The Case for Collaborative, Distributed Modeling

Graham McLeod

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Abstract

The Case for Collaborative, Distributed Modeling

For too long the architecture effort in many organizations has been concentrated in the hands of a few experts, usually in a central location.This typically causes a bottleneck where architecture cannot keep pace with buisness change and where results are not effectively translated to action, making architecture an "ivory tower" exercise.

In other cases, where work is done by various groups (e.g. process, applications, data, technical) it is extremely difficult to integrate the outputs/models of the various groups meaningfully and to achieve a coherent "big picture". Problems include scope, notation, nomenclature, naming, timing, ownership and language.

This talk covers how these issues can be addressed by consistent, shared meta models, standards, education; distributing the architecture effort; and new tools which support distributed collaborative modeling. Advantages include: higher quality input and models; acceleration of the architecture effort; higher levels of buy-in across the organization leading to higher architectural compliance and associated benefits.

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Agenda

- Challenges for Architects/Architecture in the Organization
- The Vision of Collaboration
- Enabling Collaboration
  - Models
  - Methods
  - Tool Support
- Futures

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Challenges

- The Oracle at Delphi
  - All knowledge collected at a central point
  - One wise person who can provide answers
  - Long trek to get there and long wait before you get an "answer"
  - By the time you get back home you may have forgotten it, or it may no longer be the "correct" one!
  - If you *are* the "oracle" it's a major stress

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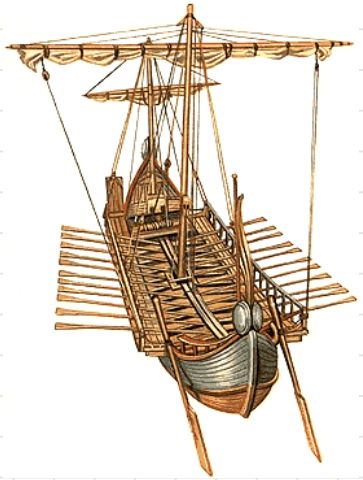
- Rowing in Circles
  - Trying to do it all yourself
  - Too busy to get perspective and maintain direction
  - Too much work
  - Very slow progress, if any...



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Challenges..

- Multiple Lenses
  - The more eyes/hands/heads & formats information passes through before it reaches us, the more inaccurate it is likely to be

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Challenges..

- Multiple Lenses
  - The more eyes/hands/heads & formats information passes through before it reaches us, the more inaccurate it is likely to be

- Geography and Time Zones
  - Difficult to get information from all parts of the organization
  - Difficult to get people to communicate in real time

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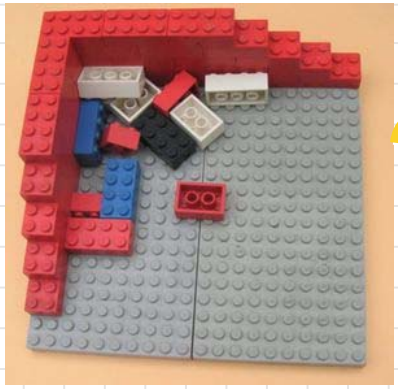
Challenges...

- Integrating Perspectives
  - Business, process, data, application, technical, risk, cost...
  - Complicated by different notations, semantics, naming, categorisation, tools, formats



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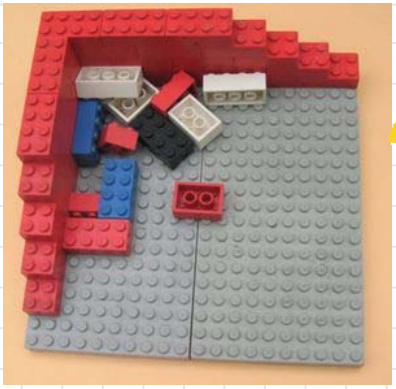

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- Identifying elements consistently
  - Debtors DB vs Deb0010
  - Payroll vs QPac

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Benefits of Collaboration

- Involvement of more perspectives and subject experts
- Higher quality input and models
- Distribution of effort and greater total effort applied
- Reduction of time to produce results
- Higher awareness and buy in of all relevant parts of the organization => higher architectural compliance
- Greater agility

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The Web vs The Library

- Library
  - Central Store
  - One way of organizing content
    - e.g. Dewey or Author
  - Specialist Personnel
  - Limited Access
    - Location
    - Time
    - Assistance
  - Single presentation format
  - Limited search
  - Dated Content
  - Cool for researching the past
- Web
  - Distributed
  - *n* ways of organizing, indexing, linking content
  - Domain expert personnel
  - Very Wide Access
    - Anywhere
    - Anytime
    - Unaided
  - Multiple presentation formats
  - Powerful Search
  - Dynamic, Current Content
  - Better for building the future

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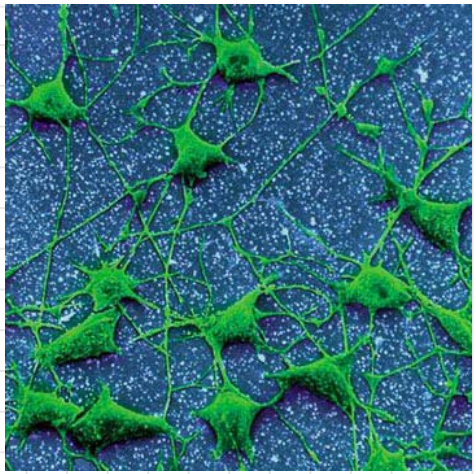
Like a Central Nervous System

- Multiple sensory organs
  - Knowledgable people in the organization and partners
- Filtering
  - Based upon models of what we need and how it fits
- Storage & Memory
  - Elements stored with rich content in repository
- Linking
  - Rich connections make every item more meaningful
- Analysis
  - Analysis adds meaning and new information
- Recall
  - Rich query, search, reporting, formatting and output options
- Action
  - Information and insights available to all other organs to respond appropriately
- Feedback
  - Communication for how actions affect the world



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Who to Involve

- Business Goals
- Scope of Activity
  - Map onto Framework
    - Coverage: Zachman
    - Process: TOGAF
  - Map onto Meta Model
    - Inspired
  - Depth (Abstraction vs Detail; Type vs Instance)
  - Organization (& External)
    - Responsibility
    - Geography
  - Timeframe
    - Architecture view (current, horizon)
    - Project
  - Questions to be Answered
  - Desired Outputs/Artefacts (Viewpoints)
- Who has knowledge?
- Who needs to be committed to result?
- Who will be affected by the result?
- Who can trip us up?
- Who has skills?

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Managed Chaos

- Meta Models
- Vocabulary
- Taxonomy
  (Reference Frameworks)
- Authority
- Responsibility
- Review
- Notification
- Status

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Standards

- Naming
  - Vital for consistency, searching, sorting, relating
- Minimum documentation (e.g. Description)
  - One way to discourage "new" ones when they should be re-used
- Agreed Meta Model
  - Absolutely vital to ensure:
    - Coverage of required concepts and scope
    - Agreed types and their meaning
    - Required relationships
    - Scope of a particular effort
    - Integration of elements from diverse sources

- Agreed Process
  - E.g. TOGAF, Inspired
- Notation
  - E.g. Archimate; BPMN (we do not recommend UML, except for Data)
- Only ensure a "minimal achievement level"

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VITAL Role of Meta Model

- Architect = Conductor
- Meta Modeler = Arranger

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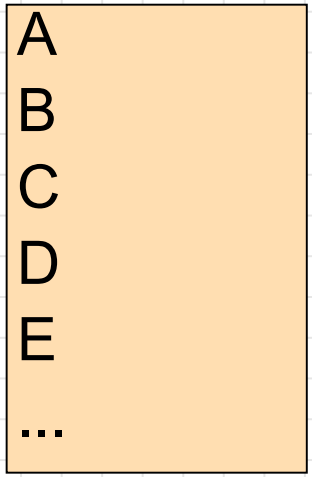
Process

- Identify Participants & Roles
- Educate
- Deploy Mechanism
- Collect Lists
  - Use prepopulated taxonomies to accelerate
  - Use pre-existing lists, models and documents



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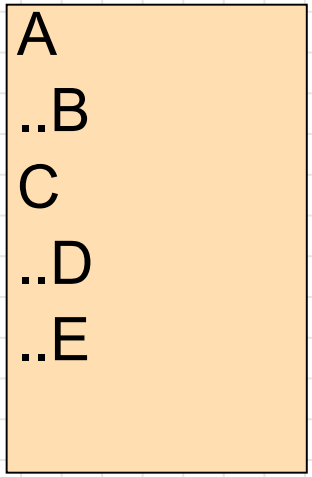
- Organize into Hierarchies
  - Describe



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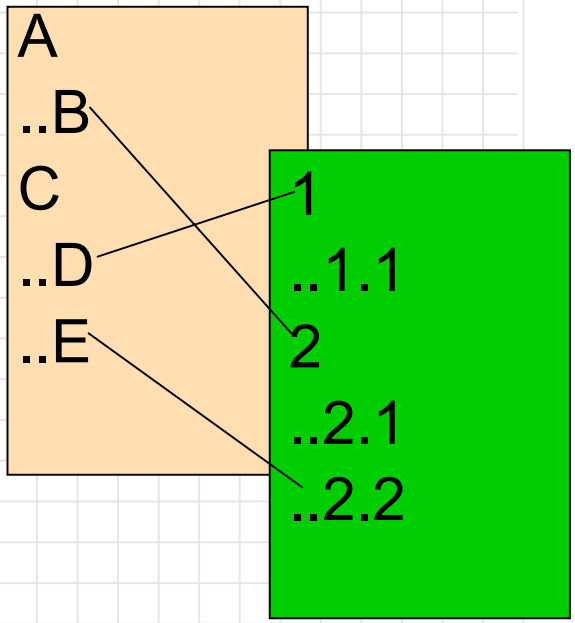
  - Describe
- Link Across Types



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Process

- Identify Participants & Roles
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- Collect Lists
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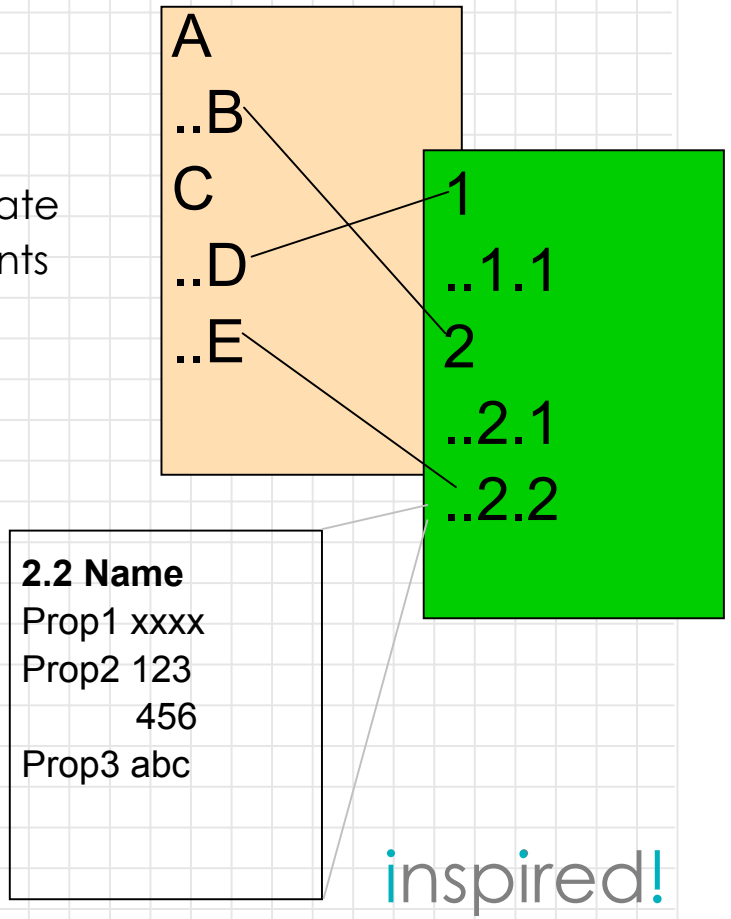
  - Use pre-existing lists, models and documents
- Organize into Hierarchies
  - Describe
- Link Across Types
- Verify
- Enhance Detail
  - Expand Attributes
  - Decompose
- Enhance Abstraction
- Plan Forward



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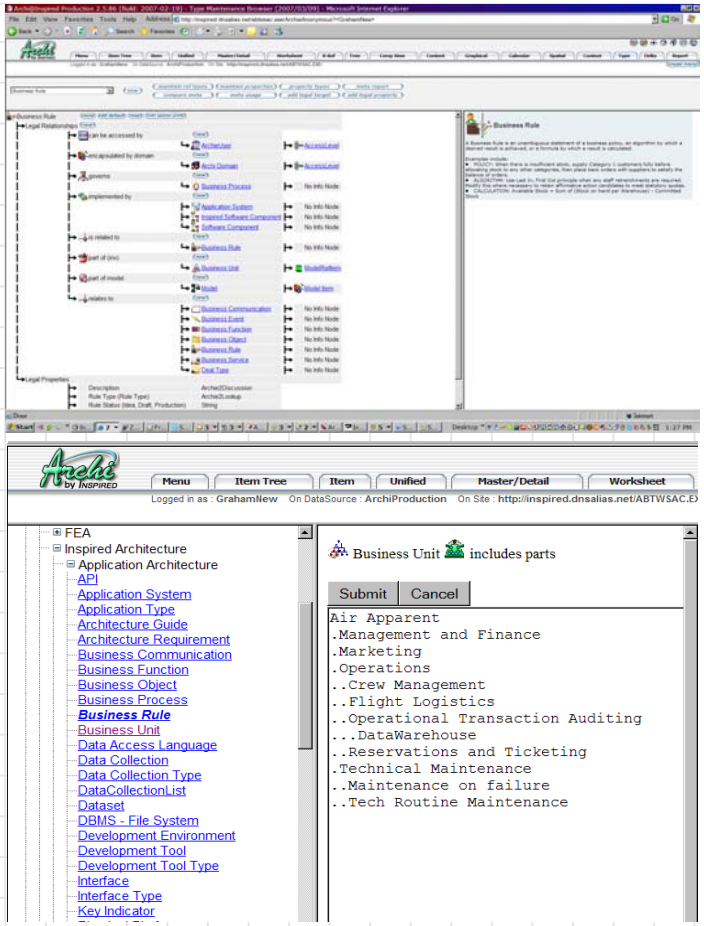
Tool Support

- Adapt Meta Model
  - Standard
  - + Enhance for Goals
  - – Reduce for Scope
- Assign Responsibilities
  - Person vs Model Fragment vs Role
- Capture Lists
  - What have we got
  - Naming Standards
- Organize Hierarchies
  - Natural e.g. Organization; Geography
  - Abstraction e.g. Process Hierarchy; Service Hierarchy; Application Types
  - Could be multiple for a type



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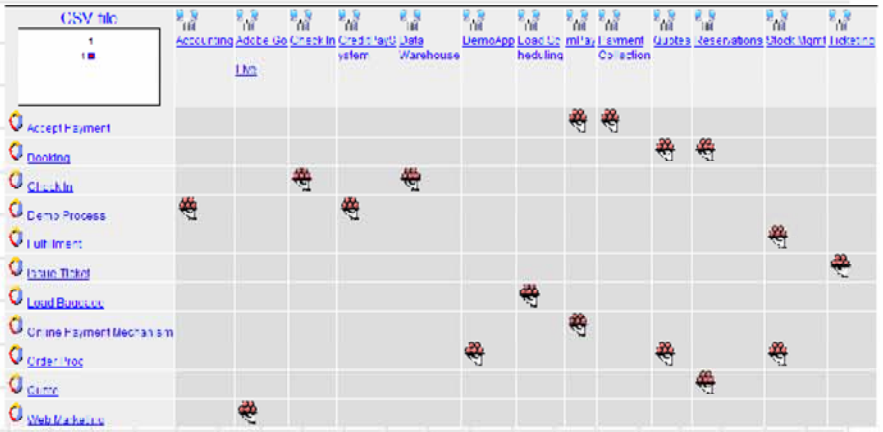
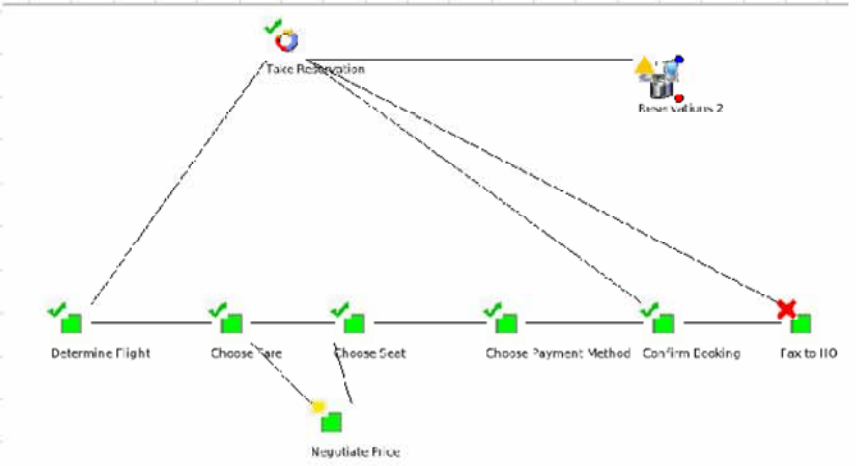
Tool Support..

- Link Across Types
  - Relate, Cross Reference
  - May be data about relationship too..
- Enhance Detail
  - Populate required attributes per type
  - Decompose
- Event Notification
  - Who has done something of interest to me?
  - What data has arrived?
- Communication
  - News Threads
  - Wiki Features
- Difference Identification
  - Across Time (Delta Browser)
  - Between Models (Difference Models in GM)





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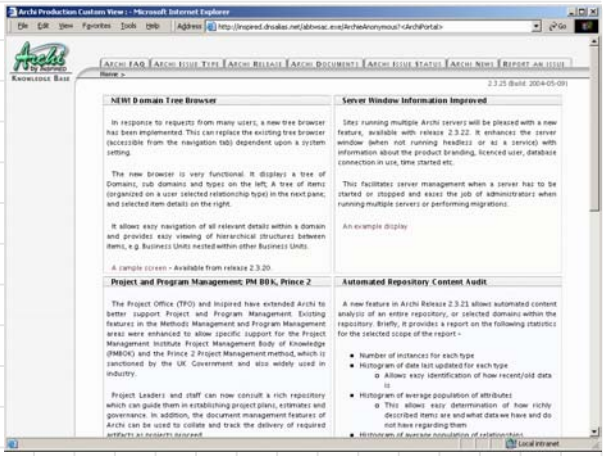
Tool Support...

- Sharing outputs
  - Reports, Generated Documents
  - Anonymous Access, Portal, Web Sites
  - Feed to other tools e.g. CSV to Excel, XML to analysis tools
  - Star Schema to DSS tools
- Web
  + Repository
  + Meta Model
  + View Points/Graphical Modeling
  + Security
  + Open Exchange



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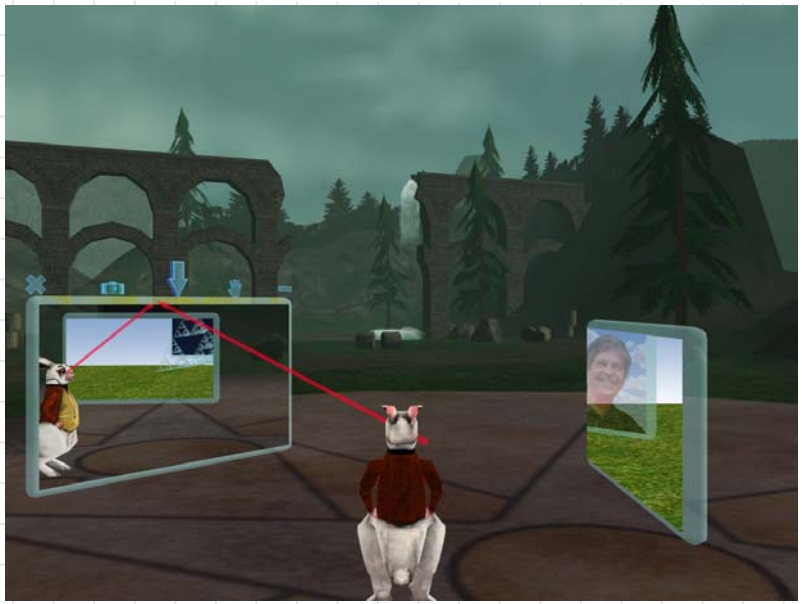
Futures

- Virtual Whiteboarding
- Video Conferencing
- 3D Spaces
  - geoDec
  - Miramar
  - Croquet
- Research
  - Advanced meta modeling techniques
  - Collaborative modeling in virtual spaces



- "The best way to predict the future is to invent it" Alan Kay

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