



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

SURRETT. BOOTH. HAROLD.

War Department, Washington, April 20, 1865,
 \$100,000 REWARD!

THE MURDERER
Of our late beloved President, Abraham Lincoln,
IS STILL AT LARGE.

\$50,000 REWARD
Will be paid by this Department for his apprehension, in addition to any reward offered by Municipal Authorities or State Executives.

\$25,000 REWARD
Will be paid for the apprehension of JOHN H. SURRETT, one of Booth's Accomplices.




\$25,000 REWARD

Visual Definition has staying power

FBI TEN MOST WANTED FUGITIVE

RACKETEERING INFLUENCED AND CORRUPT ORGANIZATIONS (RICO) - MURDER (18 COUNTS), CONSPIRACY TO COMMIT MURDER, CONSPIRACY TO COMMIT EXTORTION, NARCOTICS DISTRIBUTION, CONSPIRACY TO COMMIT MONEY LAUNDERING; EXTORTION; MONEY LAUNDERING

JAMES J. BULGER

Photograph taken in 1994 Photograph taken in 1994 Photograph altered in 2000

Transcript of Bulger Video:

Video footage of Top Ten Fugitive, James J. Bulger, at the Lancaster Street Garage and the Howard Johnsons in 1980 in Boston, Massachusetts. Video provided by Massachusetts State Police, a member of the Bulger Fugitive Task Force.

Aliases: Thomas F. Baxter, Mark Shapeton, Jimmy Bulger, James Joseph Bulger, James J. Bulger, Jr., James Joseph Bulger, Jr., Tom Harris, Tom Marshall, "Whitey"

DESCRIPTION

Date of Birth:	September 3, 1929	Hair:	White/Silver
Place of Birth:	Boston, Massachusetts	Eyes:	Blue
Height:	5'7" to 5'9"	Complexion:	Light
Weight:	150 to 160 pounds	Sex:	Male
Build:	Medium	Race:	White
Occupation:	Unknown	Nationality:	American
Scars and Marks:	None known		
Remarks:	Bulger is an avid reader with an interest in history. He is known to frequent libraries and historic sites. Bulger is currently on the heart medication Atenolol (50 mg) and maintains his physical fitness by walking beaches and in parks with his female companion, Catherine Elizabeth Greig . Bulger and Greig love animals and may frequent animal shelters. He has been known to alter his appearance through the use of wigs and contact lenses. He has traveled extensively throughout the United States, Canada, and Mexico.		

More textual definition

CAUTION

JAMES J. BULGER IS BEING SOUGHT FOR HIS ROLE IN NUMEROUS MURDERS COMMITTED FROM THE EARLY 1970s THROUGH THE MID-1980s IN CONNECTION WITH HIS LEADERSHIP OF AN ORGANIZED CRIME GROUP THAT ALLEGEDLY CONTROLLED EXTORTION, DRUG DEALS, AND OTHER ILLEGAL ACTIVITIES IN THE BOSTON, MASSACHUSETTS, AREA. HE HAS A VIOLENT TEMPER AND IS KNOWN TO CARRY A KNIFE AT ALL TIMES.

CONSIDERED ARMED AND EXTREMELY DANGEROUS

IF YOU HAVE ANY INFORMATION CONCERNING THIS PERSON, PLEASE CONTACT YOUR [LOCAL FBI OFFICE](#) OR THE NEAREST [U.S. EMBASSY OR CONSULATE](#).

REWARD

The FBI is offering a \$1,000,000 reward for information leading directly to the arrest of James J. Bulger.

August 1999
 Poster Revised November 2000

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



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

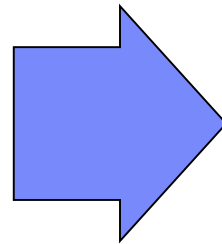
- Which ambiguous parts?

Only the parts that matter most

Requirements elicitation and validation

- How do we remove ambiguity?

Thinking
“Writing”
Conversations



Consensus
Approval

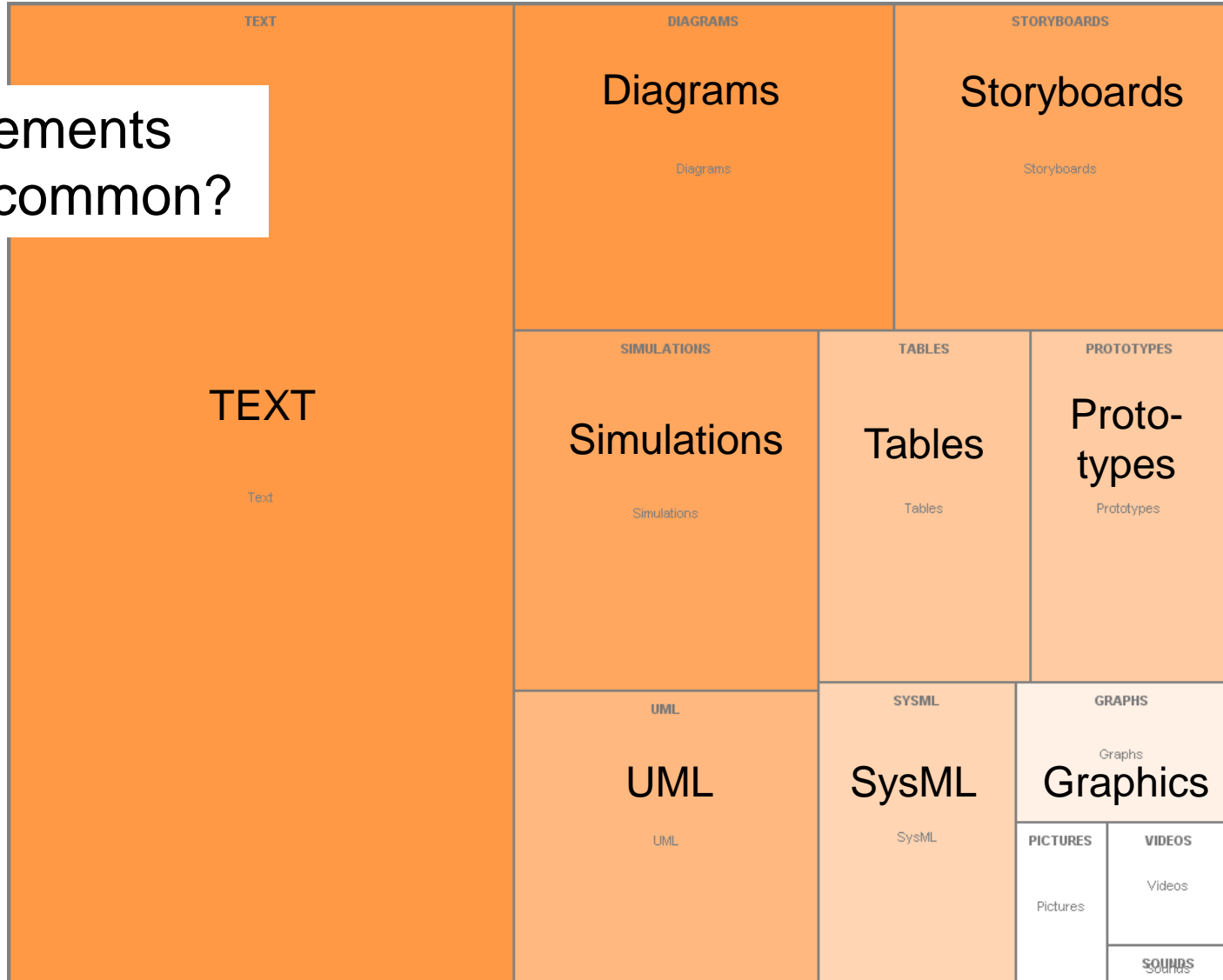
Requirements elicitation and validation

- 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

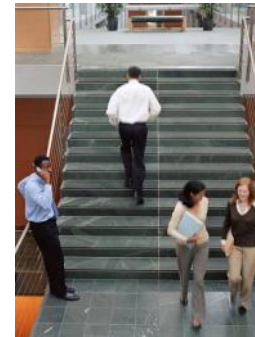
Expressed where?



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

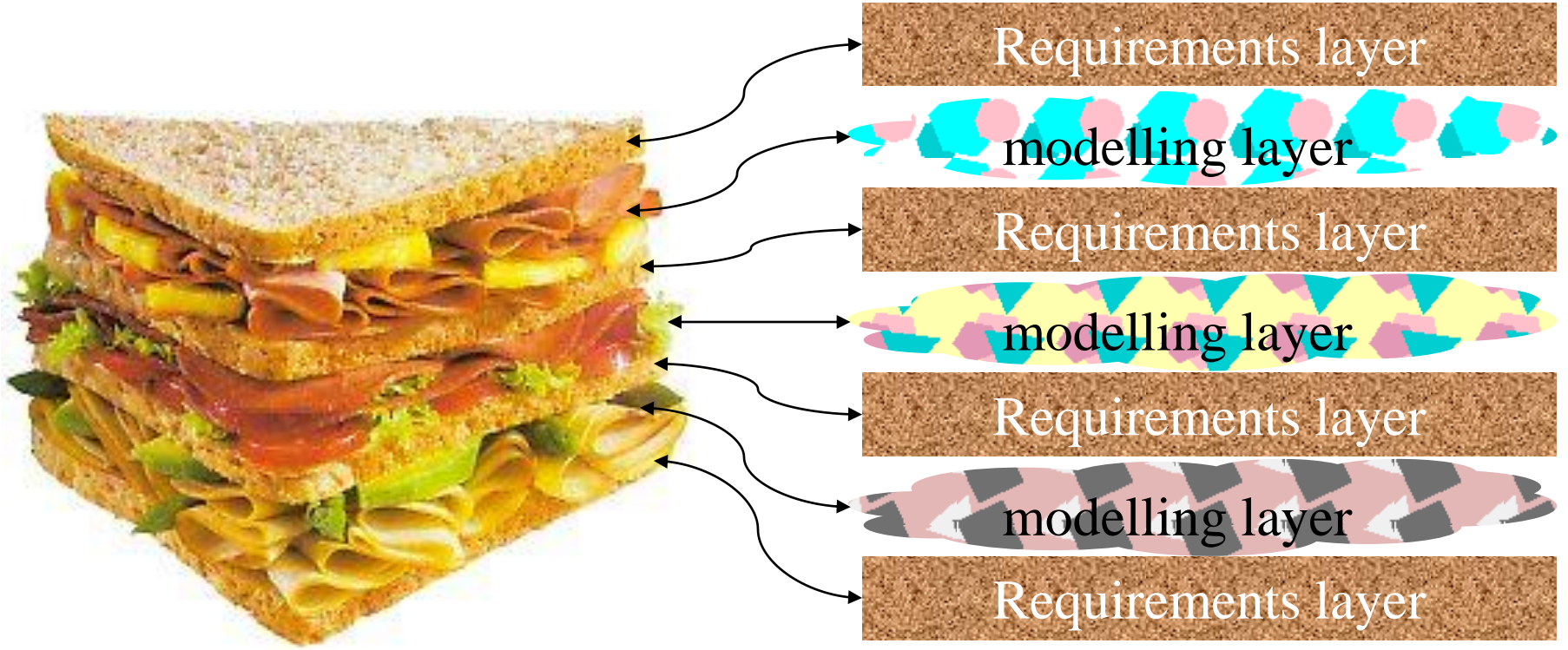
Requirements elicitation and validation

- Different levels of abstraction ... for different audiences

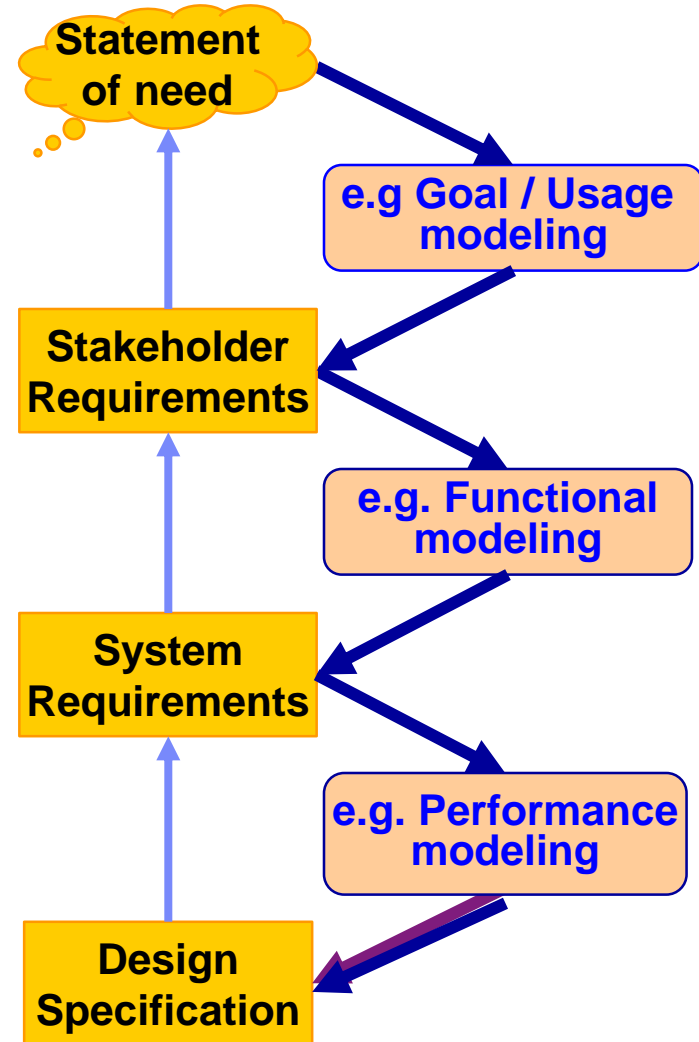
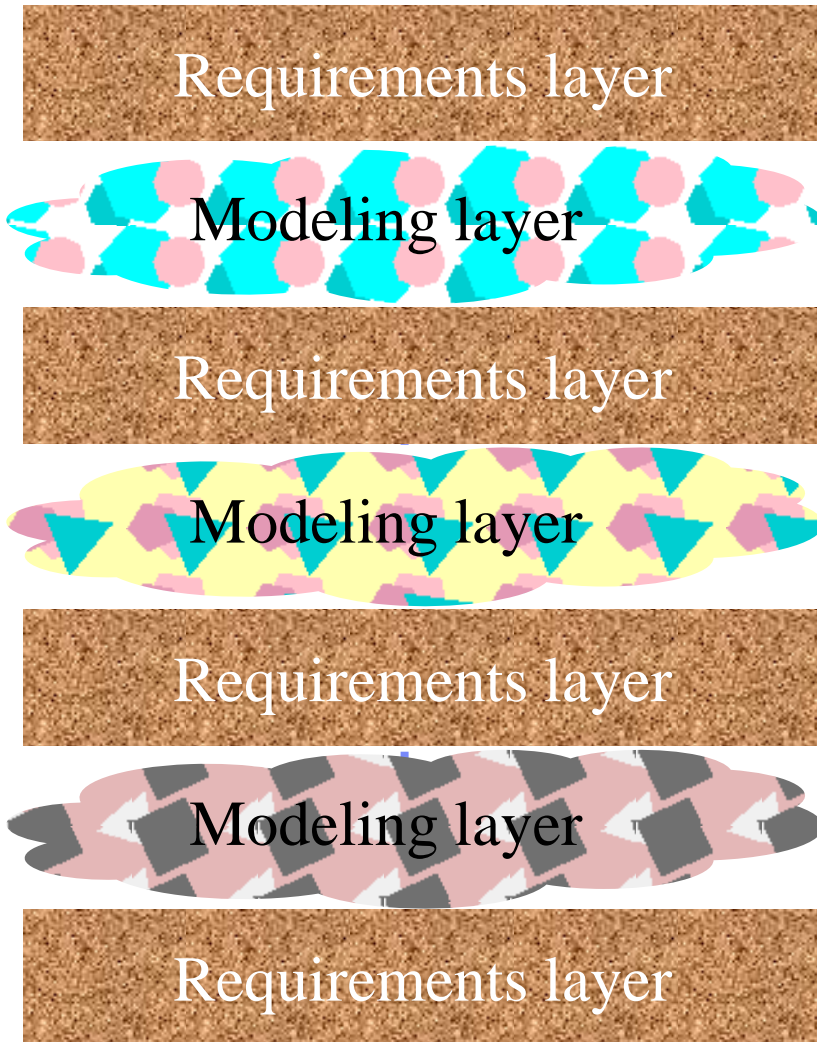
Concrete	User interfaces	Non-technical customers  & project members
Abstract	Use cases Business Processes System context State charts Other UML/SysML	Semi-technical customers & project members  Developers and Testers

Text and models together

The Requirements Rationale Sandwich



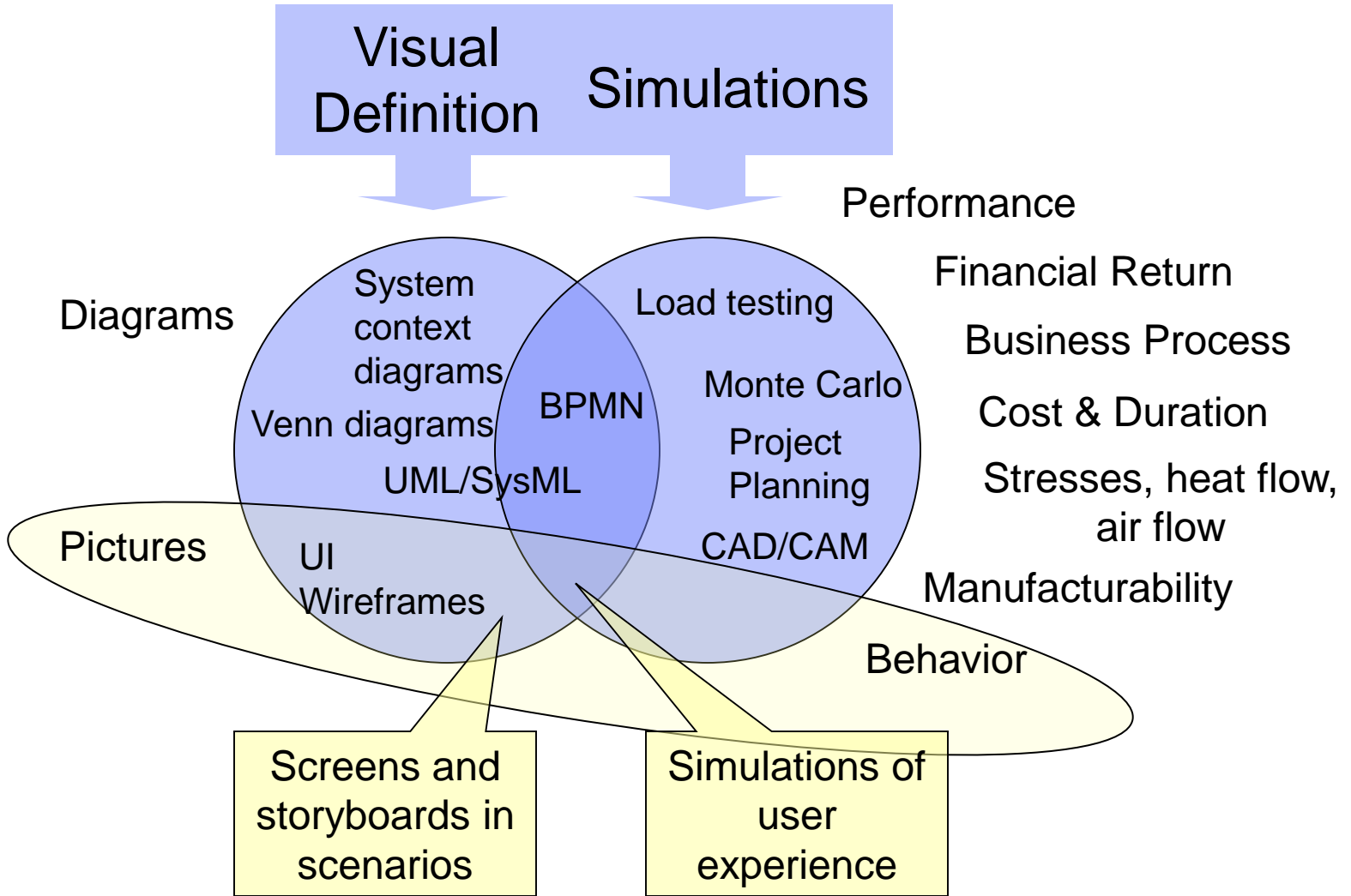
Modeling bridges layers of requirements



Requirements elicitation and validation

- When to use storyboards versus simulations?

Both UI storyboards and simulations have their place



What do we mean by each?

RRC Storyboard

IBM Product Definitions, Private (RM) > Collaboration > USD Design > Modules >

Go to Frame List 2793: Copying Modules and Parts of Modules

Dialog for Module Copy

We do not use a standard copy and paste paradigm when copying something in a view. Instead we combine copy and paste into a single operation (called copy). When you select Copy, we immediately present a dialog where you pick the destination (where we copy the selection to).

We do this because we don't have a UI that would make a "clipboard" visible. (which we would have to implement -- the browser clipboard is not available). Note that we have a clipboard now (though it isn't visible) which we use to do "moving" in a module UI, but we haven't fully surfaced this clipboard everywhere and so we still use this odd "copy and paste together" dialog.

- 1) Selecting copy brings up a dialog where you specify where the artifacts being copied are to be put (and if only one is being copied, the name it is to have)
- 2) Selecting copy brings up a dialog where you specify where the artifacts being copied are to be put (and if only one is being copied, the name it is to have)
- 3) Notes on changes from current dialog:
 - 1) Dialog is wider
 - 2) The links option at the bottom is reworded and has a header

iRise Simulation

iRise SAP 2.1.0 Employee Center

SAP Corporate Portal
Welcome

Home Sales & Marketing Collaboration Solutions Directors Employee Services Manager Services
 Hiring Centre Evaluation & Reward Employee Changes Reporting Ops

Team Viewer Personal Data

Transfer Work Status Changes Job Change Employee Separation

Simulation Document Sysco Vendor Portal / Login

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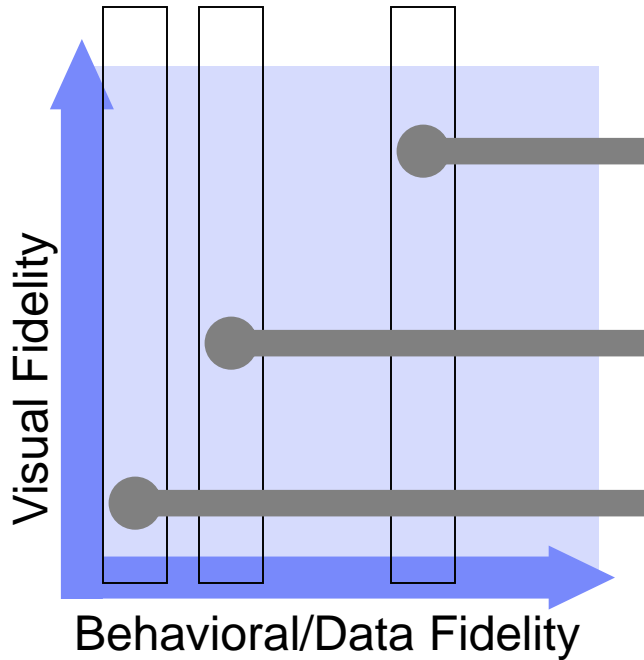
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Butcher's Block "Our Tenderness Means Your Success" Reserve, Angus, Choice, Select Learn more

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Visual and behavioral fidelity

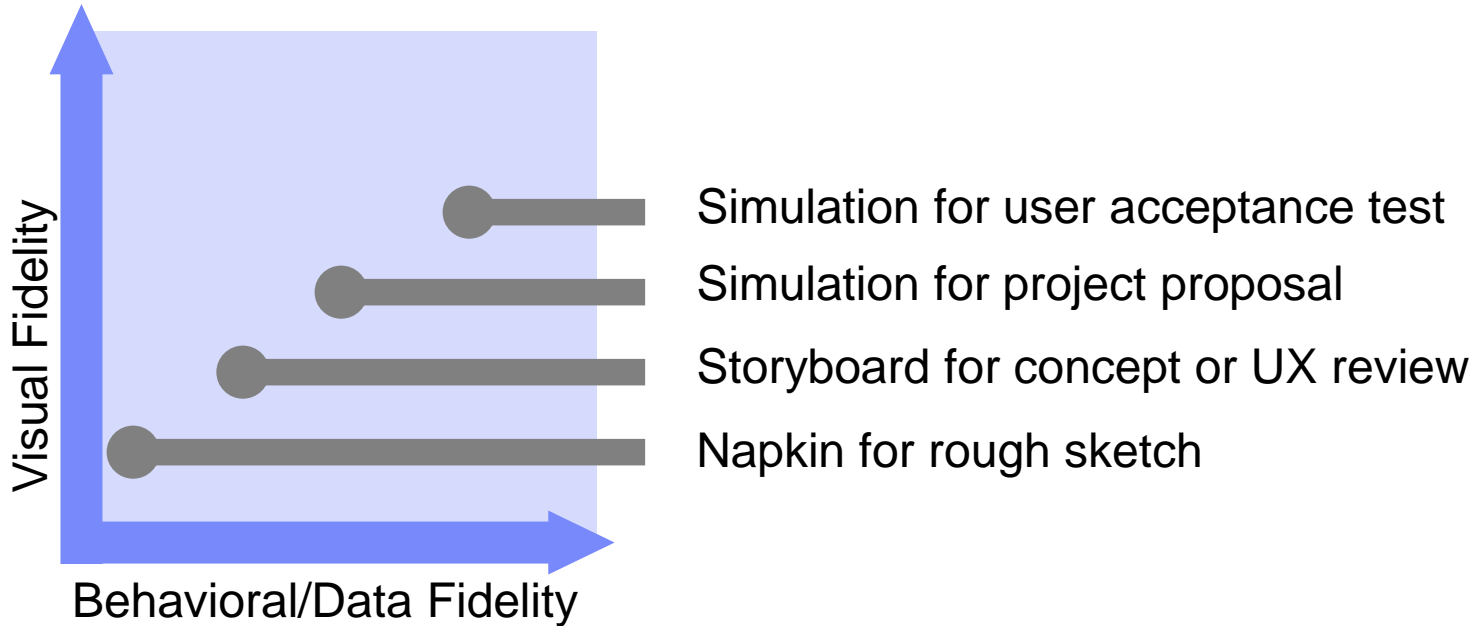


Flow based on user selections and/or data input

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)



Using Rational Requirements Composer and iRise

The screenshot shows the Rational Requirements Composer interface for a project named "iRise Co-Use Demonstration (Requirements)". The main area displays a table of artifacts under the heading "View All Artifacts".

ID	Name	Artifact Type	Validated By
iRise Visualization (5)			
153	Page: Credit Cards	iRise Visualization	32: Credit Cards to Choose From
161	Page: Registration Details	iRise Visualization	
146	Register visualization	iRise Visualization	28: Register visualization
154	Transfer Money Visualization	iRise Visualization	
145	View Credit Card Options visualization	iRise Visualization	29: View Credit Card Options visualization
Use-Case Diagram (1)			
139	Customer Use Cases	Use-Case Diagram	
Use Case (3)			
141	Register	Use Case	31: Register
160	Transfer Money	Use Case	
142	View Credit Card Options	Use Case	30: View Credit Card Options

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

QUESTIONS

www.ibm.com/software/rational

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- Each day that you complete all of that day's session surveys, your name will be entered to win the daily IPOD touch!
- On Wednesday be sure to complete your full conference evaluation to receive your free conference t-shirt!

iPod Touch giveaway.



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