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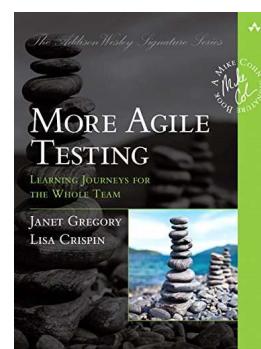
## A little about me



Agile Testing; 2009  
More Agile Testing: Oct 2014

Website:  
[www.agiletester.com](http://www.agiletester.com)  
[www.agiletester.ca](http://www.agiletester.ca)

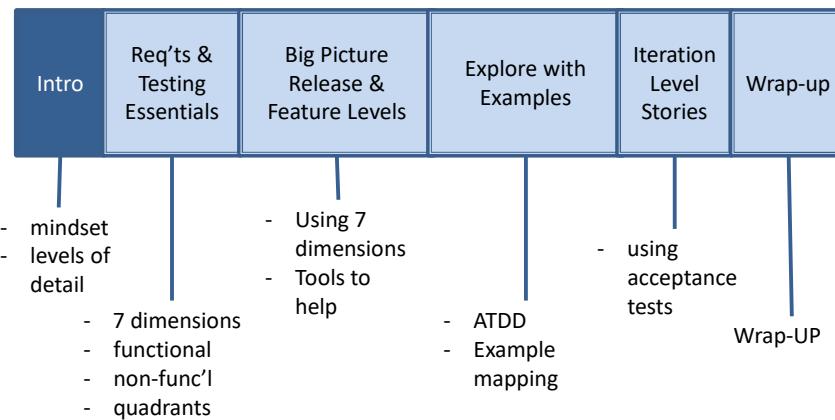
DragonFire Inc.  
[www.janetgregory.ca](http://www.janetgregory.ca)  
[@janetgregoryca](https://twitter.com/janetgregoryca)  
[janet@agiletester.ca](mailto:janet@agiletester.ca)



2



## Overview of the Day



3



## Expectations

Introduction to techniques that your team can use to create shared understanding about your features

Ways to consider what is necessary for testing

4

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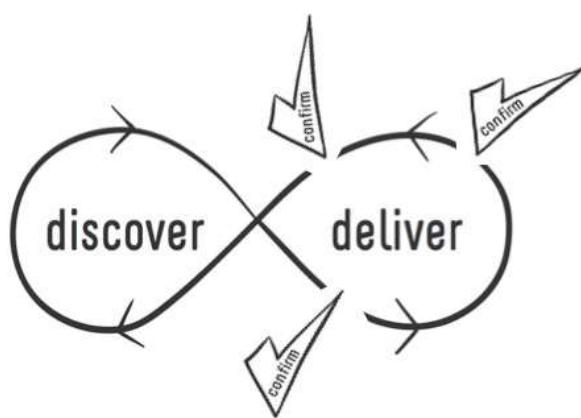
## We want to collaborate and develop a shared understanding of what we are building

- Small differences can cause big misperceptions
- The classic “tire swing” metaphor - each stakeholder has own viewpoint, agenda



5

## Mindset Shift from this ...



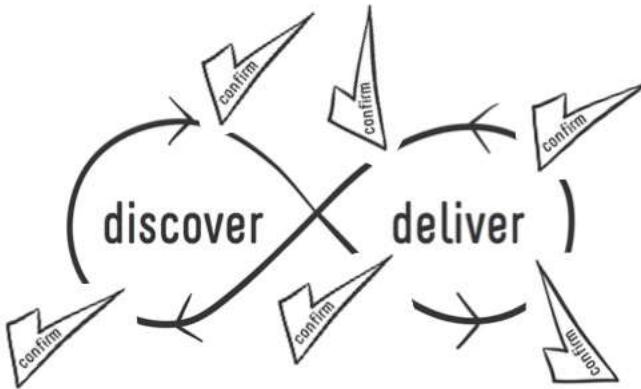
Source: *Discover To Deliver*, Gottesdiener & Gorman, 2012

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[www.ebgconsulting.com](http://www.ebgconsulting.com) | [www.DiscoverToDeliver.com](http://www.DiscoverToDeliver.com)

2

6

To this ...



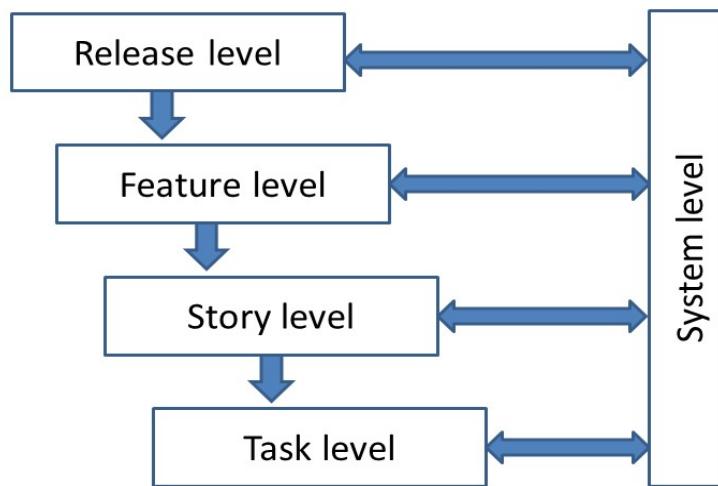
Source: *Discover To Deliver*, Gottesdiener & Gorman, 2012

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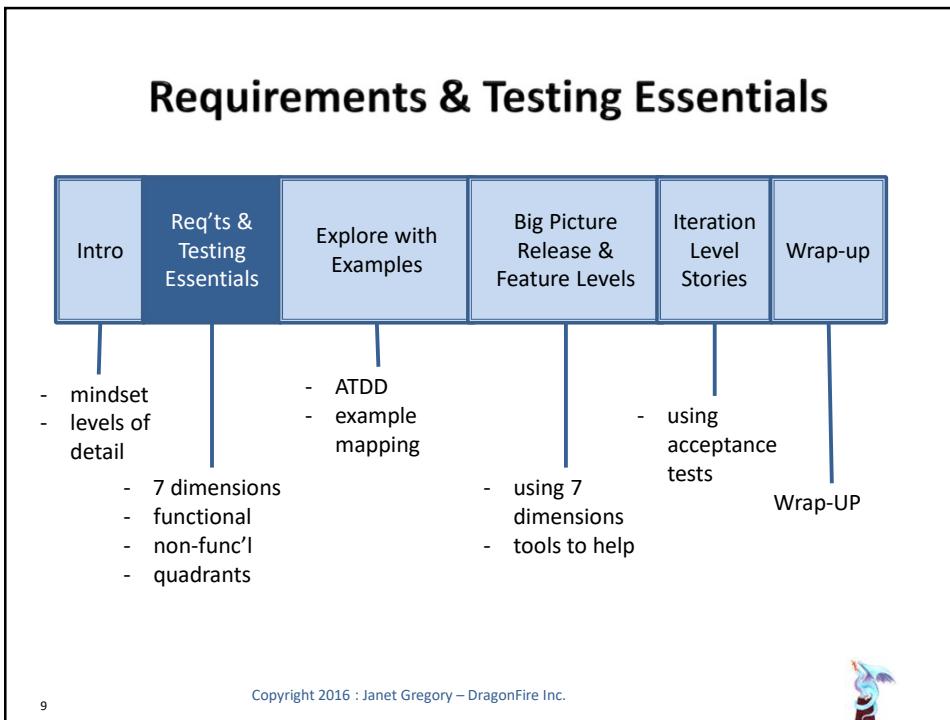
## Levels of Precision



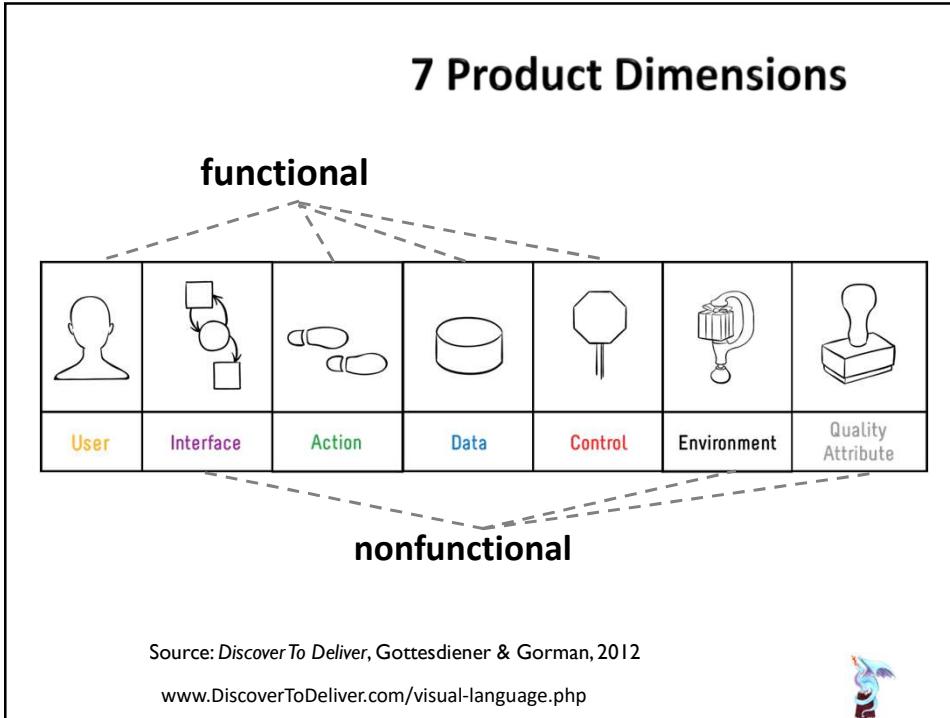
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8





9



10

## Functional requirements ...

“ an aspect of a product that expresses product capabilities or things the product must do for its users.”

- includes users, actions, data and control product dimensions

Ellen Gottesdiener, Mary Gormen

11

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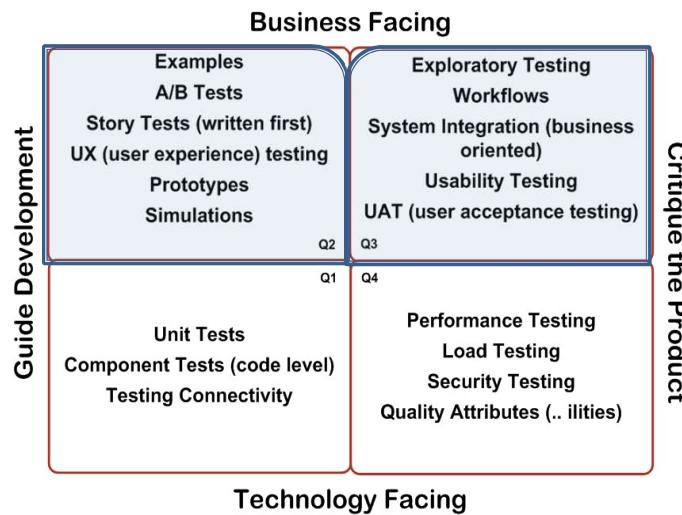


11

## Q2 & Q3 – testing functional requirements

agile  
testing  
quadrants

(brain child of  
Brian Marick)



12

## Introducing Case Study

### School Bus System -- see handout

Choose a feature

1. Assign and schedule substitute drivers for bus routes
2. Notify parents when bus is broken down, along with a plan of action

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13

## Let's work through an example

As the scheduler,  
I need to **schedule** regular hours as well  
as **add** additional hours for overtime  
hours to the payroll system  
So that the drivers get **paid** correctly.

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14

## Examples of questions to ask for this feature (functional req'ts)

Dimension	Questions
User	Is the scheduler an administrator of the system? Or is she a data entry person only?
Data	Is time measured in hours or minutes?
Action	Can the drivers add their hours in manually, or do they submit time sheets? How does she find out about extra hours?
Control	Does the timesheets have to be approved by a supervisor or somebody?

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## Non-functional requirements

“ aspects of a product that express properties that the product must have”

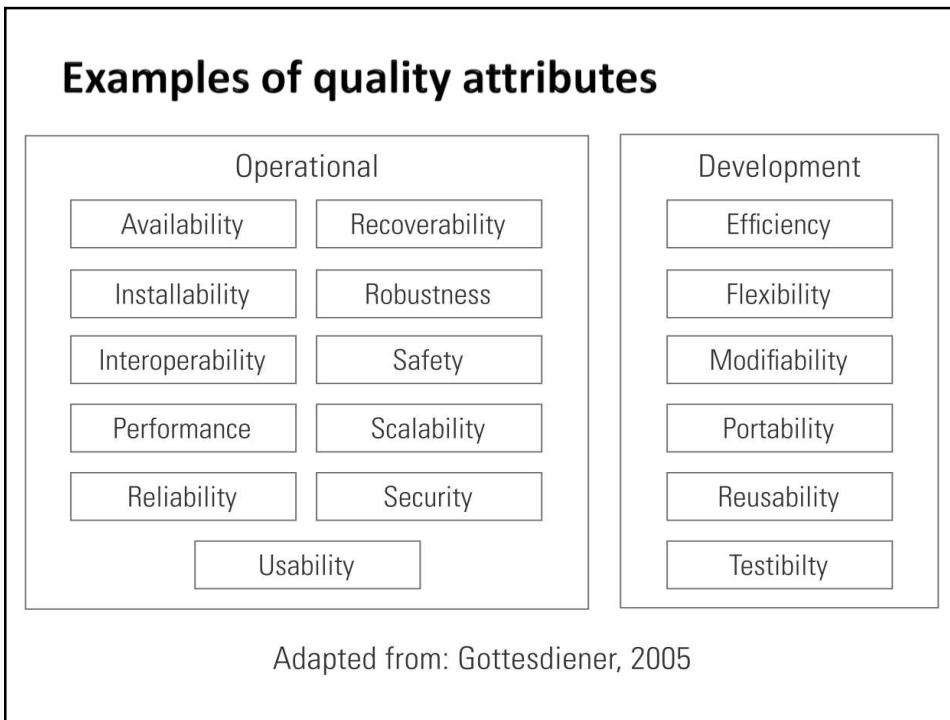
- includes quality attributes, environment, and interface dimensions

Gottesdiener, The Software Requirements Memory Jogger

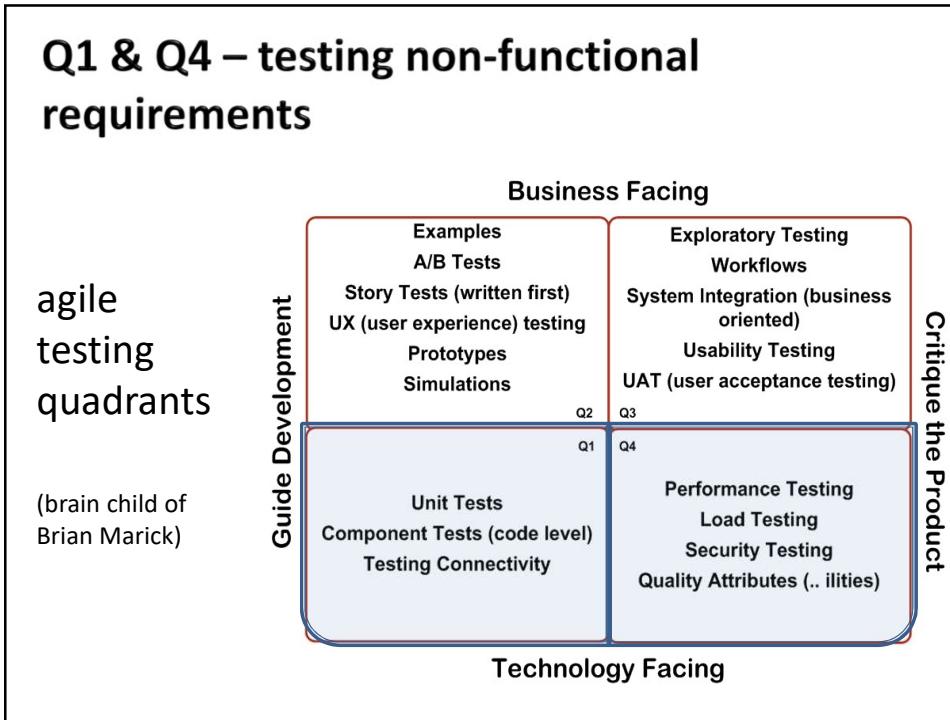
16



16



17



18

## The example feature again

As the scheduler,  
I need to schedule regular hours as well  
as add additional hours for overtime  
hours to the payroll system  
So that the drivers get paid correctly.

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19

## Examples of questions to ask for this feature (non-functional req'ts)

Dimension	Questions
Interface	Who / what else has access to the scheduling system?
Environment	Can it be entered remotely or is it desktop only?
Quality Attributes	Are there performance requirements? Can I assume there is only one person accessing at a time? What level of security do we need for the scheduler?

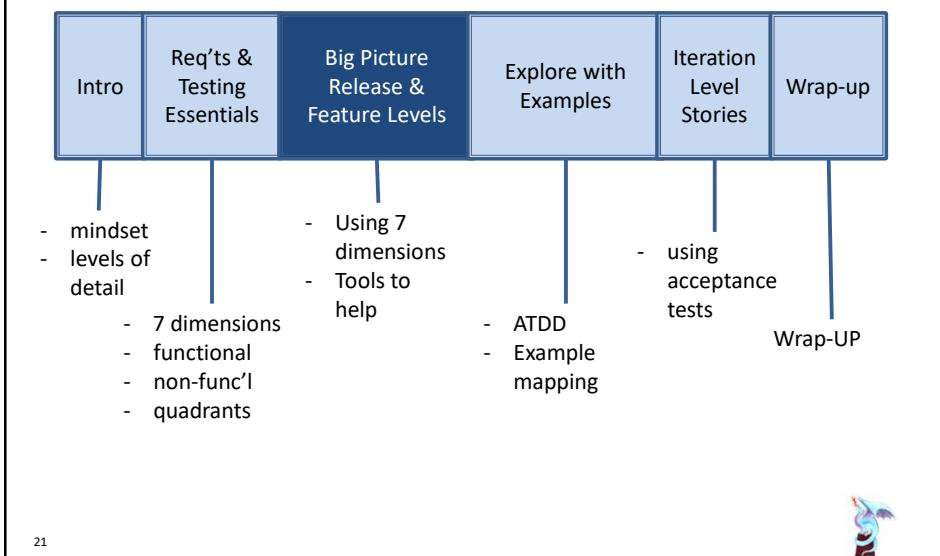
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## Release / feature level

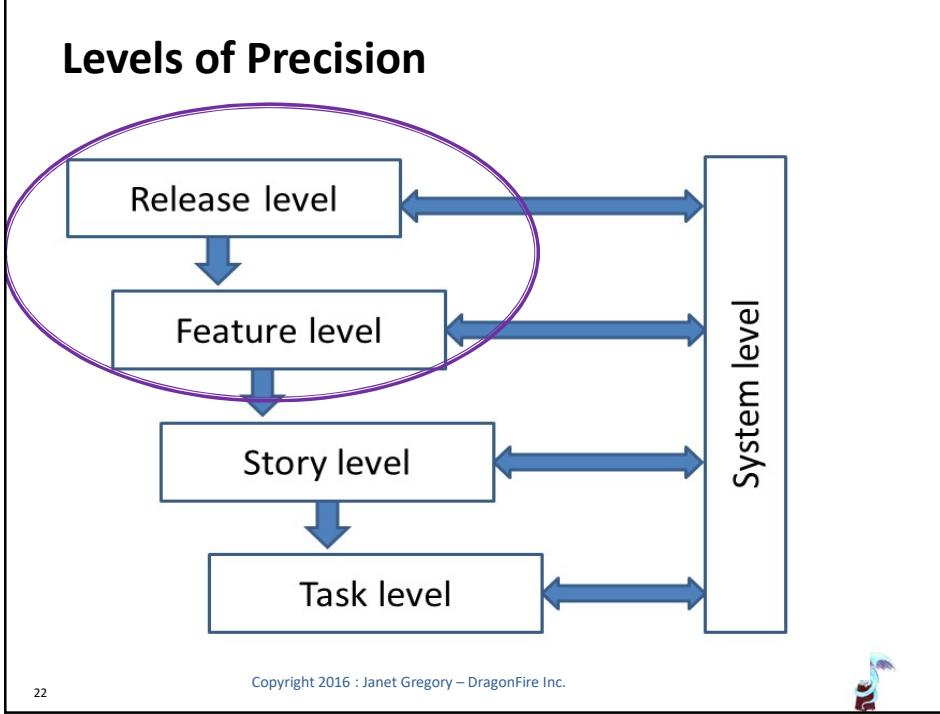


21



21

## Levels of Precision



22



22

## Techniques to elicit requirements

User	Interface	Action	Data	Control
persona	context diagram	business process diagram	data model	business policy, rule
user role map	prototype	capability map	state diagram	decision table
	relationship map	dependency graph		decision tree
		story, story map		
		use case		
		value stream map		

Source: *Discover To Deliver*, Gottesdiener & Gorman, 2012



23

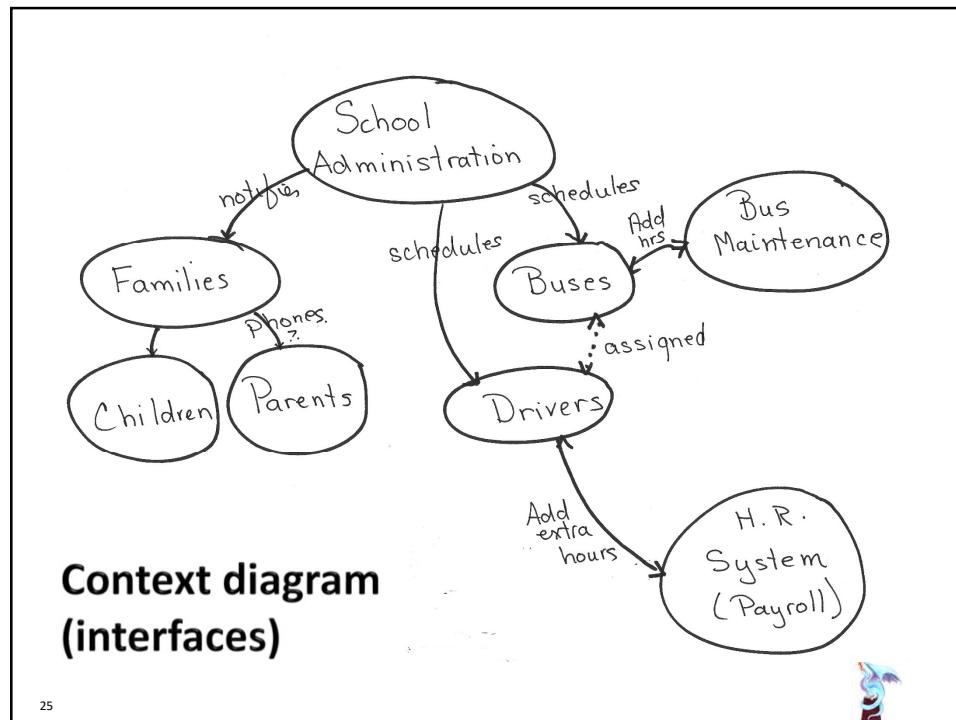
## Our example feature

As the scheduler,  
I need to schedule regular hours as well  
as add additional hours for overtime  
hours to the payroll system  
So that the drivers get paid correctly.

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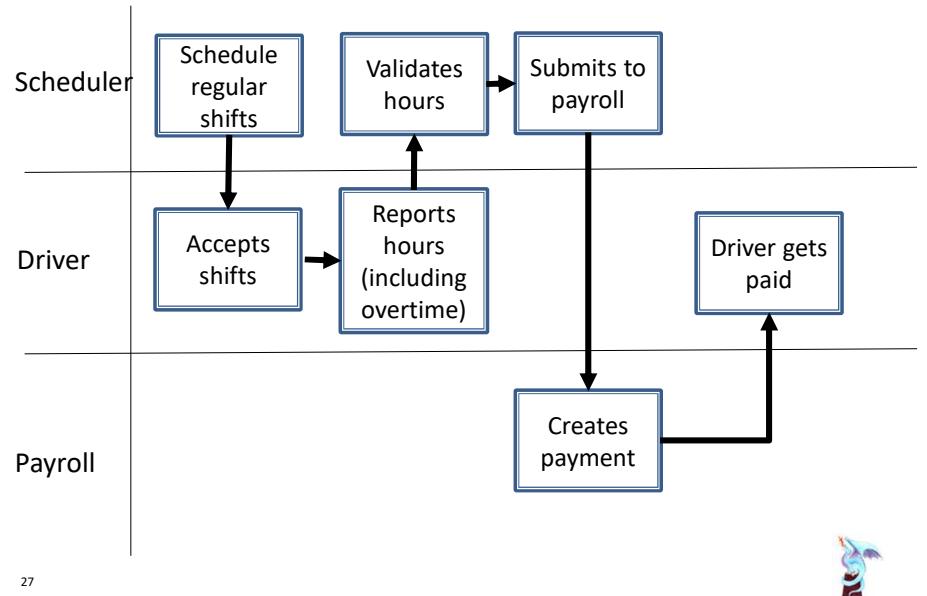


<b>Persona is a typical end-user</b>	
Name: <i>Samantha the Scheduler</i>	
<b>Description</b> Schedules buses Schedules bus drivers Matches bus drivers to buses Arranges emergency buses and drivers Ensures hours get logged Liaises with the bus maintenance	<b>Values</b> Detailed oriented Likes working with numbers Likes trying new ideas  <b>Likes</b> Likes the outdoors, camping Introvert Doesn't like conflict
26	



26

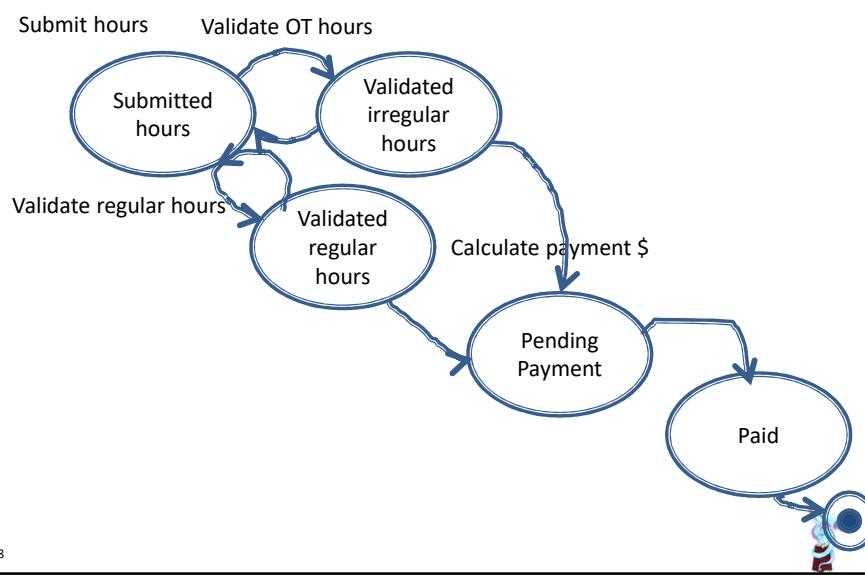
## Process map / flow diagram (action)



27



## State diagrams (lifecycle of data)



28



## Scenarios – examples at a high level (action)

Scenarios for payment of hours

1. Regular hours only
2. Regular, plus overtime
3. Regular, plus addition call-out due to bus breakdown
4. Call-out only due to bus breakdown

29



29

## Business policy (action + control)

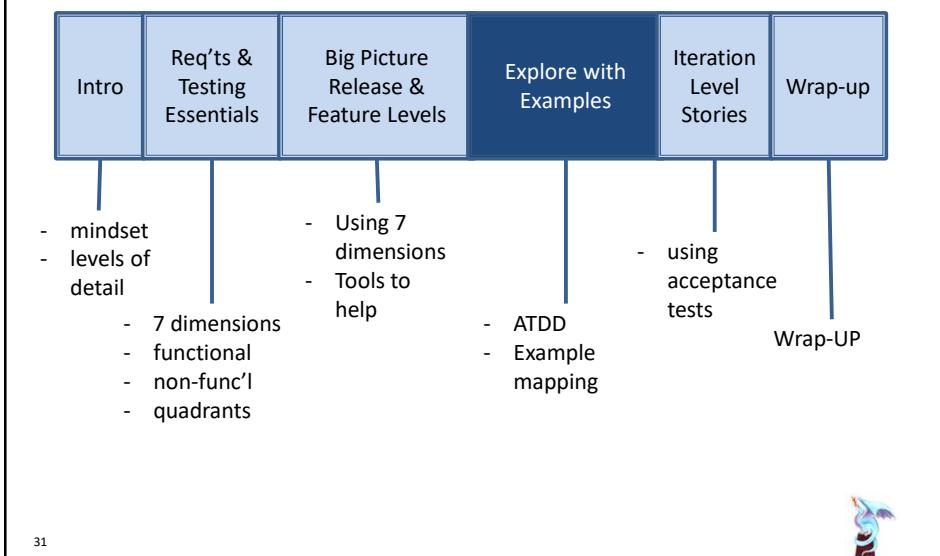
Scenarios	Business Policies
Regular hours only	Seasonal part-time hours paid
Regular plus overtime	Overtime is paid at 1.5 x regular
Call-out for bus breakdown	Additional compensation for extra call

30



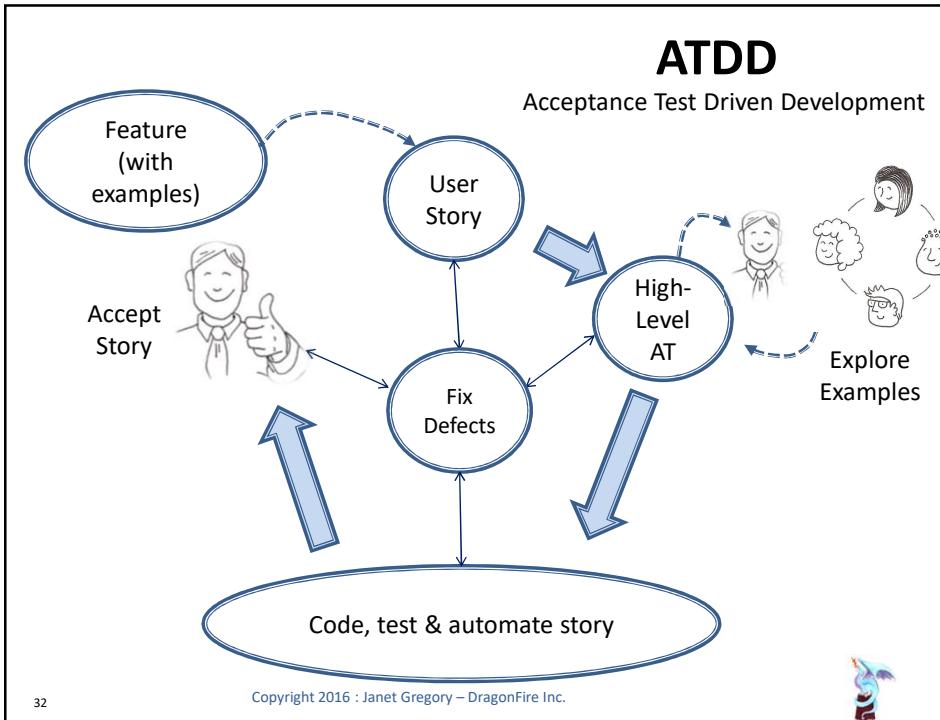
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## Explore with Examples



31

31



32

32

## Examples .....

- Can become the actual tests
- Are a form of specification



Credit and thanks to Brian Marick

## Use examples .....

- To elicit requirements
- To reduce uncertainty
- To test people's understanding of the requirement

"That's not right" can be music to your ears

33



33

## Let's do some example mapping



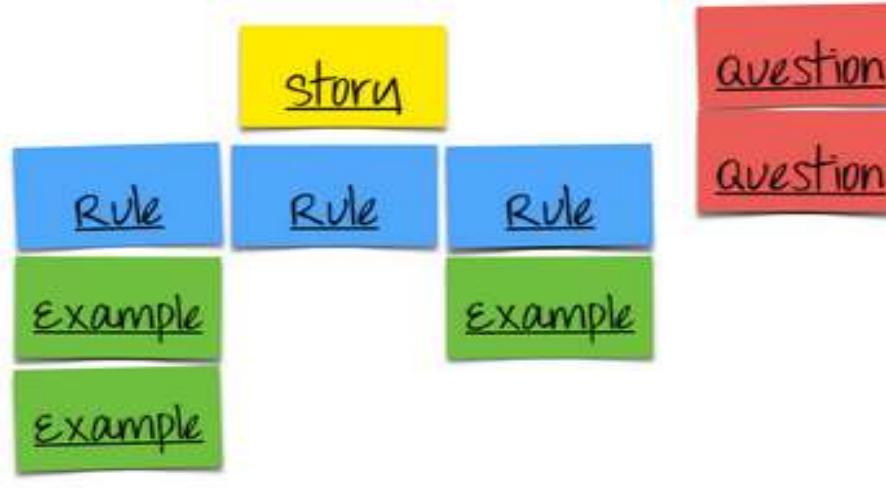
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## Example mapping - a discovery workshop



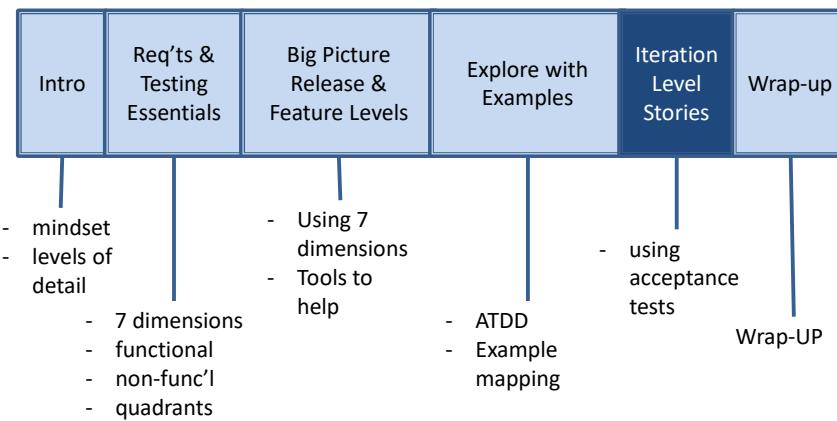
Matt Wynne: Example Mapping

35



35

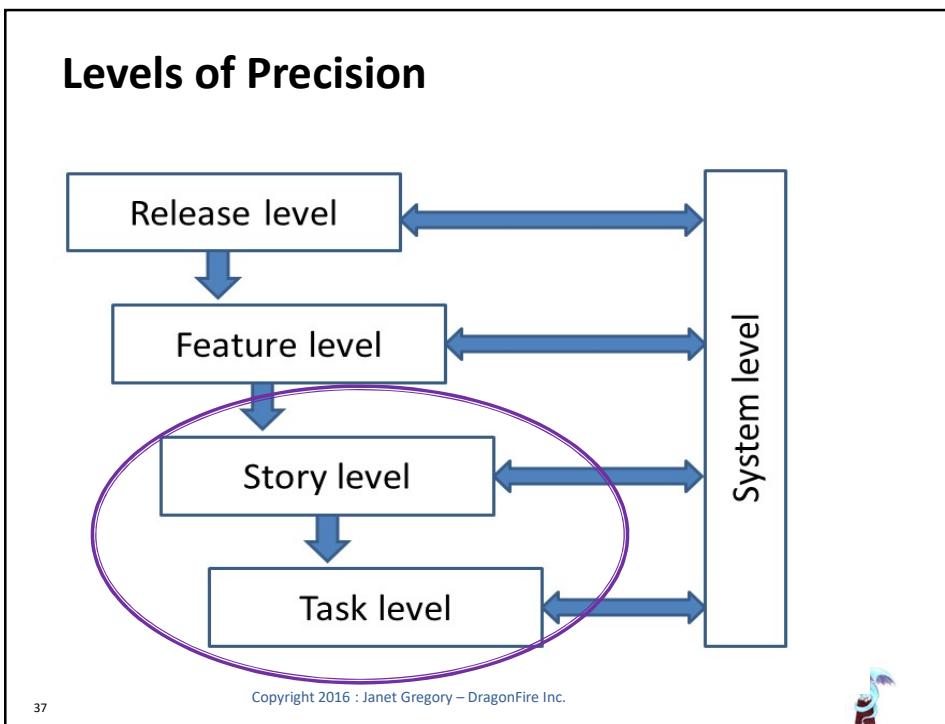
## Story Readiness / Iteration Level



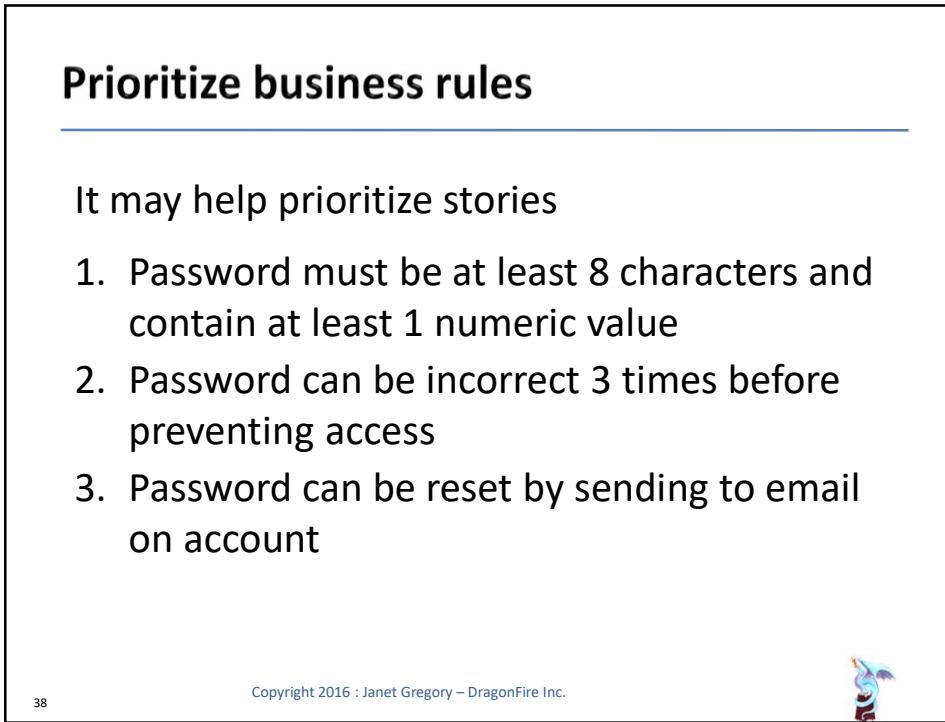
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36



37



38

## Acceptance tests

- Means to evaluate product from a user's perspective
- Provide the scope of the story (or feature)
- Results are accepted or not accepted



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39

## Example vs. Test

### Scenario example:

A valid user “Janet” signs on with her email  
[janet@agiletester.ca](mailto:janet@agiletester.ca) and password “Passw0rd22”.

### Test:

User	Email	Password	Expected Result	Comments
Janet	<a href="mailto:janet@agiletester.ca">janet@agiletester.ca</a>	Passw0rd22	Logged in	Valid login scenario

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40

## The story

As the **driver**,  
 I need to **submit** my **hours**  
 So that I get **paid** correctly.

BR: 1.5 x regular pay if more than 1 hr over  
 scheduled driving time

BR: 1 hr extra pay in addition to over-time hrs if call-in replacement

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## Creating acceptance tests using GWT

**BDD** – Behaviour driven development  
 - translates into automated tests

**Given** - precondition

**When** – trigger, action

**Then** – consequences, results

42

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**Given** 5 hours has been worked in one day  
**When** the driver submits OT hours  
**Then** the driver gets paid for regular hours plus the overtime hours

**Given** 5 hours has been worked in one day  
**When** the driver submits OT hours  
**Then** the scheduler submits the regular hours plus the overtime hours for payment to payroll

43

### Real examples in tabular format

Driver	Regular Wage	Regular hours	Over-time hours	Total paid
Joe	20.00	5.0	2.0	160.00
Joe	20.00	4.5	2.0	145.00
Joe	20.00	3.0	2.0	100.00

44

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## Non-functional stuff at the story level

- Interfaces
  - testing designs – how does it interface with other apps
  - Different platforms, consistency, how does it react
- Quality attributes
  - Constraints to be considered with every story
- Implementation environments
  - Requirements that limit build and deploy options

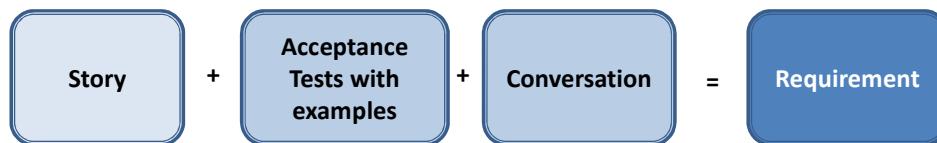
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## Remember ....



- Stories are not enough
- Acceptance tests agreed upon with the customer
  - with examples to express business rules
- Conversation – examples, clarifications

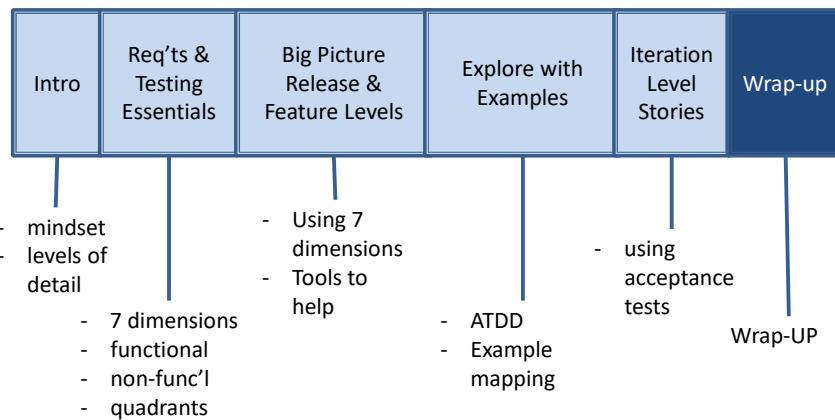
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## Wrap-up



47

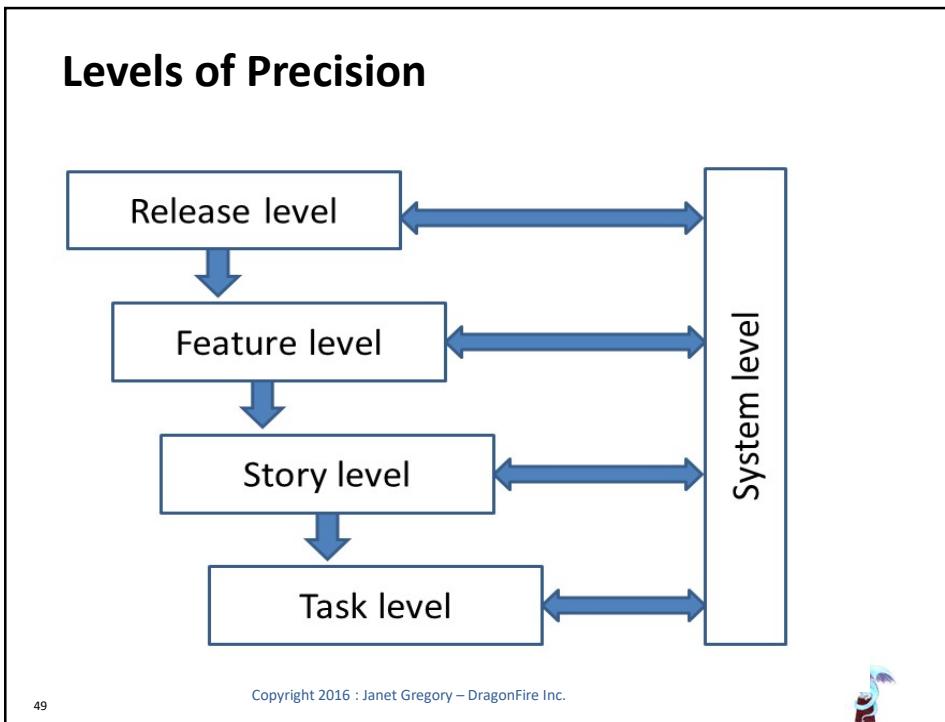


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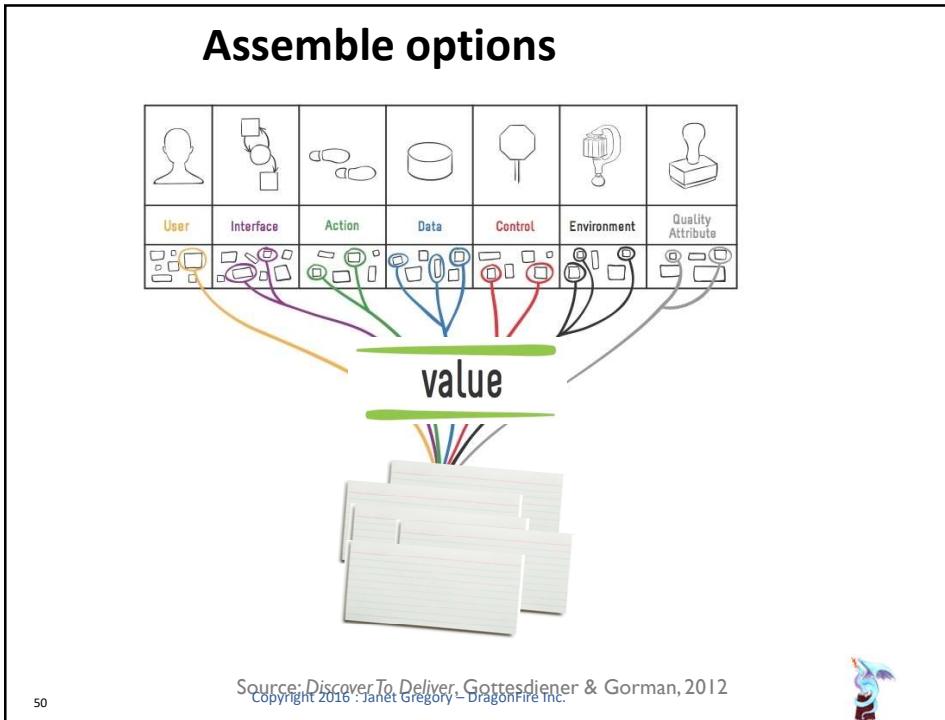
Adapted from: Agile Alliance Functional Testing Tools  
Open Space Workshop 2007, & EBG Consulting 2012

48





49



50



52

*Agile Testing: A Practical Guide for Testers and Agile Teams*

*More Agile Testing: Learning Journeys for the Whole Team*

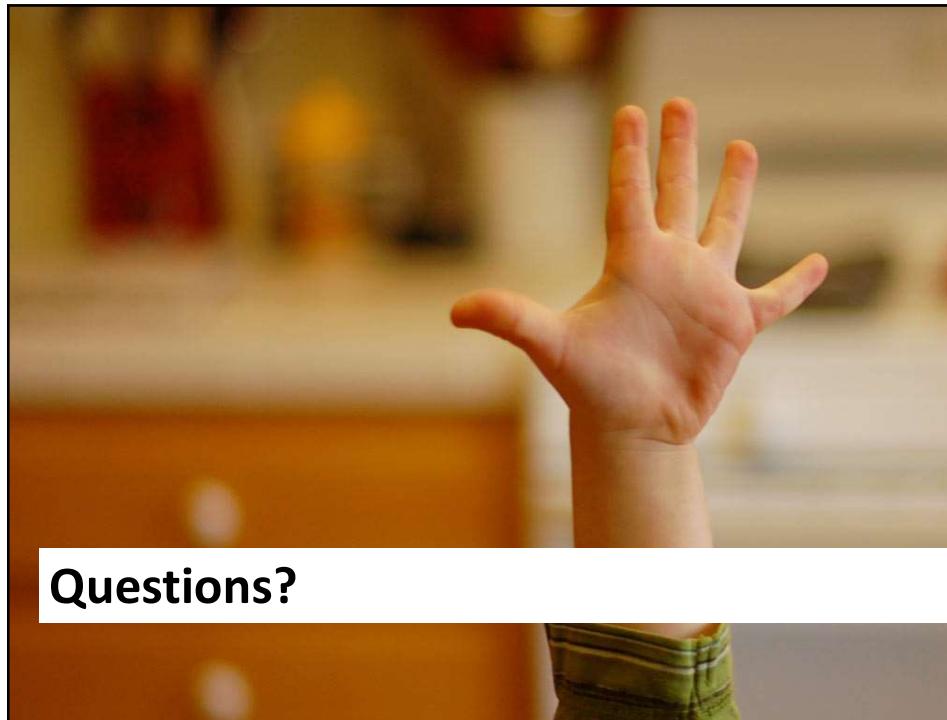
By Janet Gregory and Lisa Crispin  
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53



54

## More Learning

- Gottesdiener, Ellen and Gorman, Mary, *Discover to Deliver*, 2012
- Wynne, Matt, "Introducing Example Mapping",  
<http://bit.ly/1iw19w4>
- Wynne, Matt and Aslak Hellesoy, *The Cucumber Book: Behavior-Driven Development for Testers and Developers*, Pragmatic Programmers, 201
- Adzic, Gojko, *Specification by Example: How Successful Teams Deliver the Right Software*, Manning, 2011
- Adzic, Gojko, *Bridging the Communication Gap*, Neuri Limited, 2009
- Gärtner, Markus, *ATDD By Example: A Practical Guide to Acceptance Test-Driven Development*, Addison-Wesley, 2012a
- Keogh, Liz, <http://lunivore.com> - look for her posts on BDD, Real Options

55

