Visual Definition in the Requirements Lifecycle: A Conceptual Framework

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Preliminaries

Abstract

- This session provides a framework for evaluating the best uses of text and various visual notations in the requirements process. Presenters highlight this in reference to IBM Rational Requirements Composer, application simulation tools such as iRise, and UML/SysML modeling.

The presenter

- Daniel Moul is a senior member of the Rational Strategy and Offering Delivery team. His focus is requirements in the development lifecycle. He has been working on and around enterprise software tools and runtimes for the last 15 years. Daniel was part of the team that initially brought Rational Requirements Composer to market.

Agenda

- Visual Definition by Example

- Visual definition in the requirements process

- Modeling and textual requirements

- Storyboards and simulations (and RRC and iRise)

Visual Definition is not new

Visual Definition has staying power

More textual definition

Video: see his walk and other mannerisms

Pictures: see estimates of what he may look like today

Audio: hear his voice

Contractual offer in text

Sellers use Visual Definition too

… and buyers like it when they do

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Role of visual definition

- So where does visual definition fit in the requirements process?

Requirements elicitation and validation

- Goals

  Remove ambiguity in the definition of success

  Gain consensus on the answers

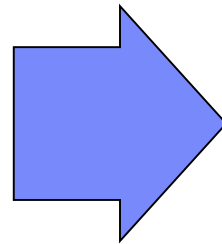# Requirements elicitation and validation

- Which ambiguous parts?

    Only the parts that matter most

Requirements elicitation and validation

- How do we remove ambiguity?

Thinking
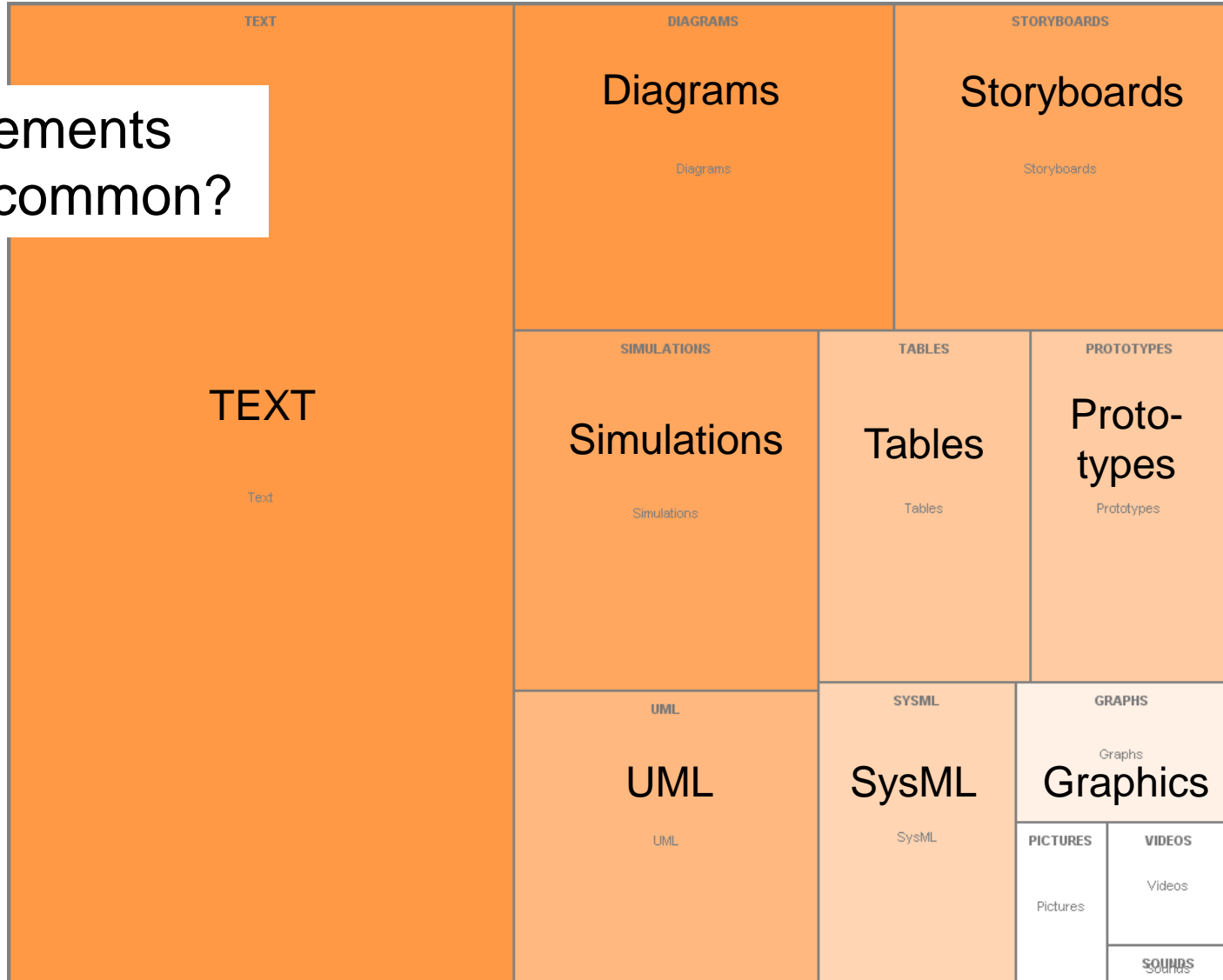"Writing"
Conversations

Consensus
Approval

Requirements elicitation and validation

- Expressed in what ways?

  In the notations that
  best convey your ideas

Requirements elicitation and validation

- Which requirements notations are common?
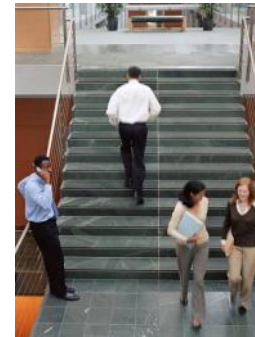
Requirements elicitation and validation

- Expressed where?

Documents
Whiteboards
Other electronic notations
Email and instant messages
Hallway conversations
Meetings
Social media

Requirements elicitation and validation

- UI Storyboards and simulations are good for …

    User interfaces

    Visible system behavior

Requirements elicitation and validation

- Text, BPMN and UML / SysML notations are better for …

> Non-functional requirements

> Business processes

> Server-side behavior

> Architectural considerations

Requirements elicitation and validation

- Visual notations are used in two kinds of conversations
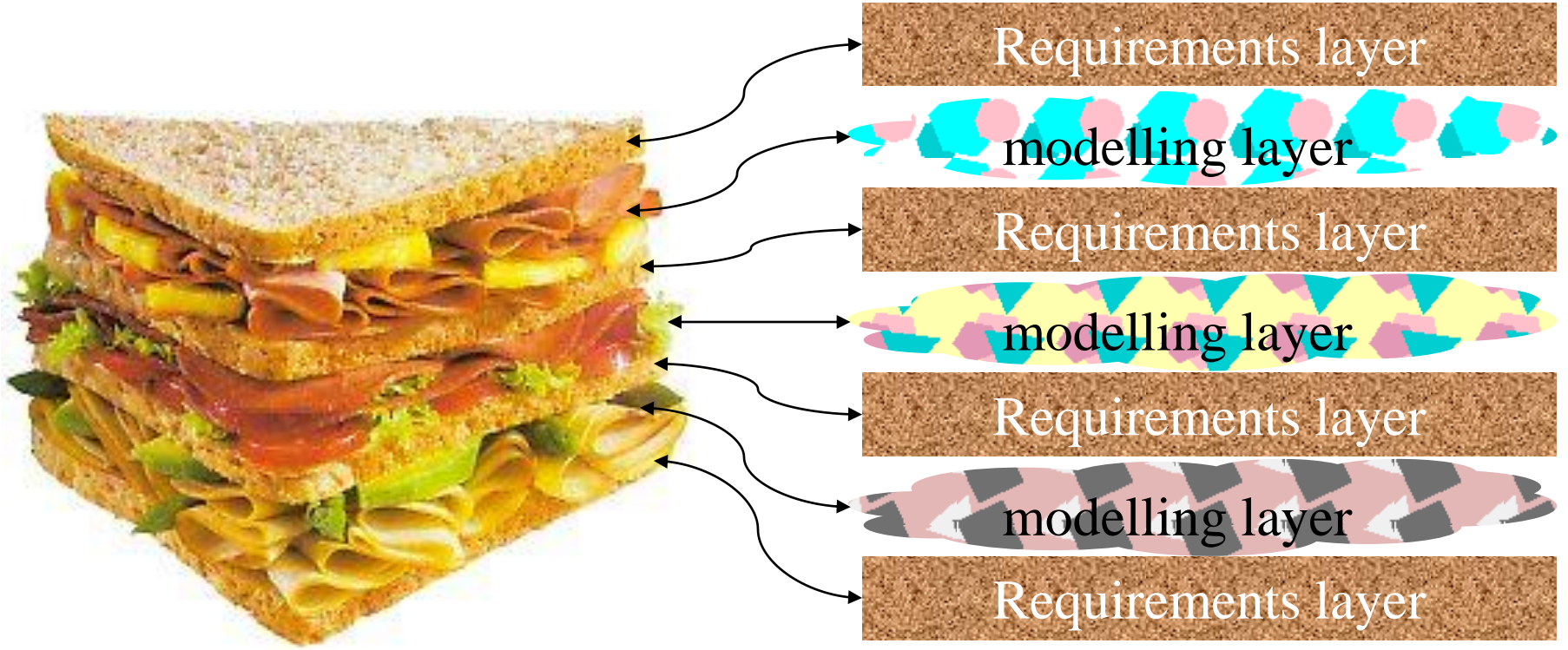
  Conceptual

  Progressive design

Requirements elicitation and validation
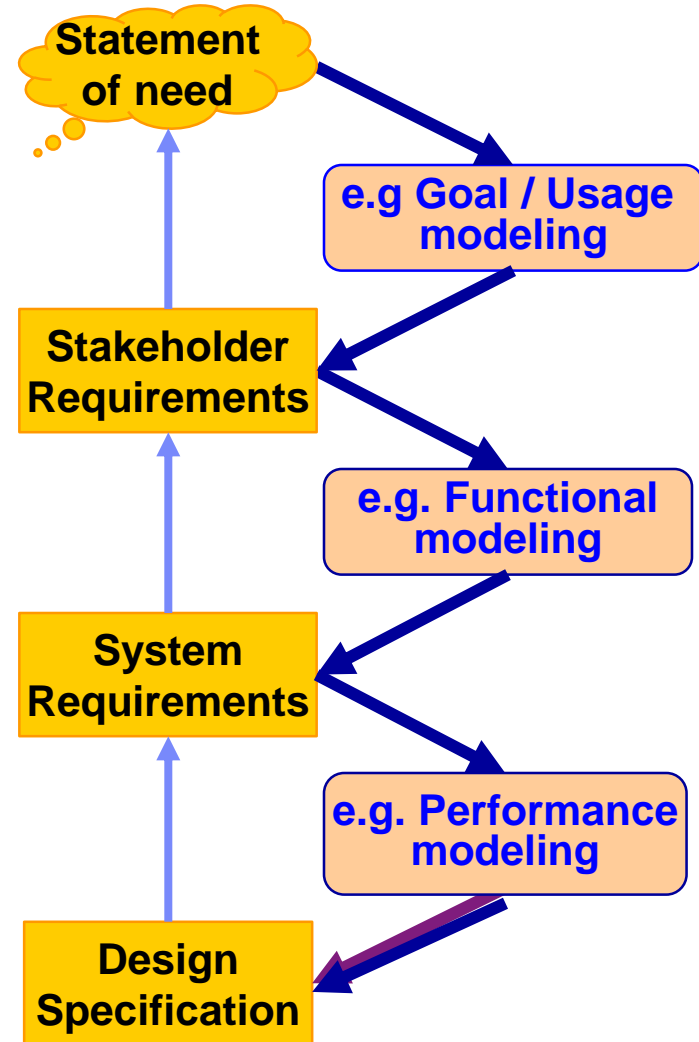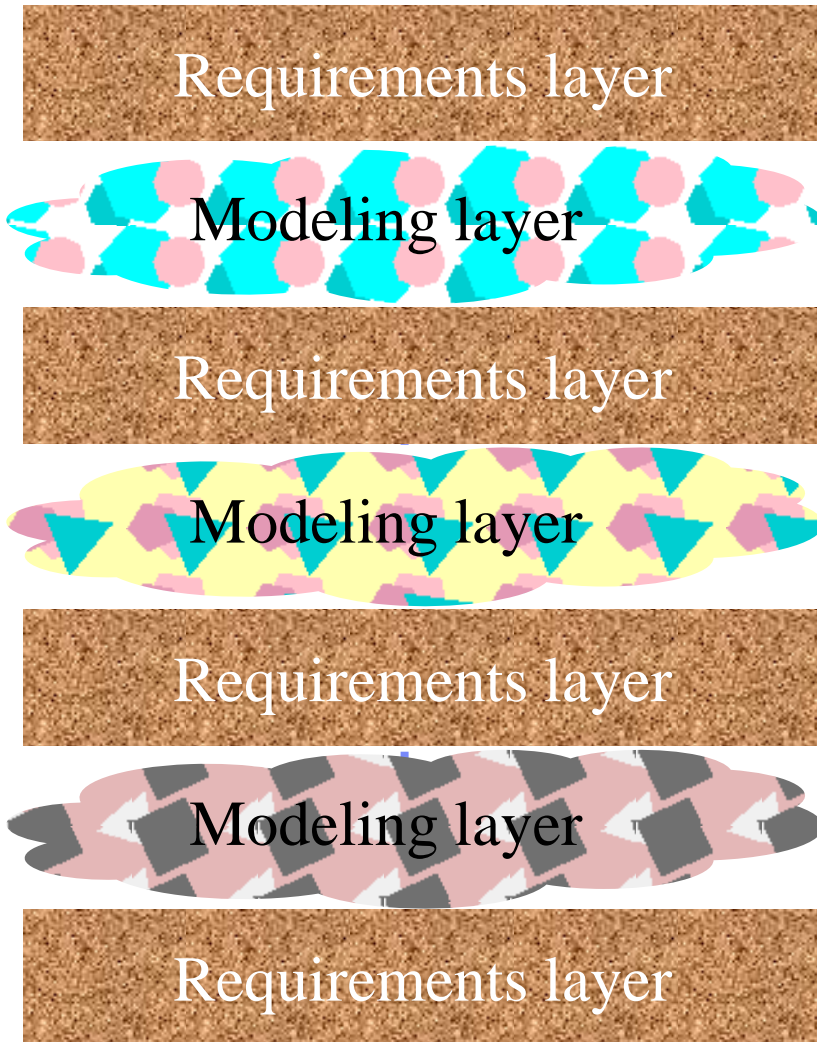
▪Different levels of abstraction … for different audiences

Concrete	User interfaces	Non-technical customers ↕ & project members
Abstract	Use cases Business Processes System context State charts Other UML/SysML	Semi-technical customers & project members ↕ Developers and Testers

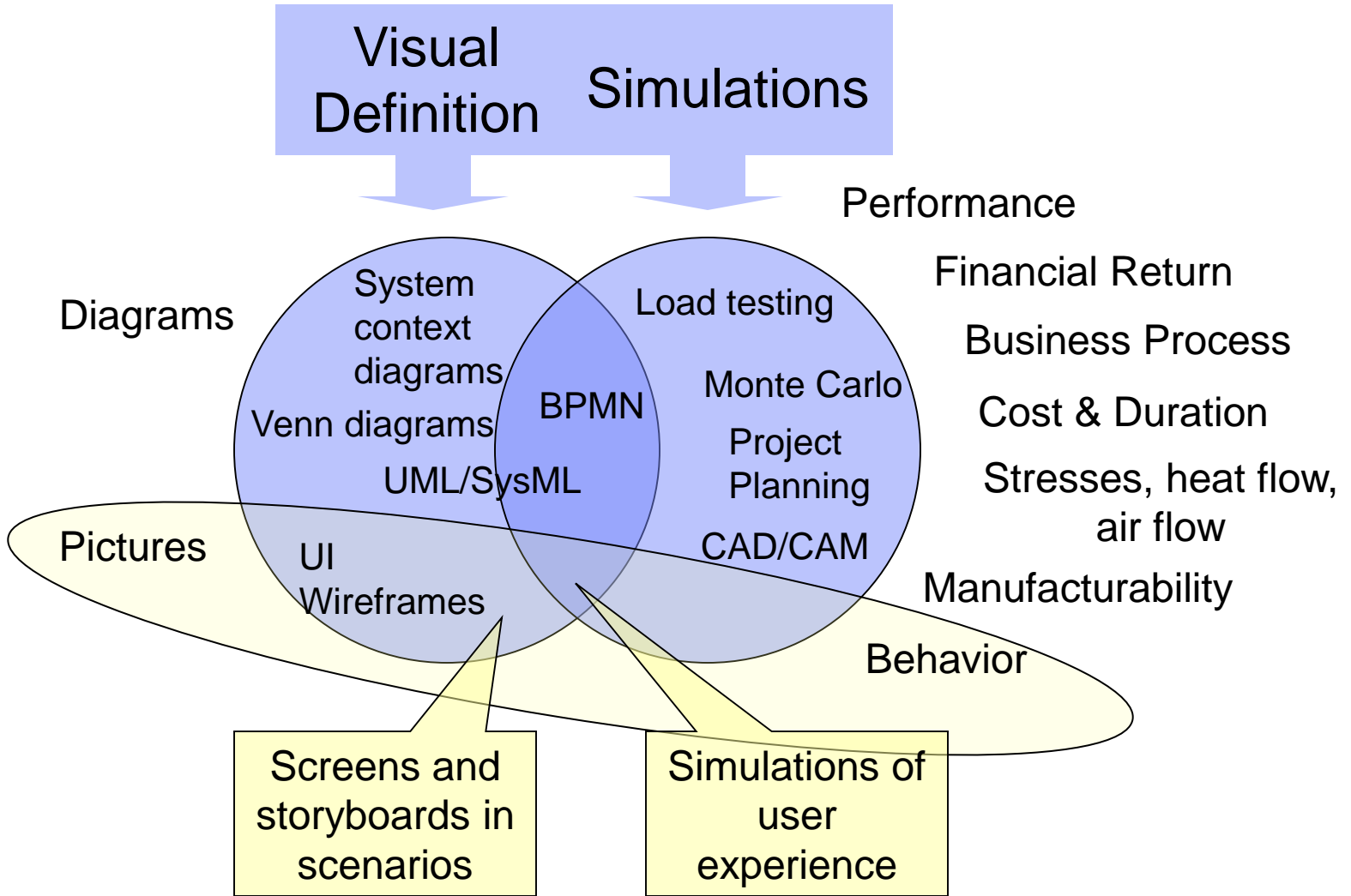Next NOW!

Text and models together
The Requirements Rationale Sandwich

Requirements layer

modelling layer

Requirements layer

modelling layer

Requirements layer

modelling layer

Requirements layer

Modeling bridges layers of requirements

Requirements layer

Modeling layer

Requirements layer

Modeling layer

Requirements layer

Modeling layer

Requirements layer

Statement of need

e.g Goal / Usage modeling

Stakeholder Requirements

e.g. Functional modeling

System Requirements

e.g. Performance modeling

Design Specification

Requirements elicitation and validation

- When to use storyboards versus simulations?

Both UI storyboards and simulations have their place

Visual Definition

Simulations

Performance

Diagrams

Financial Return

System context diagrams

Load testing

Business Process

BPMN

Monte Carlo

Cost & Duration

Venn diagrams

Project Planning

Stresses, heat flow, air flow

UML/SysML

CAD/CAM

Pictures

UI Wireframes

Manufacturability

Behavior

Screens and storyboards in scenarios

Simulations of user experience

What do we mean by each?

RRC Storyboard

iRise Simulation

23
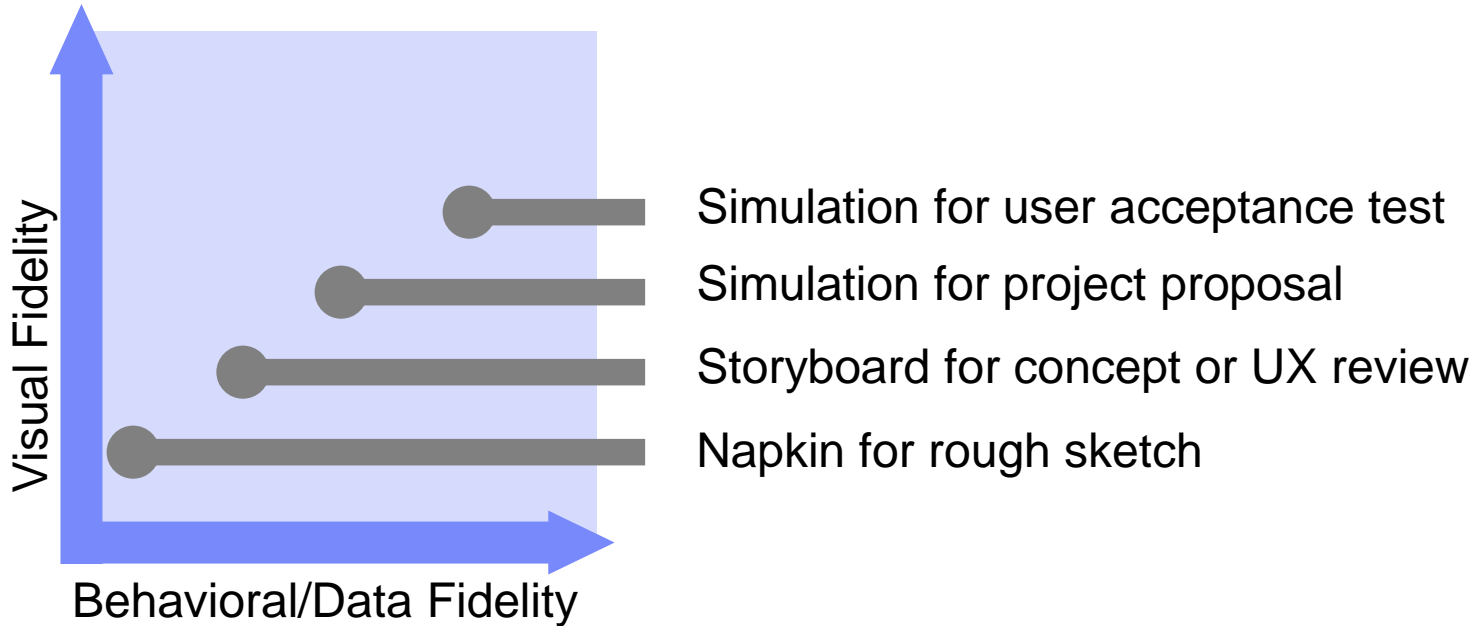
Visual and behavioral fidelity
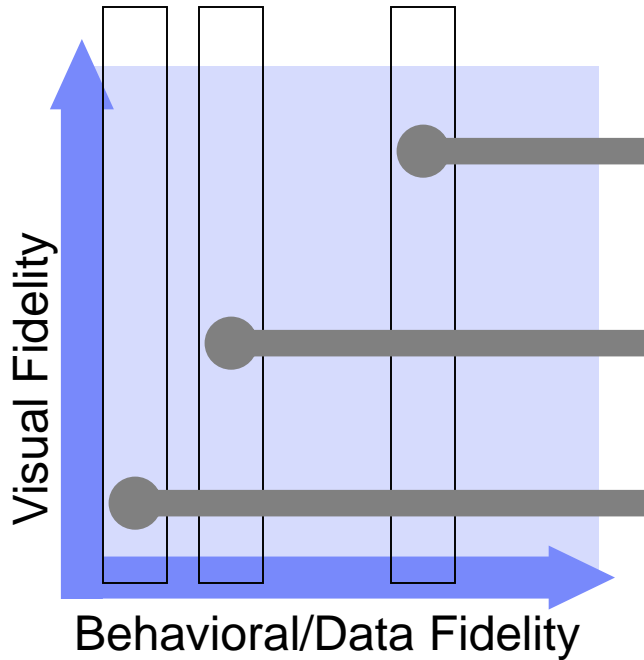
Flow based on user selections and/or data input

Storyboards – screens in scenarios based on a series of linear flows

Static, atomistic views – no attempt to communicate behavior

Choose the right notation for the job (and amount of effort)

Simulation for user acceptance test

Simulation for project proposal

Storyboard for concept or UX review

Napkin for rough sketch

Using Rational Requirements Composer and iRise

Many notations

- Summary

  We need many notations

  Each has its limitations

  Choose deliberately

One last thought …

- Good versus valuable

  A requirement isn't valuable
  until it helps to change the world

  in making commitments

  in creating project deliverables

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