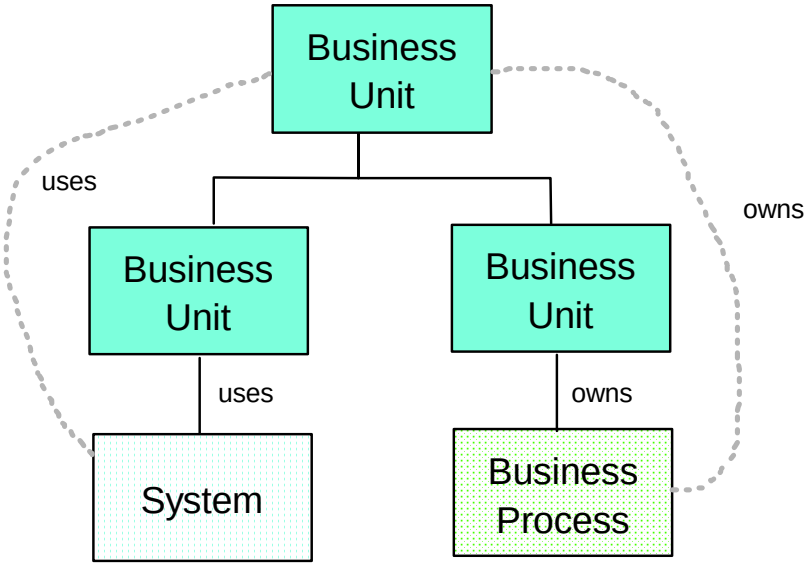
Inferencing, Computation

- Inferencing of Relationships





- Computation
  - Declarative
  - No Repository Access Code required
  - Can be recursive
  - Immediately interpreted
  - Full, rich object language
  - Powerful API
  - Support for recursion
    - with control of cyclical problems

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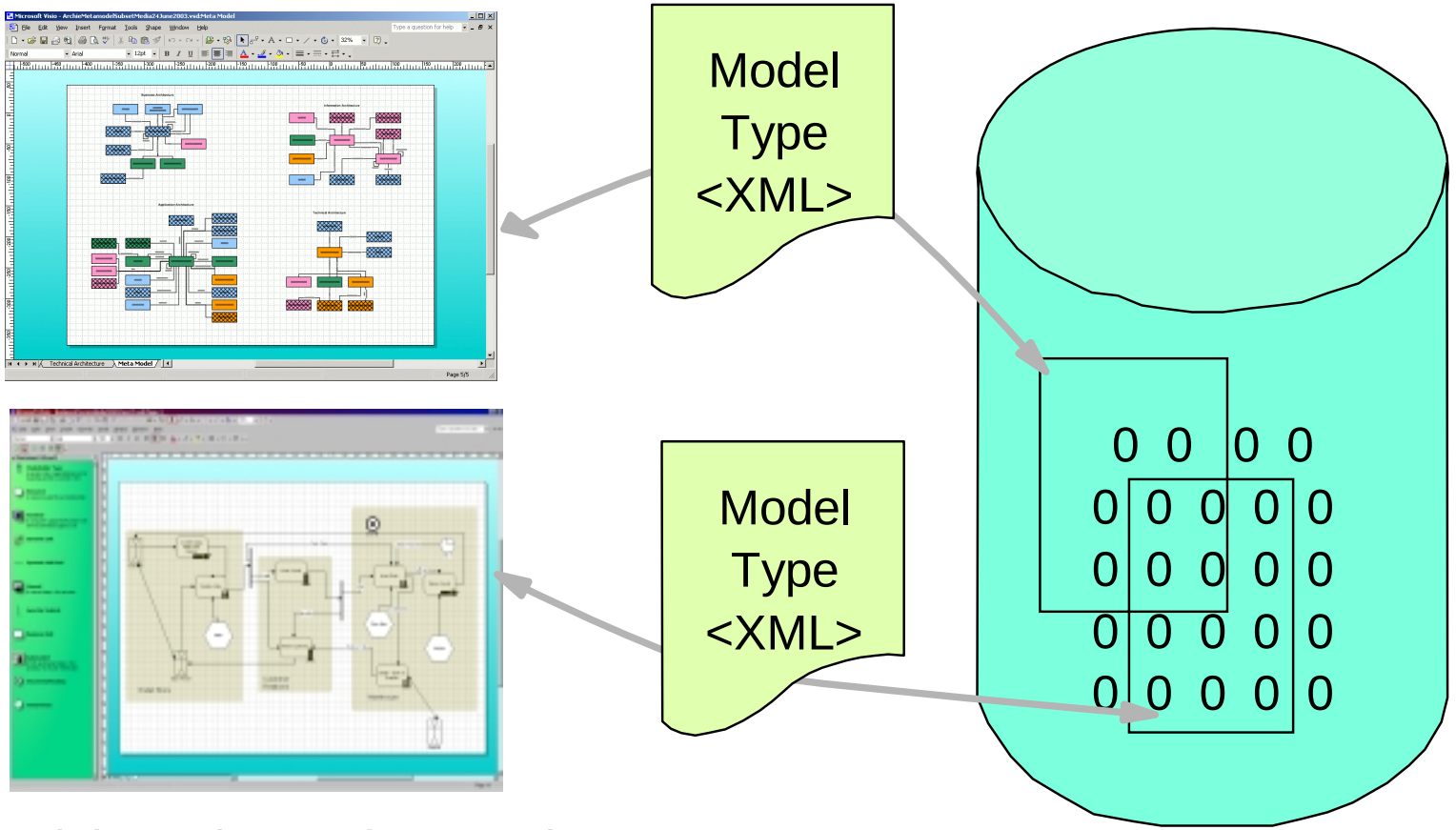
Visual Models, Transformation



- Items can participate in multiple models
- with different representations
- Model Types provide a mapping between visual representation and internal meaning
- Model exchange occurs over HTTP links

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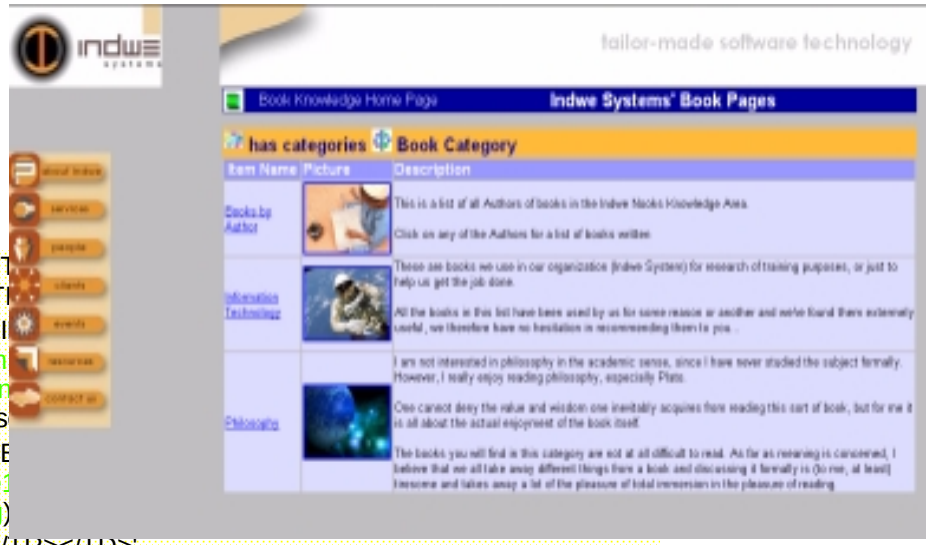
Interoperation, Customization

- XML
  - Instance Data
  - Attached Assets and Graphics
  - Meta Data
  - Custom Schemas
- CSV
  - Template generation
  - Import
  - Generation
- Requestor
  - Middleware
  - API
  - Scripting
  - Visio, Powerpoint, Word....
- Custom Menus
- Custom Views

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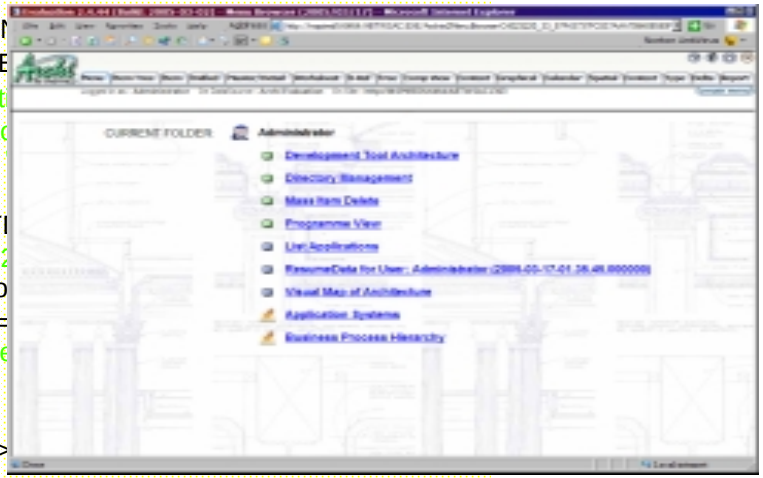

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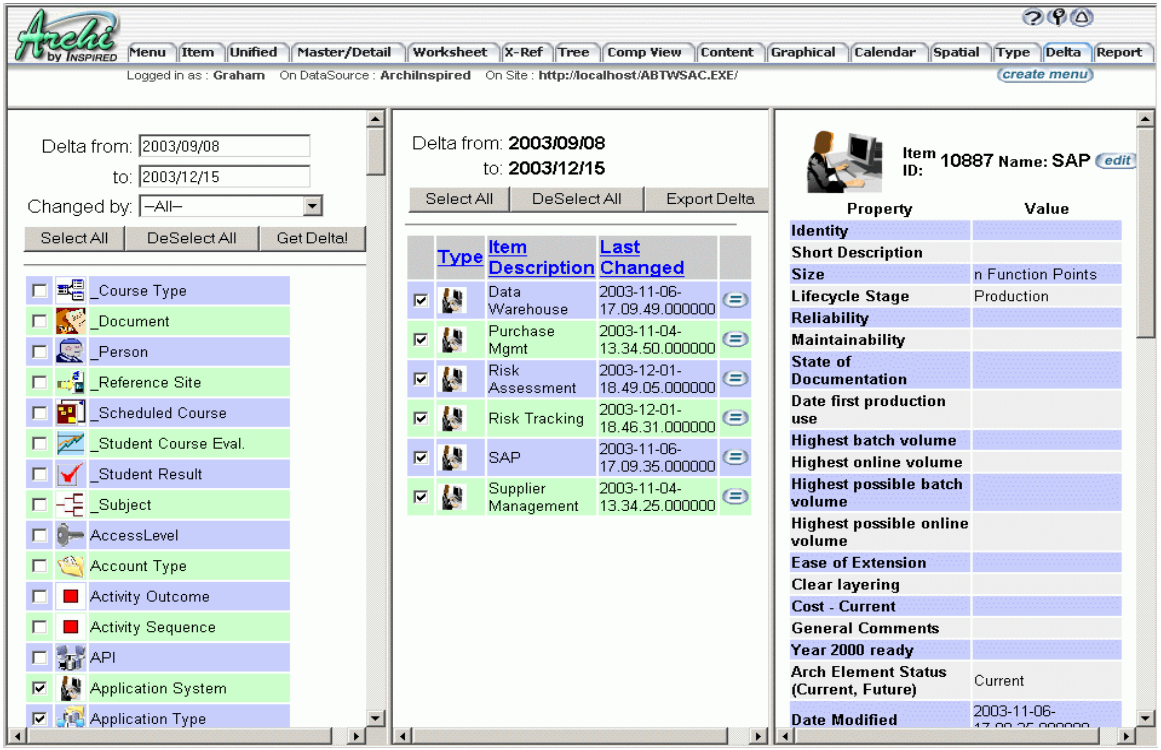
Auditing, Evaluation of Progress, Management

- Delta Views
- Meta Audit
- Content Analysis
- Management Utilities
  - Performance
  - Users
  - Logging
  - Transactions
  - ...
  - Error Management
- Events
- Domains



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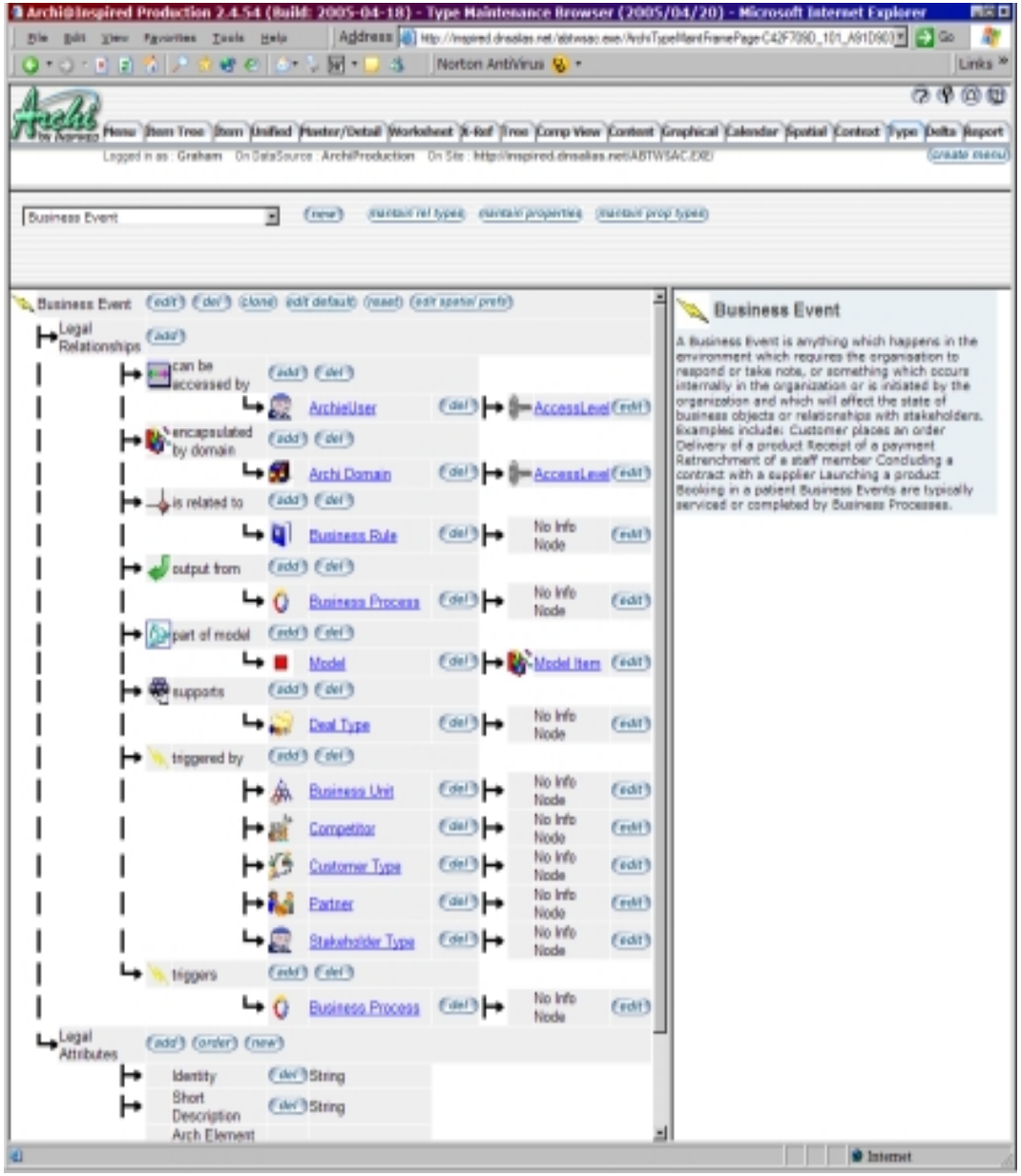
Meta Modeling



- Easy web interface
- Define/Modify
  - Types
  - Relationships
  - Properties
  - Preferred spatial layout
- Internal Documentation
- Immediately Usable
  - Patterns Customise User Interfaces and Business Logic
- Impact Analysis Supported
- Model Comparison Supported
- Change Auditing
- Visio Integration

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Demonstration

- Meta Modeling
  - Type Browser, Instant updates to UI
- Input, linking
- Atefact management
  - Content view
- Matrices and Inferencing
  - X Ref
- Spatial View Access
  - Frameworks, Drill Down, Query
- Inferencing in hierarchies in Context
- Computation
  - e.g. Gap
- Filtering/Scenarios/Gap Analysis
  - By Scenario, Business Unit, Domain, State
- Calendar, Programme View
- Reporting, Composite View
- Visual Models
  - Meta
  - Instance: Process; Application Architecture
- Output: Portal, WebSite, Documentor

References

- Inspired - various internal documents, white papers and RFP materials
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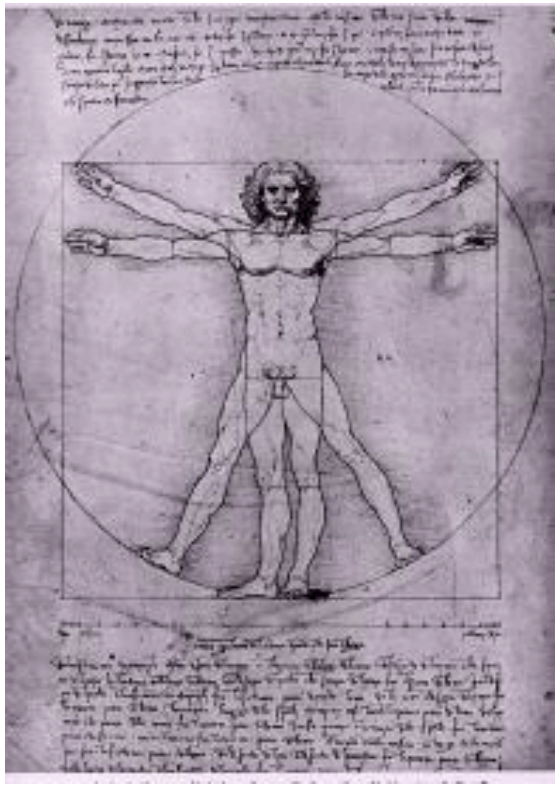
- Inspired
  - www.inspired.org



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