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Information Quality: What's Enterprise Architecture Got to Do with It?

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Objectives of this presentation

- Demonstrate the compatibility of the data quality discipline with Scenario-Based Enterprise Architecture

2

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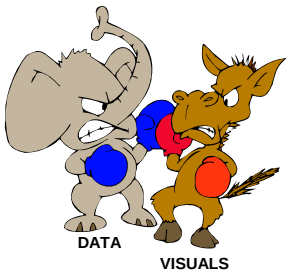
What's the Problem?

- "It's the data, stupid" vs. "Let the pictures tell the story"



3

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What does "It's the data, stupid" really mean?

- The (only) important aspect of an enterprise architecture is the underlying data.
- It doesn't matter how you express this data to humans.
- It doesn't matter *if* you express this data to humans.
- It is only important that the data conform to the data standards you have set up
  - format standards for storing in a database
  - quality standards for usability

4

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What does “Let the pictures tell the story” really mean?

- The underlying data has to be “good,” but
- Humans think and understand quickly and well via visuals (pictures).
- Humans are the ones analyzing enterprise architecture data.
- Humans are the ones making decisions based on analysis of the enterprise architecture data.
- Most of these decisionmakers are not computer scientists.

5

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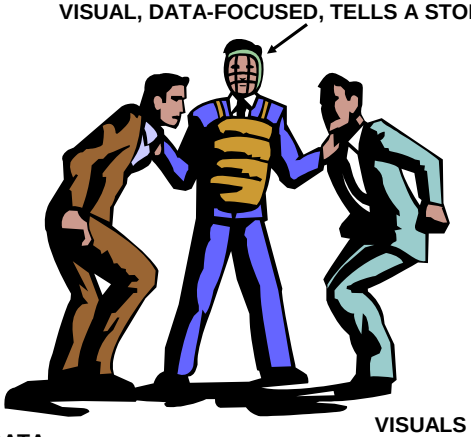
But wait, they are both right.

SCENARIO-BASED ENTERPRISE ARCHITECTURE:
VISUAL, DATA-FOCUSED, TELLS A STORY



DATA **VISUALS**

6

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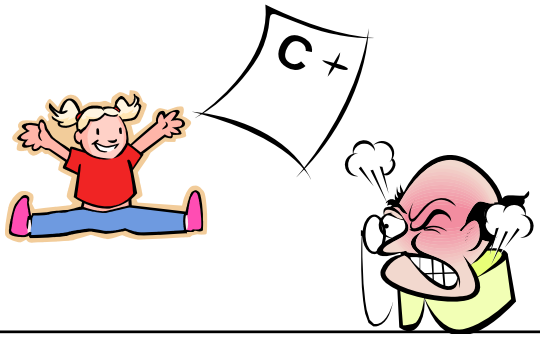
How can they both be right?

The definition of data "quality" is circumstantial

- Data quality depends on where, when, why, how, and by whom the data needs to be used.
- One person's "good enough" is another person's disaster.



7

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Enterprise architecture can help us account for this circumstantial definition of data quality

- Enterprise architecture "products" or "artifacts" are the visual renderings of selected data about your enterprise.
- Visual artifacts allow human stakeholders and decisionmakers to quickly grasp the logic of your message and analyze its validity and repercussions.
- The different circumstances under which data is to be used can be expressed as different story lines.
- To tell these different stories, we need a sequential, visual representation of our underlying enterprise architecture data.

Combine the discipline of data quality with Scenario-Based Enterprise Architecture

8

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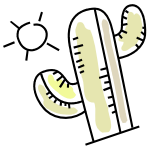
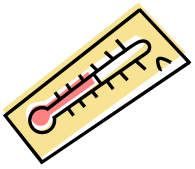
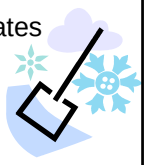
What is Scenario-Based Architecture?



- A representation of the various ways a given enterprise operates under different sets of conditions (circumstances)



- Examining a range of scenarios can help you determine if your enterprise (and its data) is robust enough to operate under the likely circumstances.

9

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What are the basic components of a Scenario-Based Architecture?

- **Purpose Statement: Tells what you intend to analyze via the architecture**
- **Activity Model: Shows the essential activities that occur, under any and all circumstances (i.e., irrespective of specific circumstances)**
- **Node Connection Model: Shows which business performers exchange information, irrespective of specific circumstances**
- **Information Exchange Matrix: Shows the detailed characteristics of the information exchanged**
- **Scenario Sequence Models: Illustrate multiple storylines showing the different ways the enterprise operates under specific conditions**
- **Capability Progression Model: Defines what it means to achieve certain levels of capability**
- **And, if you need details about technology used: ***
  - **Systems Connection Model**
  - **Systems Data Exchange Matrix**

*** For illustration, we will not consider technology factors here**

10

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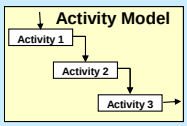
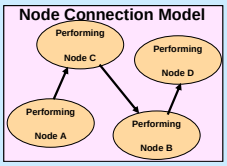
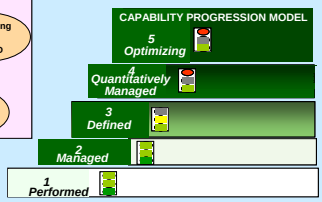
What does a Scenario-Based Architecture with these components look like?

One each per architecture

Purpose Statement: e.g., "Analyze XYZ to determine such and such"





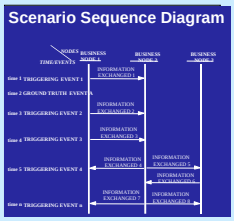


These represent the whole of the enterprise under consideration.

One each per scenario

Information Exchange Matrix

Data Item	Sender	Receiver	Timeliness Reqmt.	Precision Reqmt.	Other Reqmt.



These tap into the whole of the enterprise information to select threads that illustrate specific story lines.

11

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Purpose Statement sets the stage for your enterprise analysis

- Why you are developing the architecture
- What issues you will examine, what questions you hope to answer
- Who are your stakeholders, decisionmakers
- What artifacts (models) you will construct
- How you will approach and tailor the models
- How you will know when you are finished
- How you will know if you have succeeded

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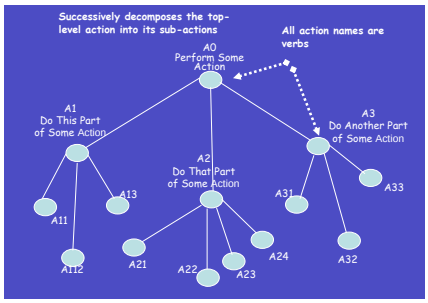
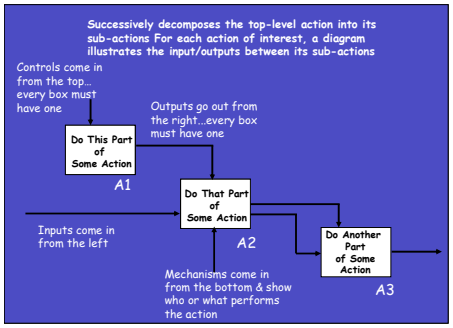
The Activity Model shows the relevant* actions that take place in your enterprise (irrespective of scenario)



Activity Hierarchy Tree



Activity Flow Model

*** Relevant to the purpose & scope of the architecture**

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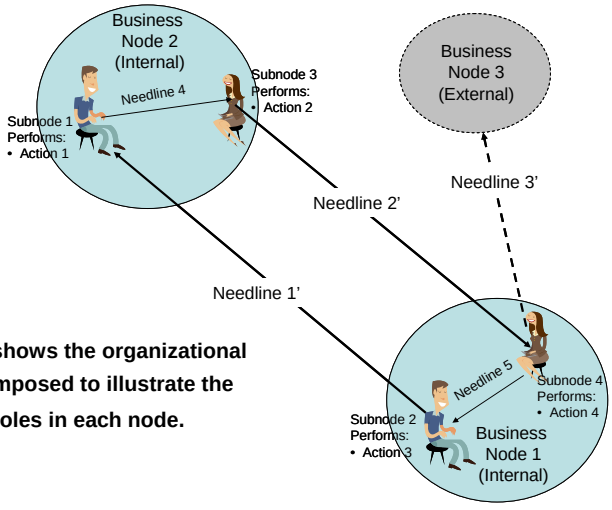
The Node Connection Model shows which enterprise participants need to interact with each other (irrespective of scenario)



This example shows the organizational nodes decomposed to illustrate the human roles in each node.

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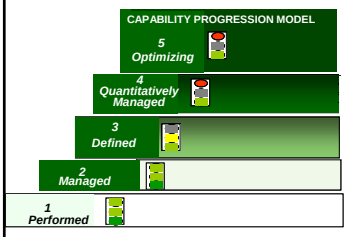
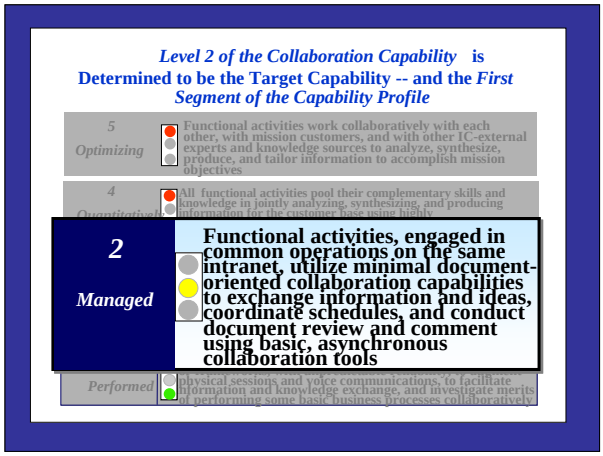
The Capability Progression Model (CPM) defines levels of ability in selected capability areas (irrespective of scenario)

Example: CPM of Collaboration Capability

Generic Format





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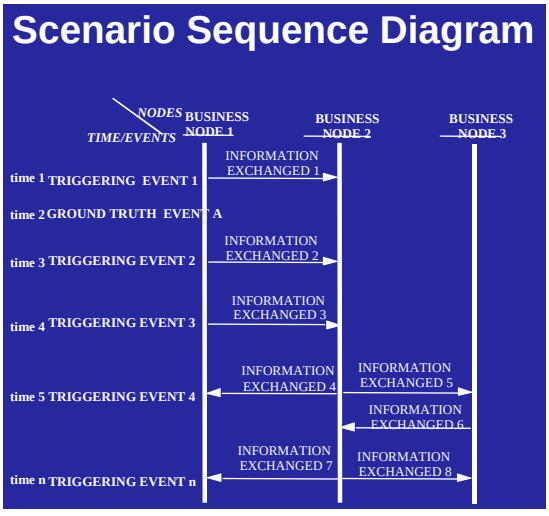
A Scenario Sequence Diagram shows a series of events, and the information exchanges that occur in response the to events *of a given scenario*



12

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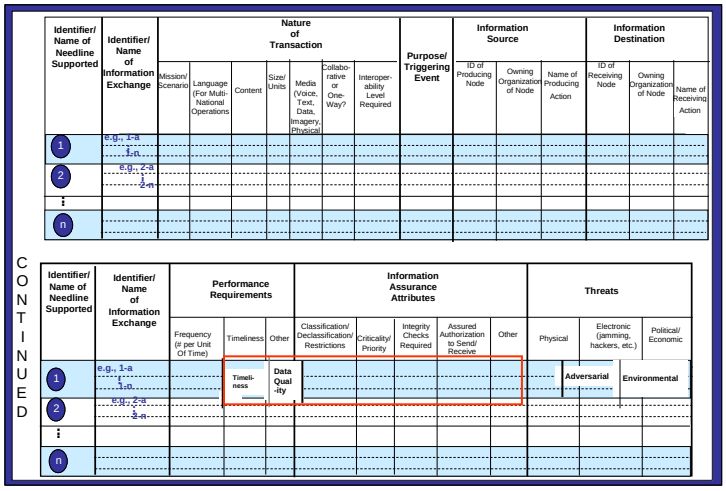
The Information Exchange Matrix captures the relevant quality (and other) characteristics of information *as it is used in a given scenario*



Who needs what information or goods may differ by scenario.
Required characteristics of that information or data may differ by scenario.

14

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But where does data quality fit in?

- Data quality depends on where, when, why, how, and by whom the data needs to be used.
- The various scenarios illustrate where, when, why, how, and by whom the data needs to be used, one storyline at a time.
- The Capability Progression Model provides a scale for defining capabilities related to data quality (and other factors).
- The Information Exchange Matrix details the characteristics, including quality attributes, of information as it is used in these various circumstances
- Examination of the Information Exchange Matrix in context with the Capability Progression Scale allows the architect to define “success” for each scenario.

13

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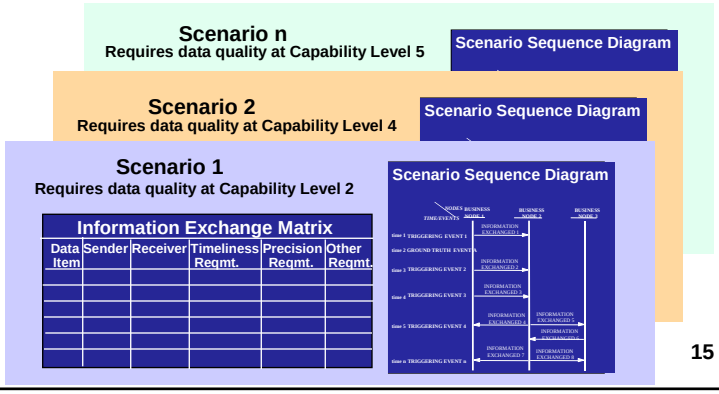
By examining a representative range of these scenarios and their data quality requirements, the architect can measure the range of quality requirements for given information items. **For example:**

- "Depending on circumstances, data item X needs to be.."
  - from one minute to one hour old
  - validated by a level one manager to a level three manager
  - precise to a level of one decimal place to three decimal places



15

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Summary

- Yes, it is the data that is important.
- Yes, it is the visual representation of that data that is important.
- The quality of the data depends on the circumstances.
- Visual, Scenario-Based Enterprise Architecture helps you explain the circumstances and the resulting data quality assessment to human decisionmakers.

16