

IterEx

ESUG 2009: [Project planning].

Tim Mackinnon
(www.iterex.co.uk)



Smalltalk and Planning

Smalltalk - synonymous with the invention and refinement of many techniques and technologies from GUI's, unit testing, refactoring, vm's, and project planning.

Planning? NOT glamorous, but the secret to successful projects. As developers we **HATE** it!

This session will review, clarify and myth-bust some of the common techniques. More importantly, I will present what new ideas have surfaced around successful teams and the way they plan. Planning doesn't have to be tedious and boring, it can be rapid and successful.

Tim Mackinnon - Who are you?

- 2006 – Iterex (Iterative Excellence)
 - Tailored Consulting/Coaching for Agile projects
 - iPhone Development (ReDo, WonderWorld)

- 2003 – ThoughtWorks
 - Agile enablement coaching
 - Papers on release estimation techniques

- 1999 – Connextra
 - Formed one of the first Agile teams in the UK
 - Invented “Mock Objects” test technique
 - Pioneered Iteration Retrospectives, XtC

- 1996 – OTI
 - Developer on UniBrowser/VA-Modeler (early agile practices)
 - Uni-Browser framework, early UI predecessor to Eclipse

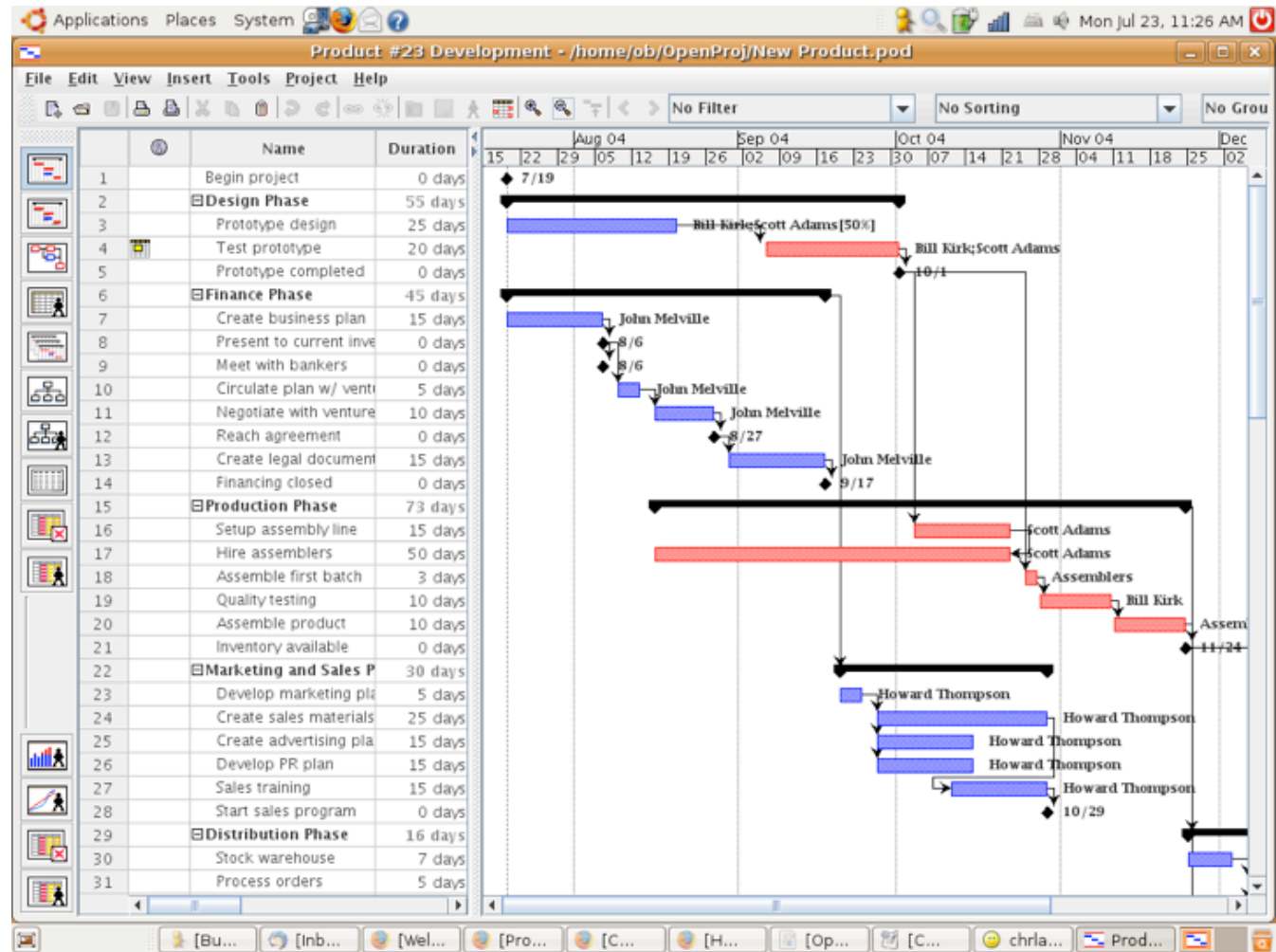
I use many languages and environments, but Smalltalk is still my favourite and most productive environment.

Thank you Smalltalkers...



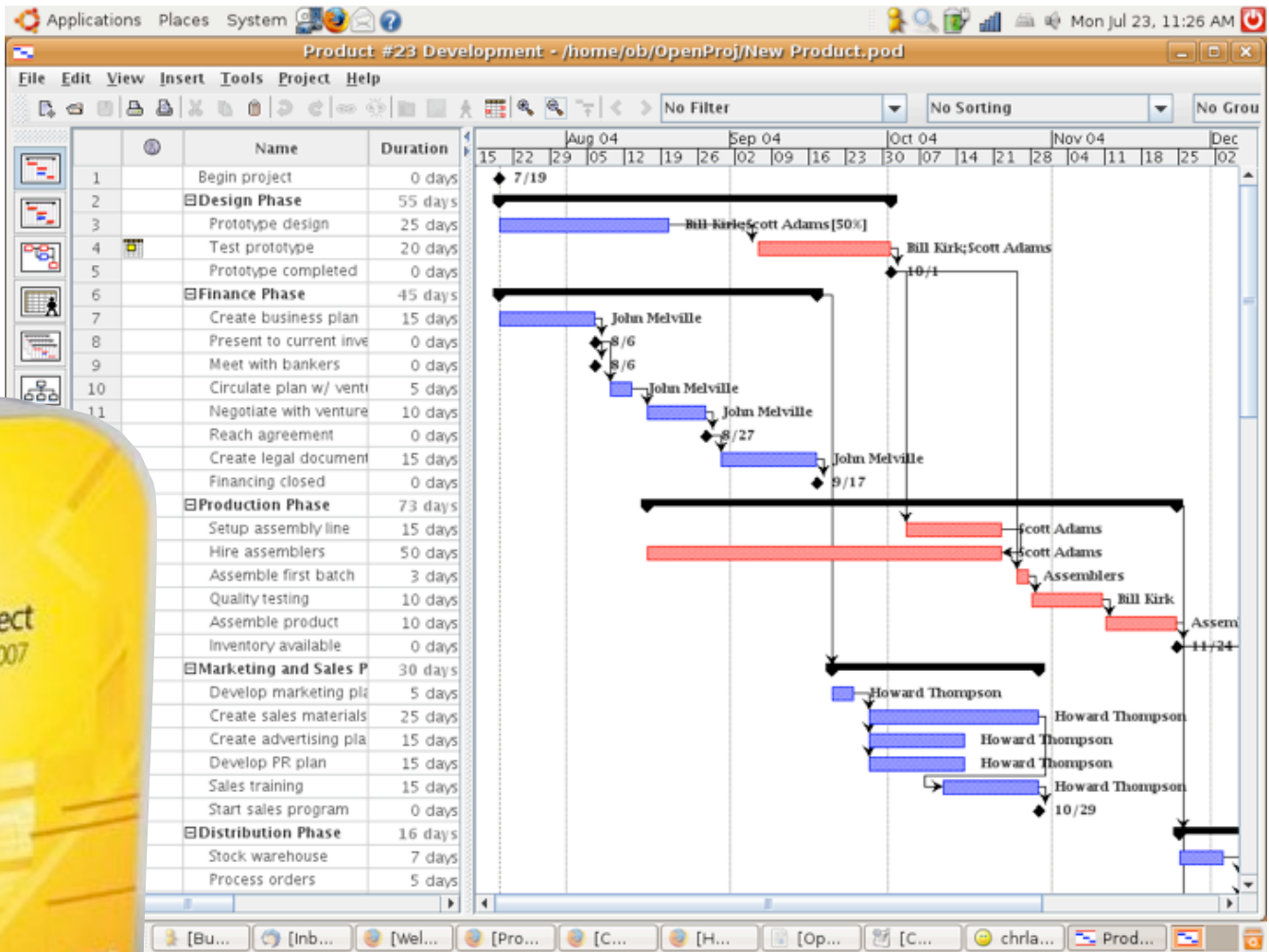
Its unusual to start with Thank you, but most of the ideas in this presentation come from Smalltalk and Smalltalkers.

Microsoft Project Tutorial...



There are other ways of planning instead of using MS-Project

Microsoft Project Tutorial...



The screenshot displays the Microsoft Project 2007 interface. On the left, a 3D rendering of the software box is shown. The main window shows a Gantt chart for a project titled 'Product #23 Development'. The task list on the left is as follows:

ID	Name	Duration
1	Begin project	0 days
2	Design Phase	55 days
3	Prototype design	25 days
4	Test prototype	20 days
5	Prototype completed	0 days
6	Finance Phase	45 days
7	Create business plan	15 days
8	Present to current invest	0 days
9	Meet with bankers	0 days
10	Circulate plan w/ venture	5 days
11	Negotiate with venture	10 days
	Reach agreement	0 days
	Create legal document	15 days
	Financing closed	0 days
	Production Phase	73 days
	Setup assembly line	15 days
	Hire assemblers	50 days
	Assemble first batch	3 days
	Quality testing	10 days
	Assemble product	10 days
	Inventory available	0 days
	Marketing and Sales P	30 days
	Develop marketing plan	5 days
	Create sales materials	25 days
	Create advertising plan	15 days
	Develop PR plan	15 days
	Sales training	15 days
	Start sales program	0 days
	Distribution Phase	16 days
	Stock warehouse	7 days
	Process orders	5 days

The Gantt chart shows tasks assigned to resources: Bill Kirk; Scott Adams (50%), John Melville, Scott Adams, Assemblers, Bill Kirk, Howard Thompson, and Assem. The timeline spans from July 19 to December 2, 2002.

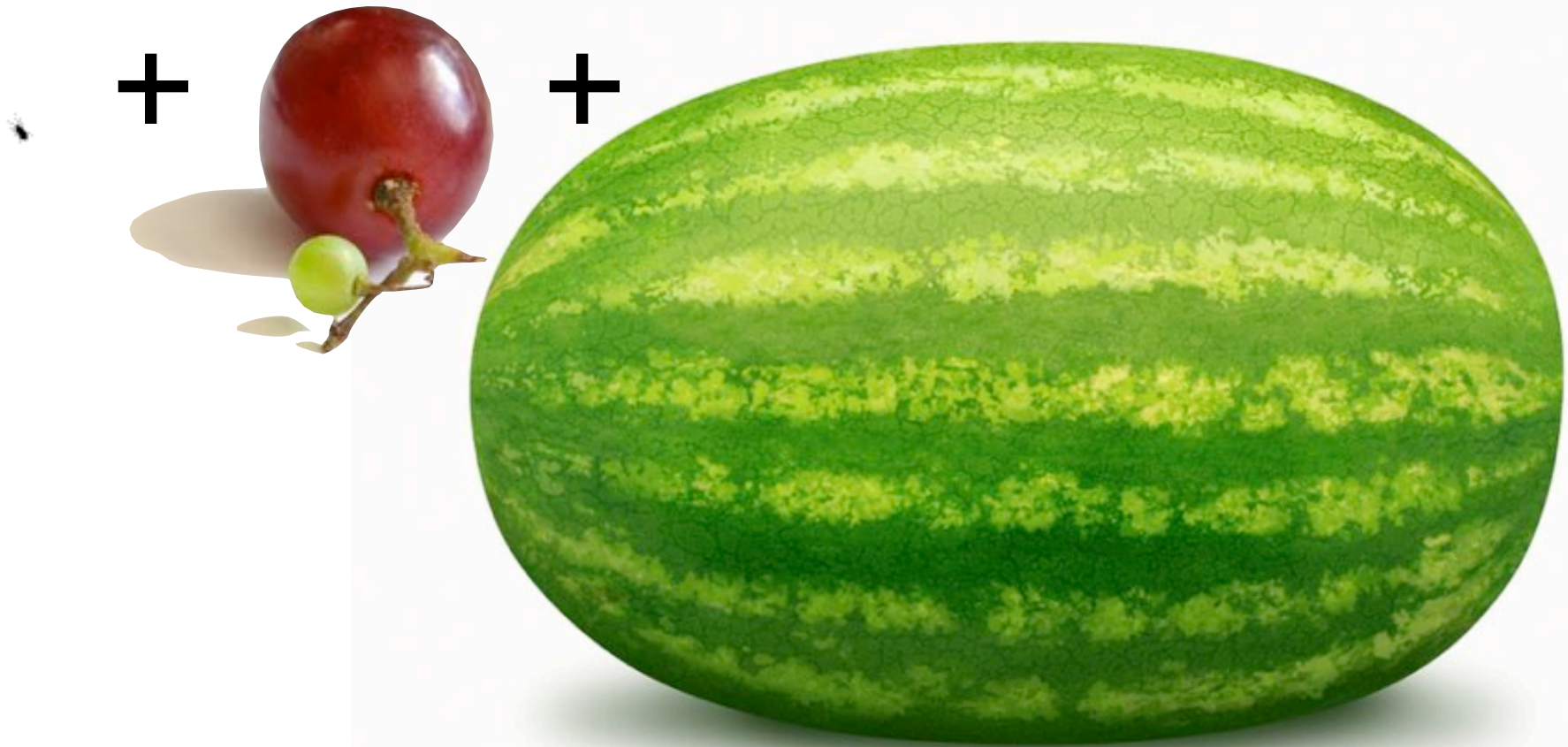
There are other ways of planning instead of using MS-Project

Microsoft Project



There are other ways of planning instead of using MS-Project

Apples+Oranges = ?



Described the “Dashboards” planning experience – hours were added to days, were added to weeks and a final number came out of the exercise which was deemed to be the “end date”

Apples+Oranges = ?



Described the “Dashboards” planning experience – hours were added to days, were added to weeks and a final number came out of the exercise which was deemed to be the “end date”

IEEE article by Tom DeMarco (Jul/Aug 2009)

- I'm gradually coming to the conclusion that software engineering is an idea whose time has come and gone.
- Software development is and always will be **somewhat experimental**. The actual software construction isn't necessarily experimental, but its conception is. And this is where our focus ought to be. It's where our focus always ought to have been.



The Agile Approach...



The Agile Approach...



Image attribution: Renewtek

The wonder of agile... Scrum leprechauns and XP wizardry

The Risk of Flacid Scrum!



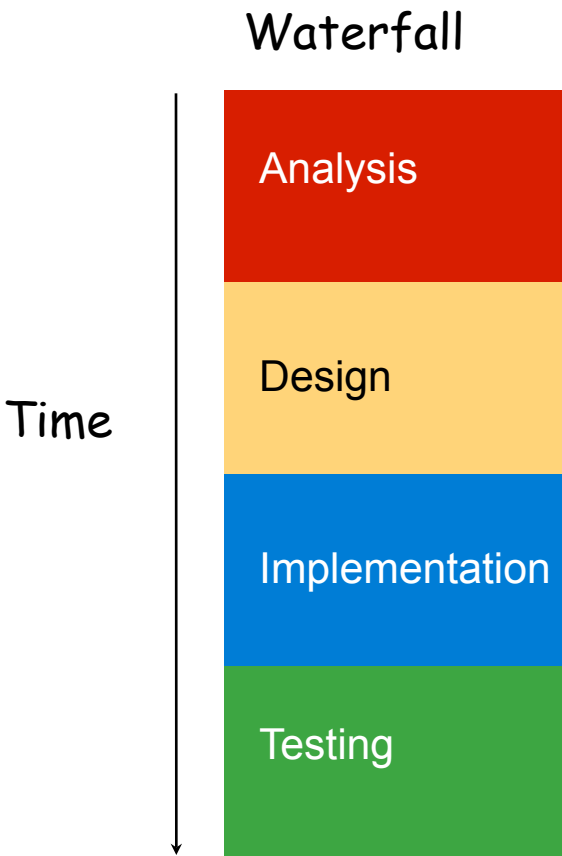
Many projects jump on the Scrum bandwagon – it seems easy, but without good engineering discipline you can watch a burndown chart just extend out to infinity

XP: Turning Extreme into Excellence!

Take common sense practises to extreme levels -
“turning the dials to 11!”

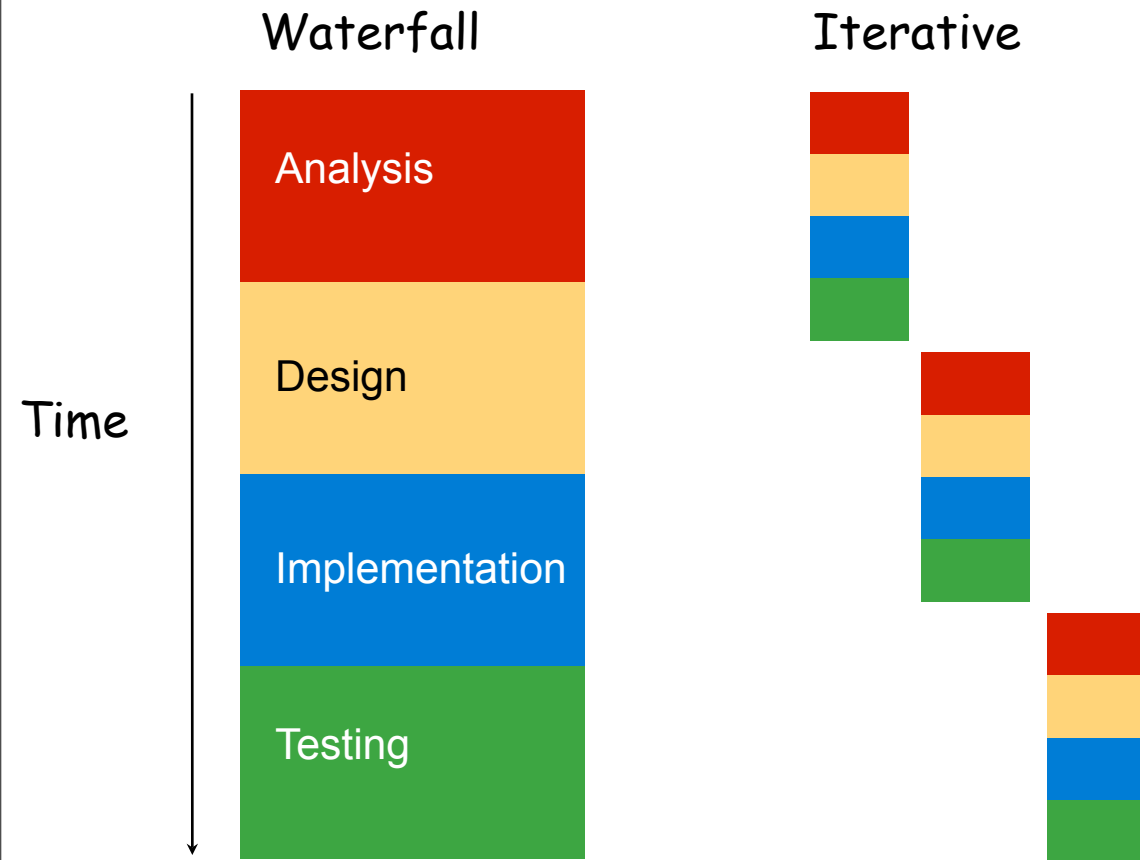
- **If code reviews are good**, *review code all the time*
(Pair Programming)
- **If testing is good**, *everybody will test all the time*
(Unit Testing)
- **If design is good**, *make it part of everyone’s daily business*
(Refactoring)
- **If simplicity is good**, *always leave the system with the simplest design that supports it’s current functionality.*
(The simplest thing that could possibly work)

Comparison of Approaches



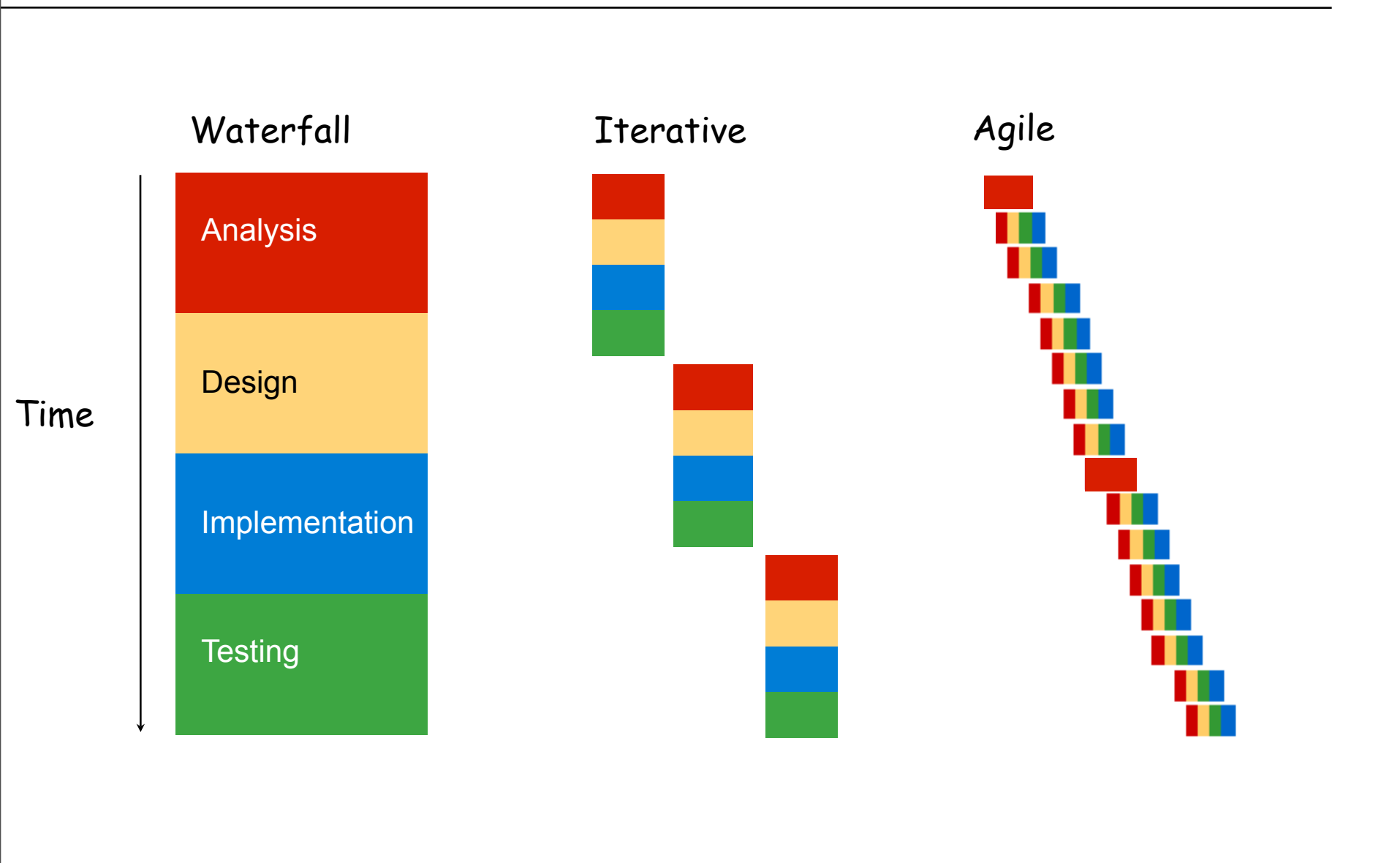
Explained differences between Waterfall, Iterative, Agile. Hilited the added Red blocks in Agile for more corporate environments.

Comparison of Approaches



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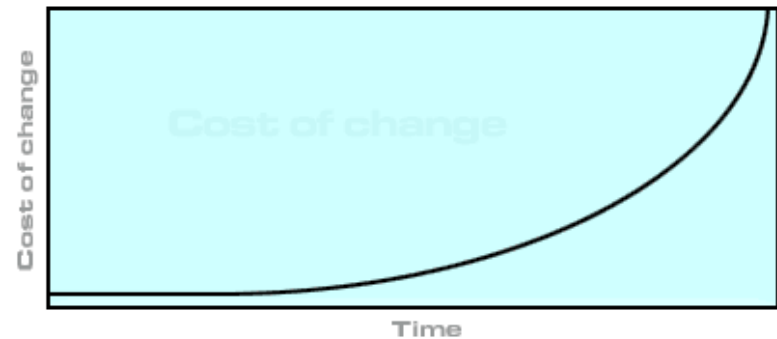
Comparison of Approaches



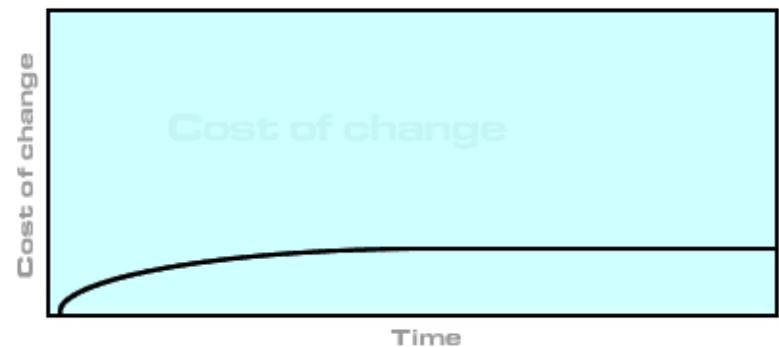
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The Importance of maintaining Simple Design

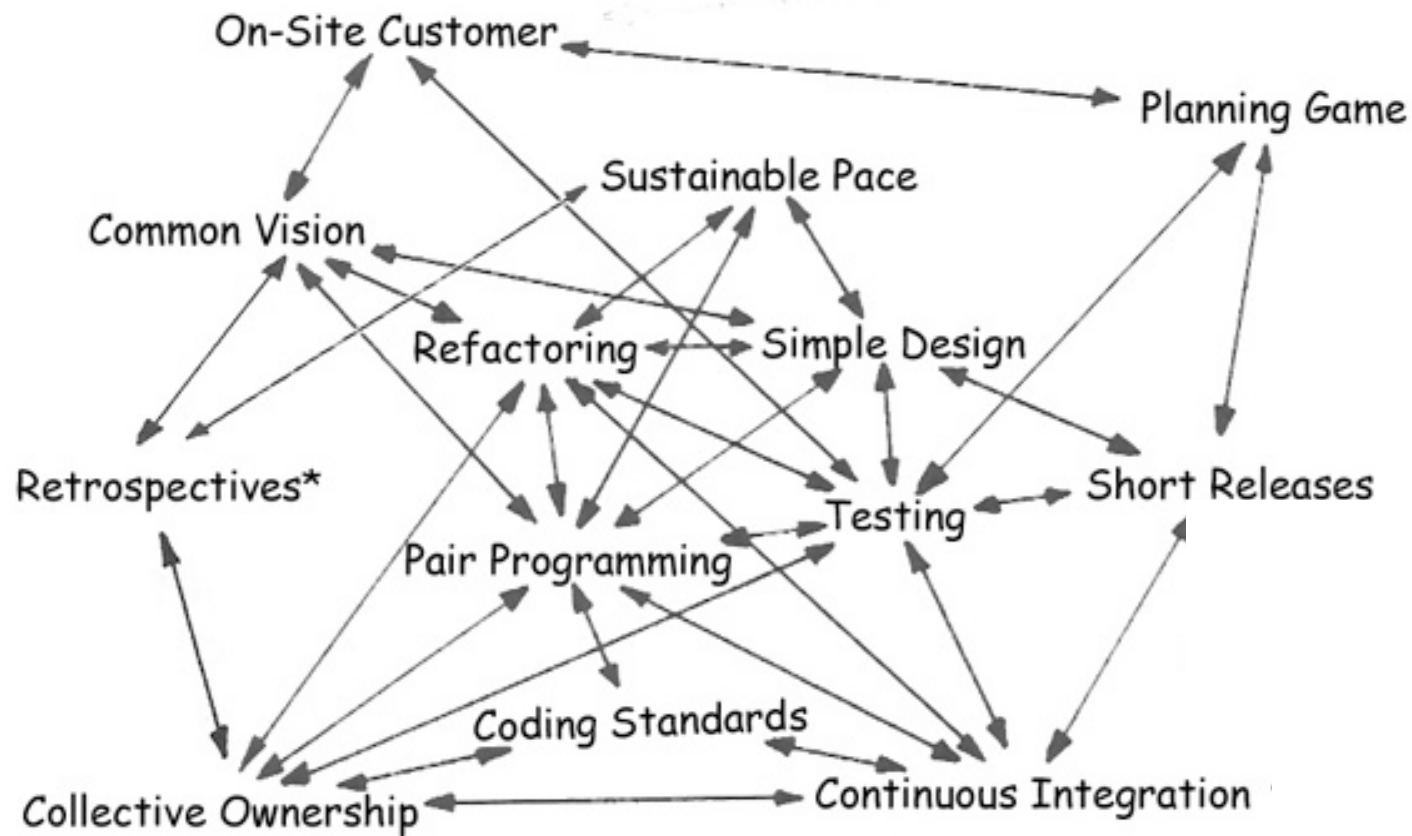
- Do the simplest thing that can possibly work
- Always have the simplest/smallest system
- Don't predict future requirements, they slow you down
- Remove redundancy
- Refactor for simplicity
- Remember YAGNI (you aren't going to need it)



vs

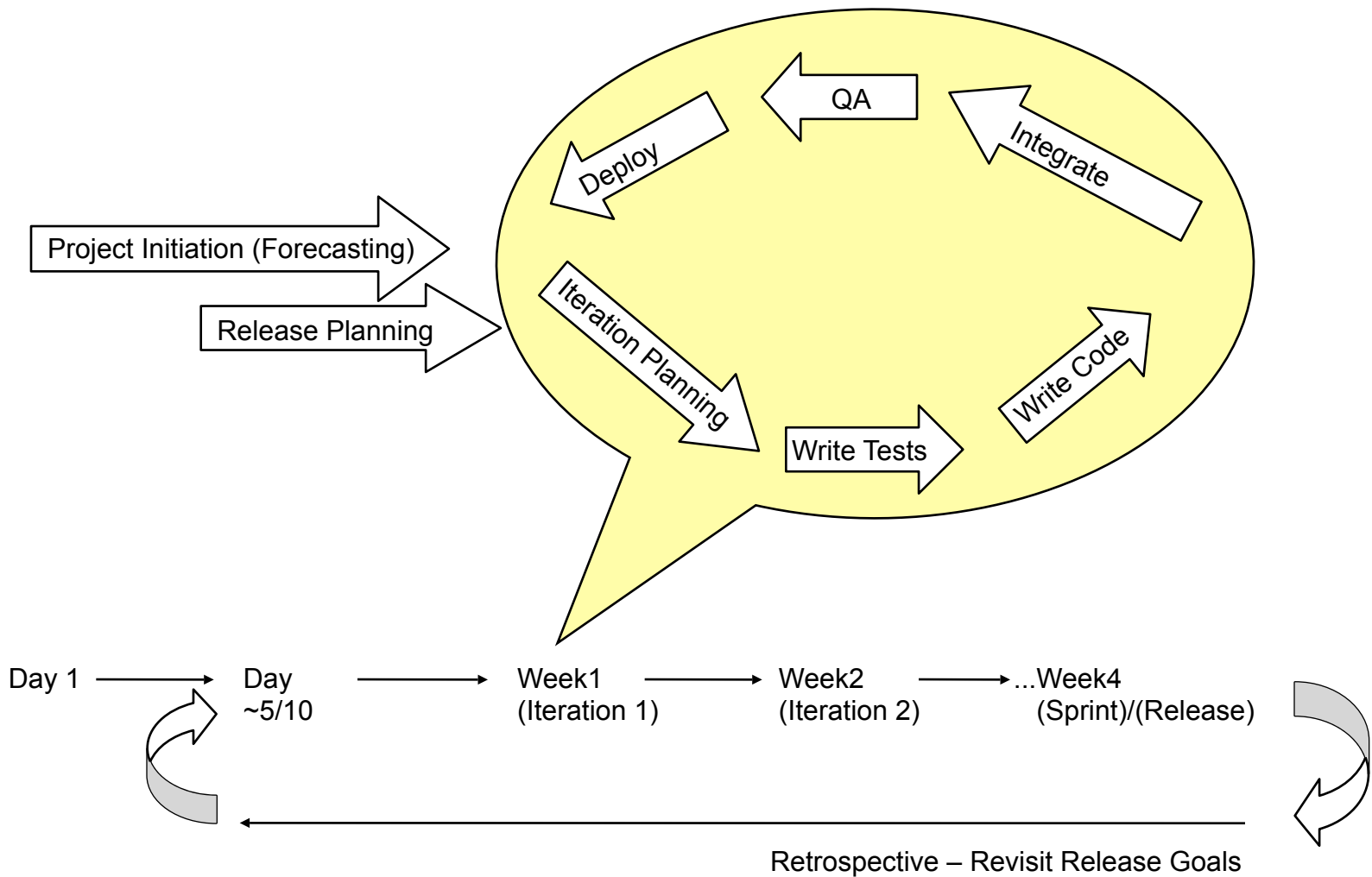


Reinforcing Practices Flatten the Cost Curve



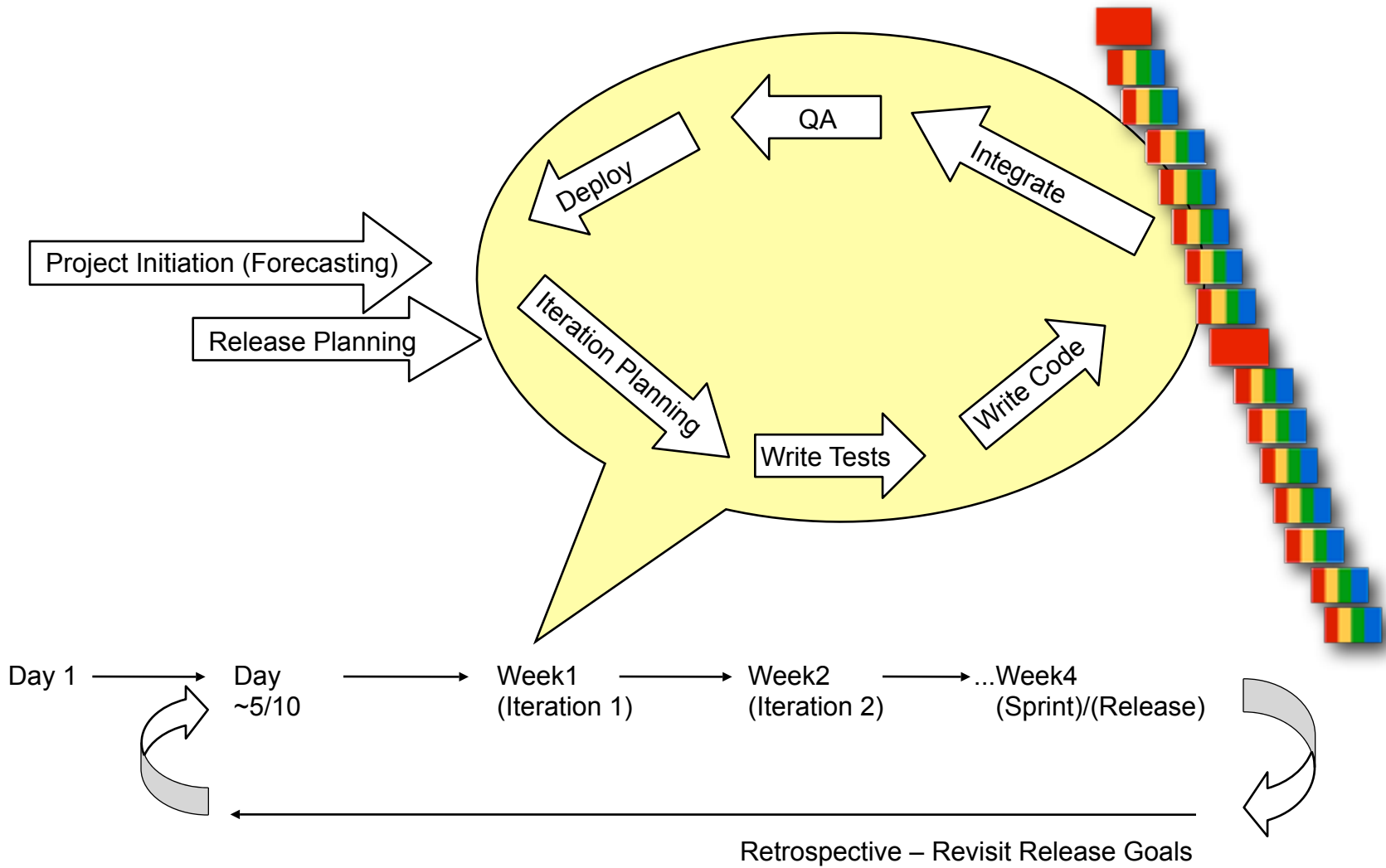
Described the tilting platform of reinforcing practices – trying to keep a balanced platform you can build on

Planning for an Agile Lifecycle...



Clicked to show incremental iterations stairs – a reminder that these cycles are the little slices discussed earlier

Planning for an Agile Lifecycle...



Clicked to show incremental iterations stairs – a reminder that these cycles are the little slices discussed earlier

So how do you plan then?



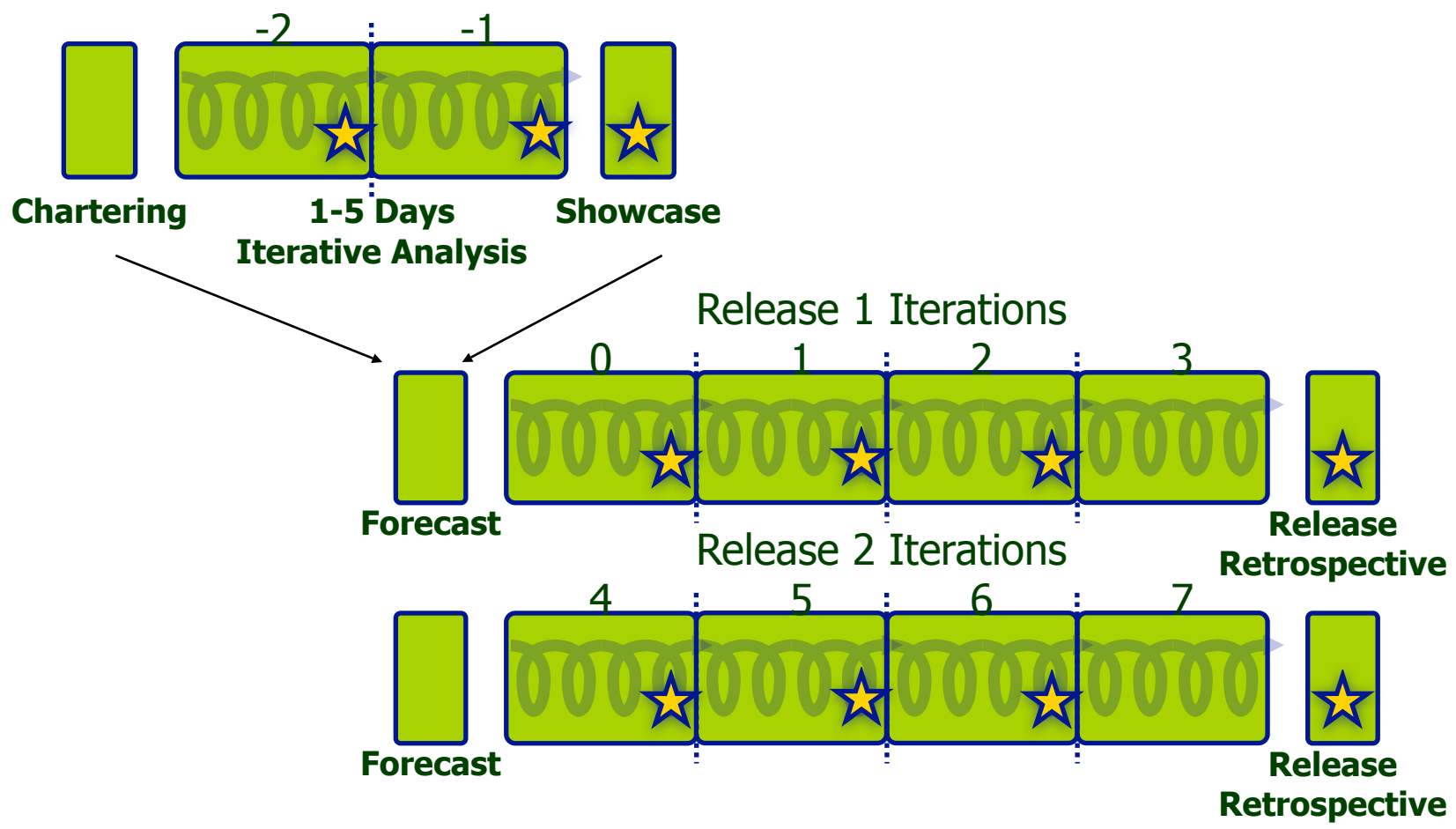
Create a Project Backlog



image attribution: Thoughtworks

You need a backlog of requirements (best with tactile cards) that you can prioritise with the team (including customers)

Forecasting – predicting the journey



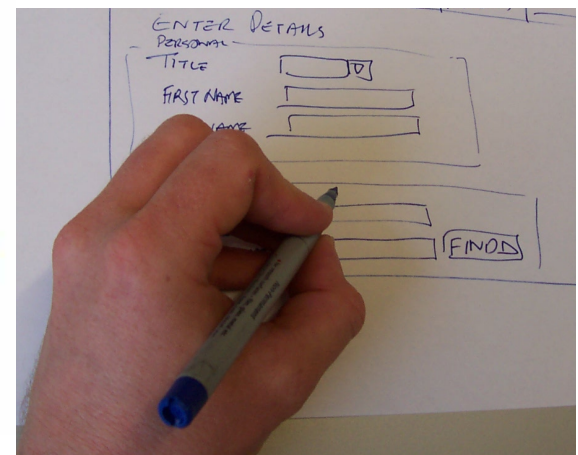
Forecasting – the weather metaphor (ie. its not perfect, but a guide)

The idea is to build up requirement “stories” to determine how the project can break up into smaller releases

So where do artefacts come from ?

- Real users, product owners, team members
 - Examples from existing systems
 - Kick-off workshops

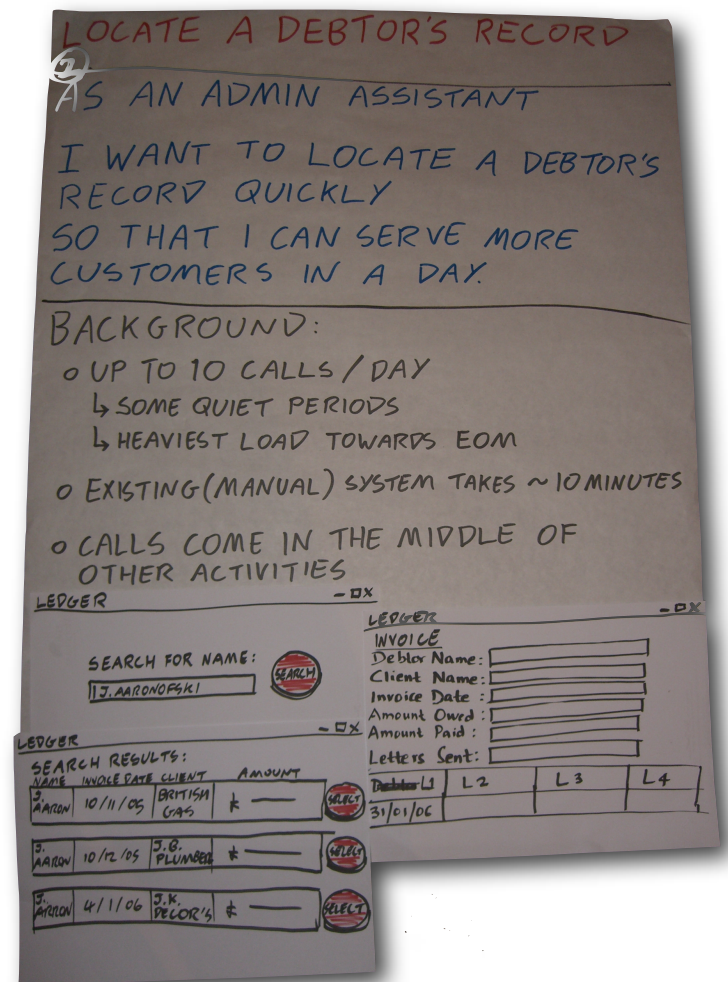
- Workshops with the whole team exploring options with users
 - Prototypes
 - Persona's
 - Story boards/Whiteboarding
 - High level cards (Epics)



Described the Elsevier team and how they were good at writing stories (they are publishers)

Creating High Level Visual Artefacts

- High level stories called “Epics”
- Give them useful names
- Describe a goal of a persona and business reason for epic
- Fill in important reminders and background information
 - Observations, previous systems
 - Technical data from developer investigations
- Include visual sketches, diagrams, screenshots
- Hang them in your workspace



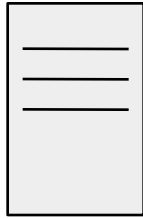
Epics, and forming a useful vision of hi level stories

Different levels of stories

Epics

Stories

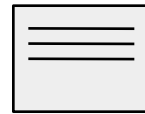
Project Backlog



Release Backlog

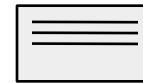


Release Planning



Iteration/Sprint Planning

Iteration/Sprint Backlog



As a _____, I
want _____ so
that _____

Typically will have an initial high level estimate (analysis + development) and an indication of business value and technical risk

As a _____, I
want _____ so
that _____

I will know this
is complete
when _____

More detailed estimates with specific acceptance criteria and design indicators. Risky stories might be "spiked"

As a _____, I
want _____ so
that _____

I will know this
is complete
when _____

Acceptance criteria may be automated at this point

To achieve this
we:
1) _____
2) _____

Team breaks down stories into tasks they can complete to pass tests

But a story Card is still a Placeholder / Token (for further JIT conversation)

Mature teams generally avoid task breakdown – or do this when pairing on a story in play

Story Card Technology...

- Cards, a simple effective requirements capture tool
- Resist overusing technology
- Simple and tactile

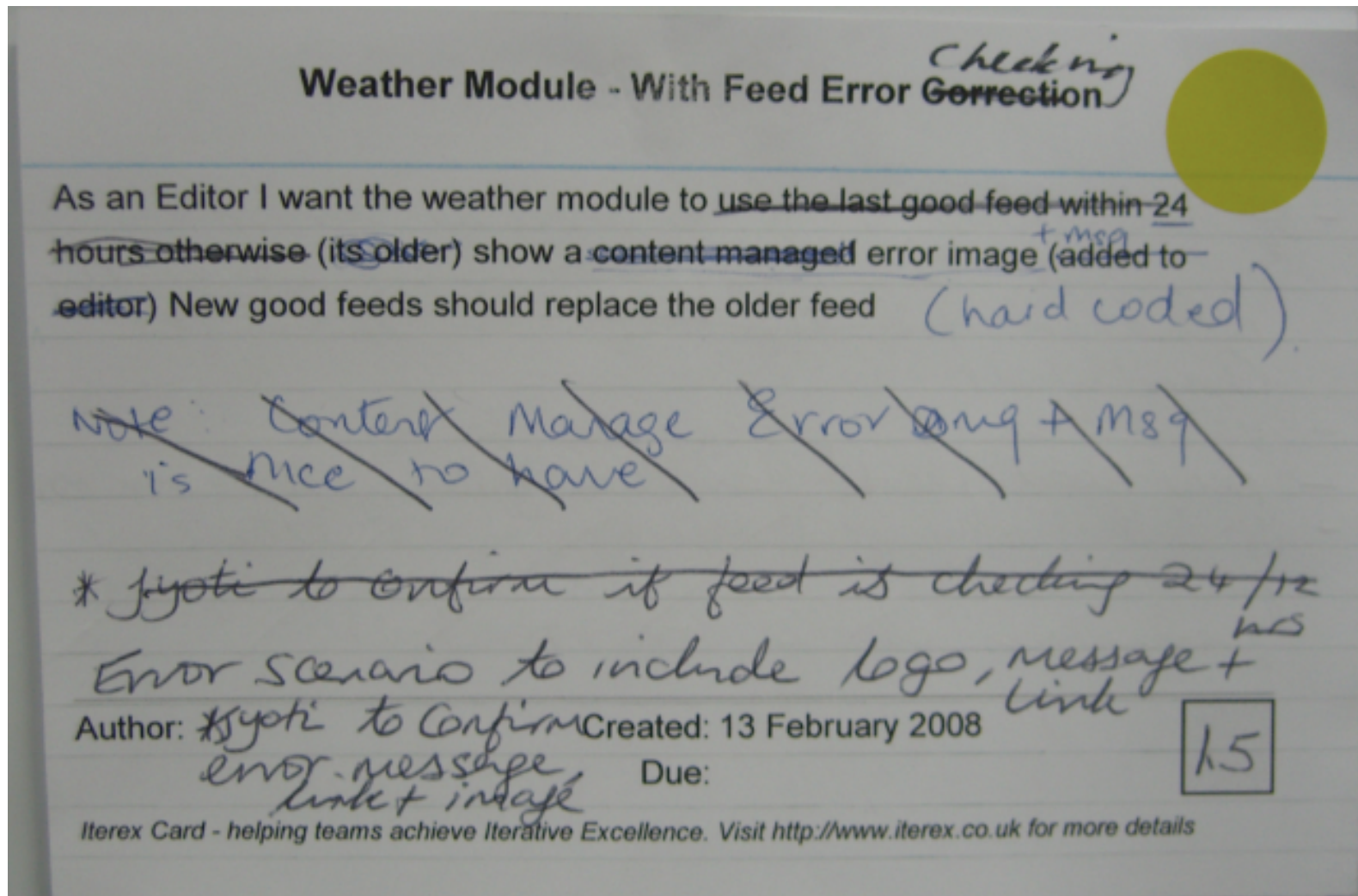
- JIT requirements

- A Story has enough information to allow a basic estimate

Perspective	Title	Reserved for priority
	WRITING GOOD STORIES	
Reason	As a Connextra employee - I want to know how to write good stories so that I can submit cards to the planning game that are clear and will be accepted in the next iteration.	
Author	Date	Reserved for estimate
Tim	8/Nov/01	

But what are stories? – A common format helps, this is the blueprint we designed at “Connextra” which has become widely popular, although there are other variations you can try

Cards are flexible, even when printed



This is a card printed using "Iterex Planning Cards", which was then subsequently adjusted when meeting with a customer (several times as work progressed)

Metrics: Velocity

- Velocity is an unfortunate name (widely misused in industry)

- Mistaken for speed when really its about range (MPG)



Originally used Load Factor – too confusing. Wanted an easy budget figure that the business understood.

Simple Estimation Requires a Unit



Planning Poker Cards

Talk about selling planning cards vs. using your hand (no-one forgets their hand)

Simple Estimation Requires a Unit



Planning Poker Cards

Talk about selling planning cards vs. using your hand (no-one forgets their hand)

Calculating Velocity

Estimate

Velocity (total)

As a _____, I
want _____ so
that _____

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

Estimate

Velocity (total)

As a _____, I
want _____ so
that _____

2

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

As a _____, I
want _____ so
that _____

Estimate

2



Velocity (total)

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

As a _____, I
want _____ so
that _____

Estimate

2




Velocity (total)

2



Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	2		2
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	1		



Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	2		2
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	1		



Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	2		3
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	1		

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	2		3
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	1		
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	3		

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	2		3
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	1		
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	3		

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	2		6
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	1		
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	3		

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	2		6
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	1		
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	3		
<div style="border: 1px solid black; padding: 5px;">As a _____, I want _____ so that _____</div>	2		

Emphasise that velocity is simply the sum of the estimates on cards that were completed

Calculating Velocity

	Estimate		Velocity (total)
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	2		6
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	1		
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	3		
<div style="border: 1px solid black; padding: 5px; width: fit-content;">As a _____, I want _____ so that _____</div>	2		

Emphasise that velocity is simply the sum of the estimates on cards that were completed

The Planning Game (but should it be fun?)



These are real customers making decisions based on the velocity budget measured by the team.

The Velocity Budget and Yesterday's Weather

7

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a **2**, I
want **2** so
that **2**

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a **2**, I
want **2**, so
that **2**

Current Cost

2

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a **2**, I
want **2** so
that **2**

As a **3**, I
want **3** so
that **3**

Current Cost

2

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a **2**, I
want **2** so
that **2**

As a **3**, I
want **3** so
that **3**

Current Cost

5

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a **2**, I
want _____, so
that _____

As a **3**, I
want _____, so
that _____

As a **3**, I
want _____, so
that _____

Current Cost

5

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a **2**, I
want _____, so
that _____

As a **3**, I
want _____, so
that _____

As a **3**, I
want _____, so
that _____

Current Cost

8

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a 2, I
want that 2 so

As a 3, I
want that 3 so

~~As a 3, I
want that 3 so~~

Current Cost

~~8~~

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a 2, I
want 2 so
that 2

As a 3, I
want 3 so
that 3

~~As a 3, I
want 3 so
that 3~~

As a 2, I
want 2 so
that 2

Current Cost

~~8~~

Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Velocity Budget and Yesterday's Weather

Last Velocity

7

As a 2, I
want 2 so
that 2

As a 3, I
want 3 so
that 3

As a 3, I
want 3 so
that 3

As a 2, I
want 2 so
that 2

Current Cost

7



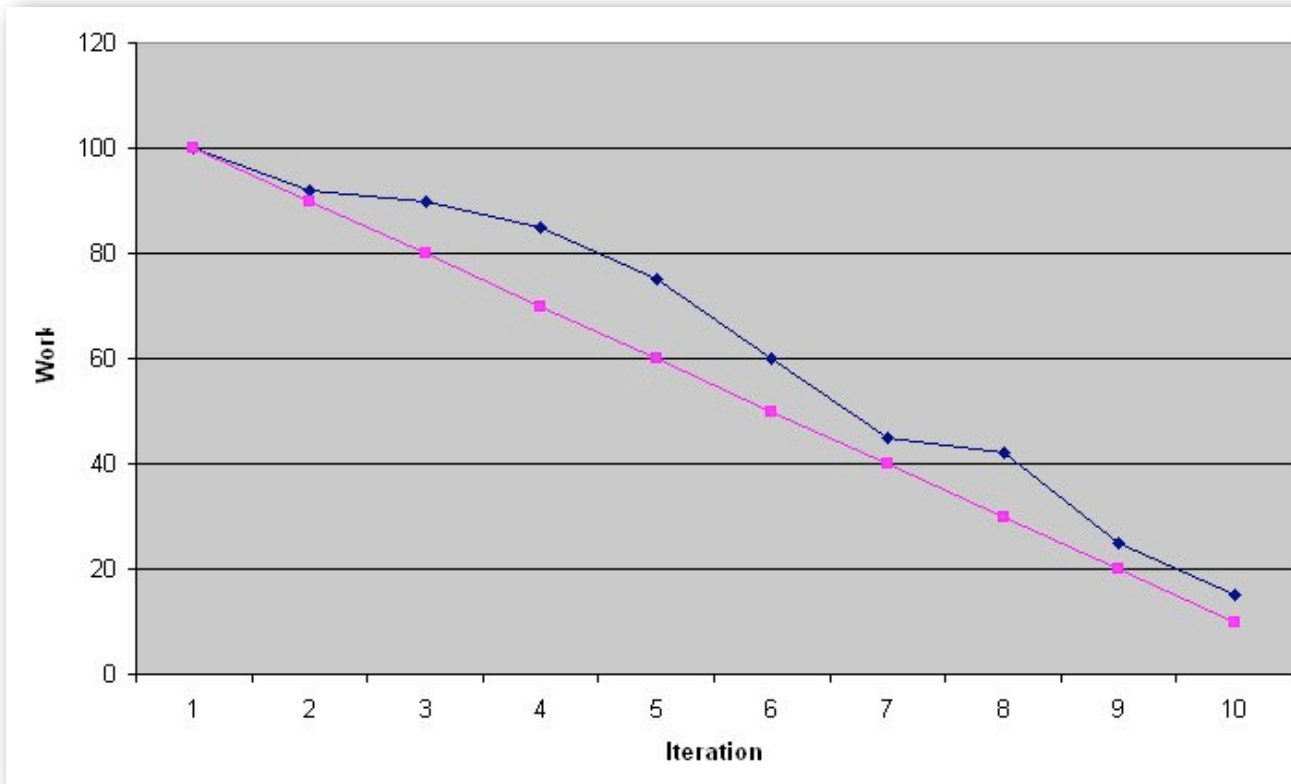
Demonstrate how you use your last velocity as a budget for accepting cards in the next iteration. When you exceed the budget you have to reject that card (either select a new one, or split it some way)

The Planning Game (making decisions)

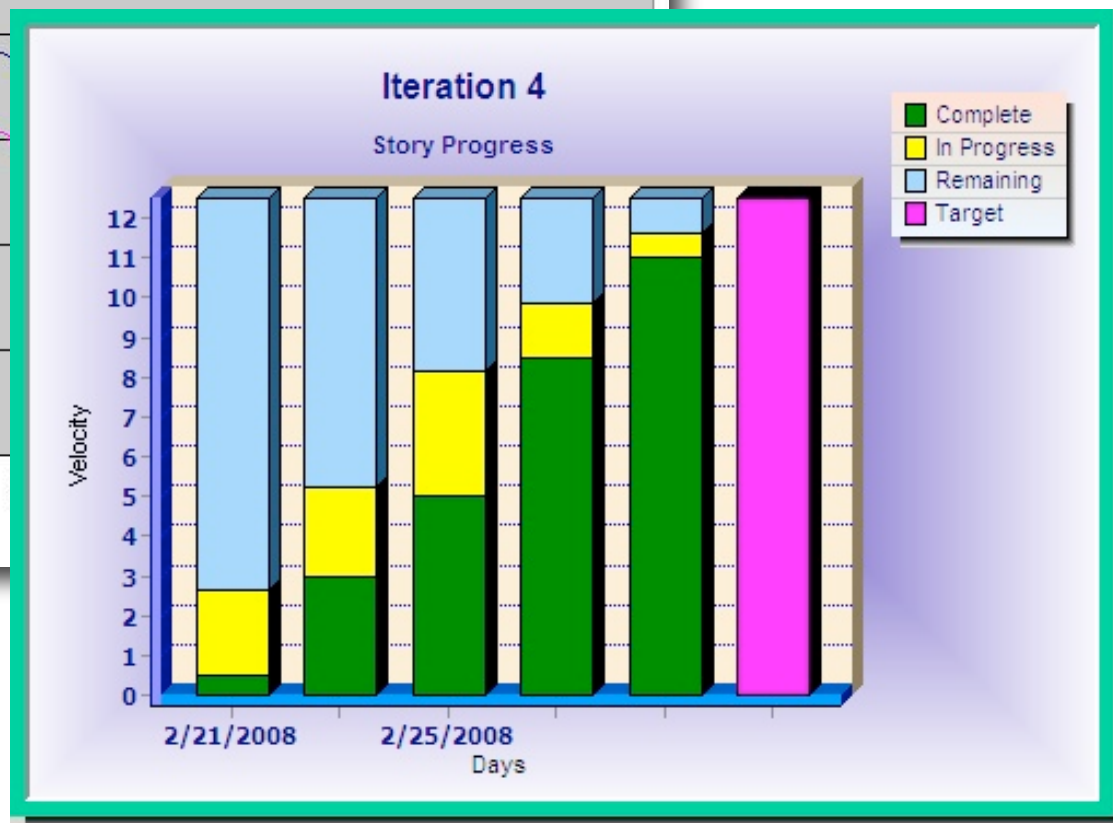
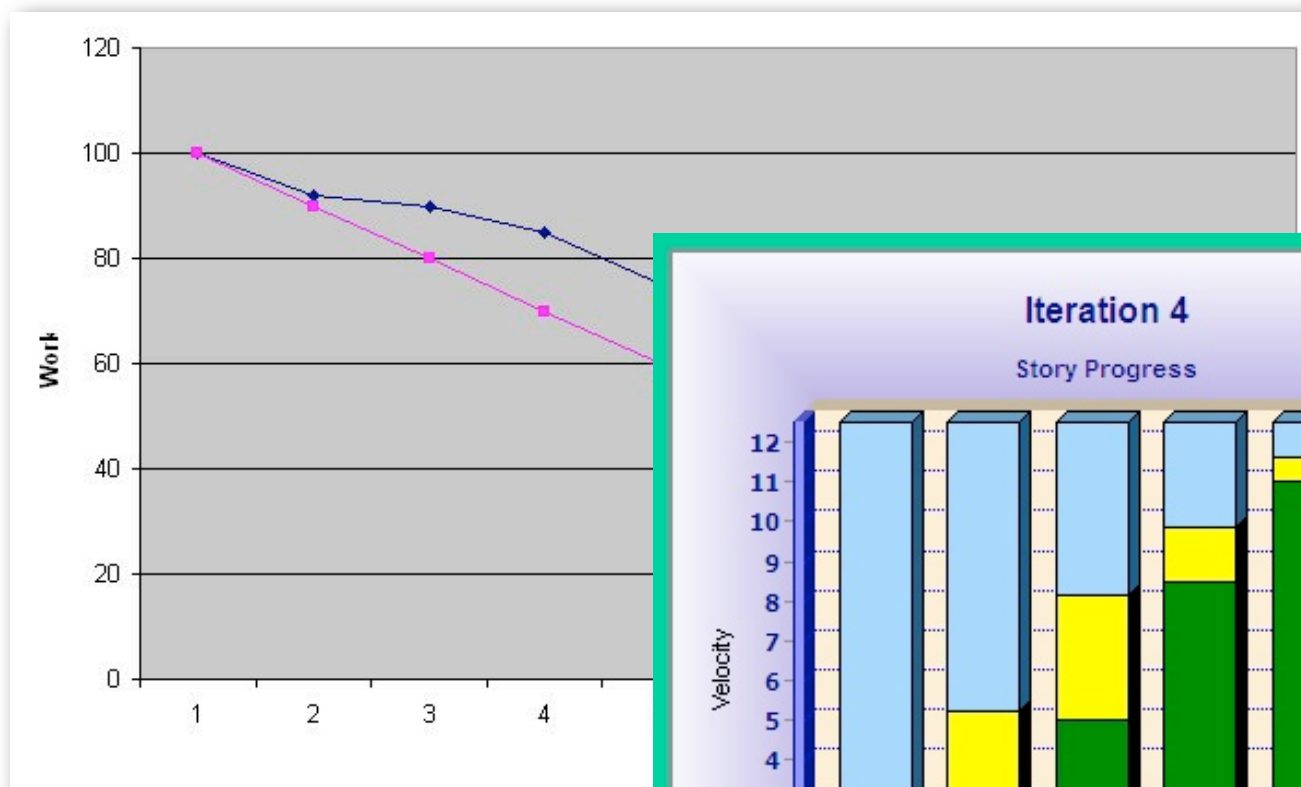


Re-emphasize how in these cases the customers had to work with the team to take out cards and find suitable replacements that could fit (this is a collaborative effort)

Tracking: Burndown vs Burnup

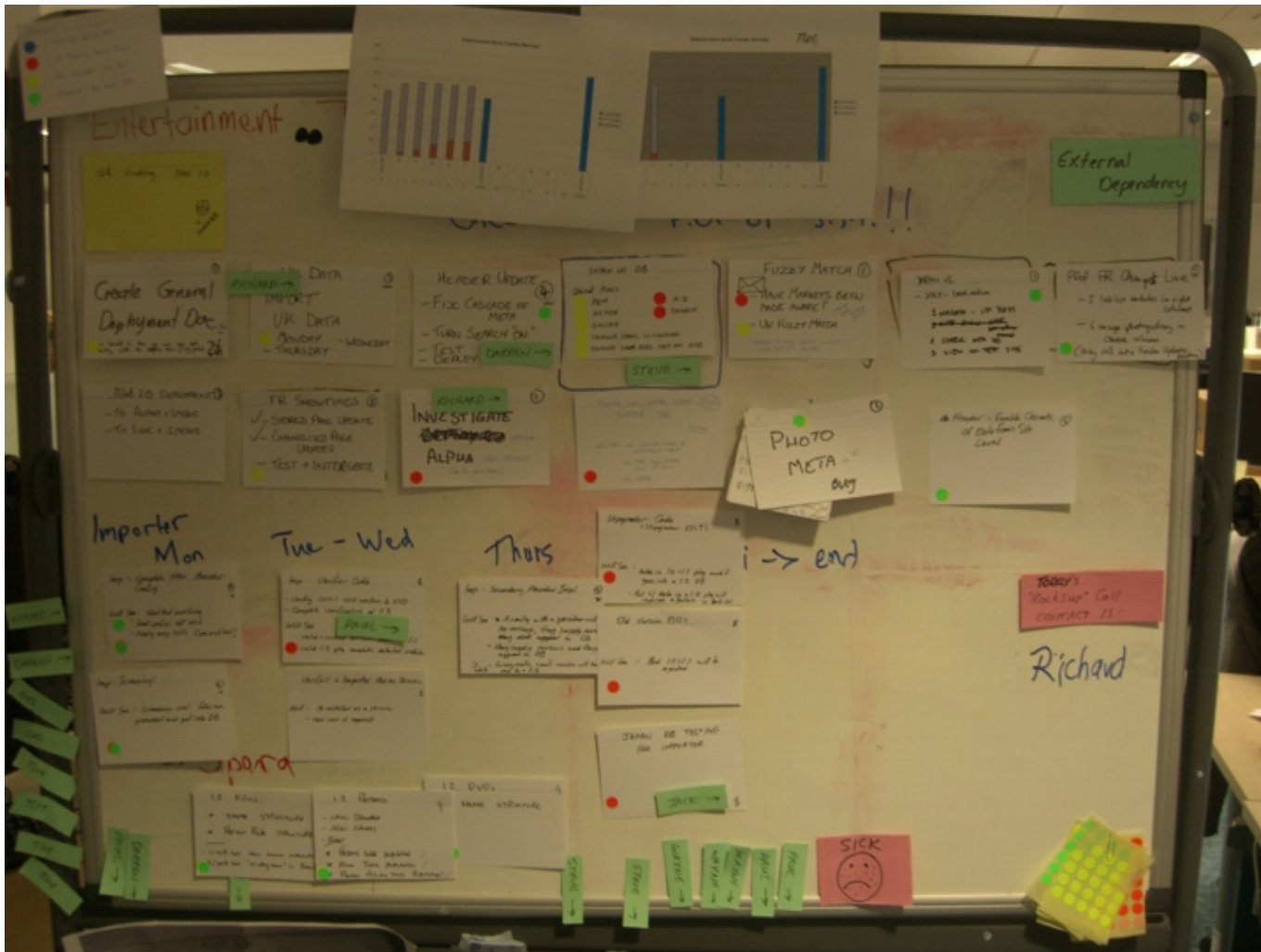


Tracking: Burndown vs Burnup



Real burndown and burnup diagrams from the Scrum template, and Iterex planning cards

Really Tracking Progress



Described planning boards, and avatars with standups for showing progress

Really Tracking Progress



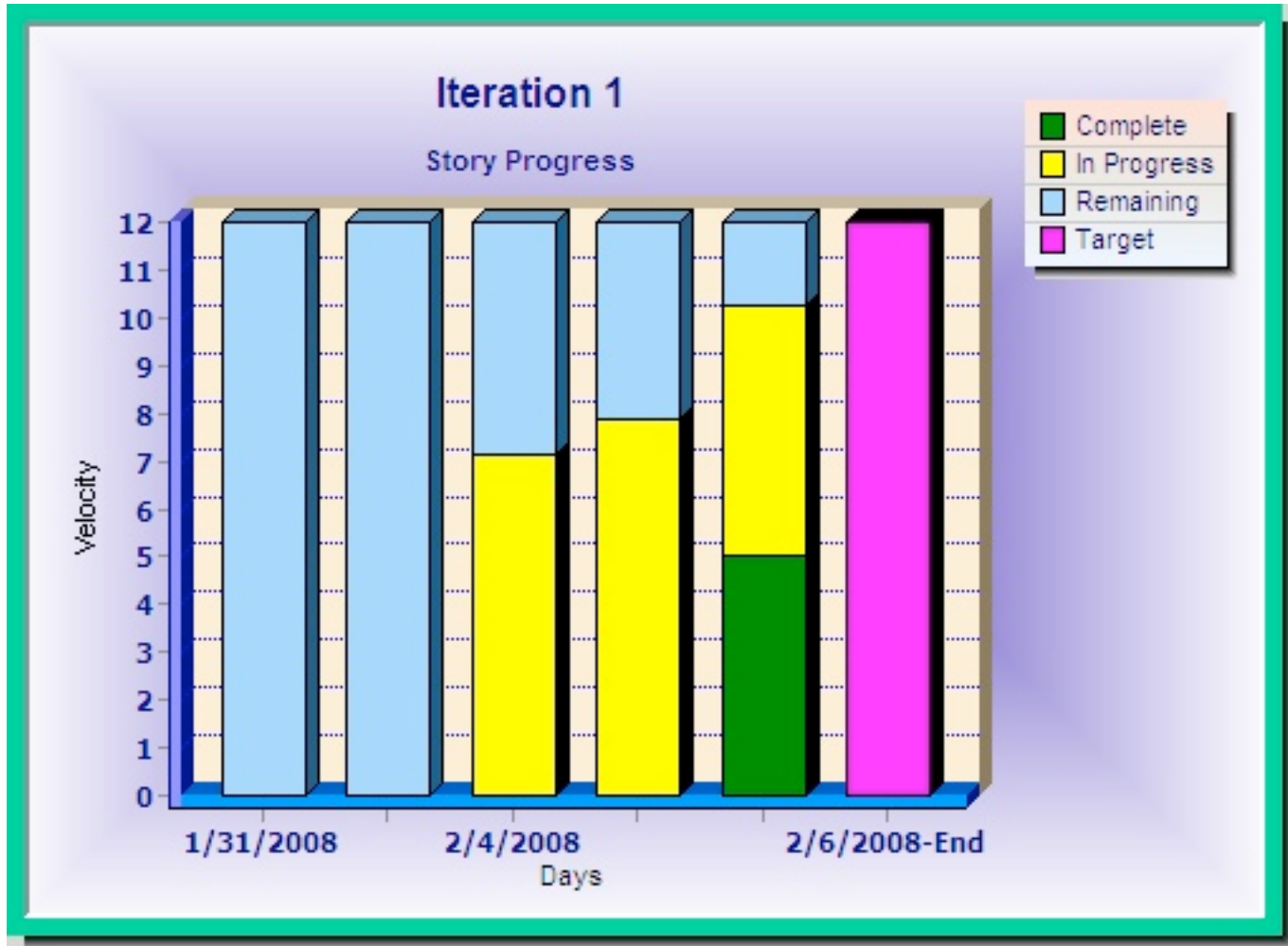
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Really Tracking Progress



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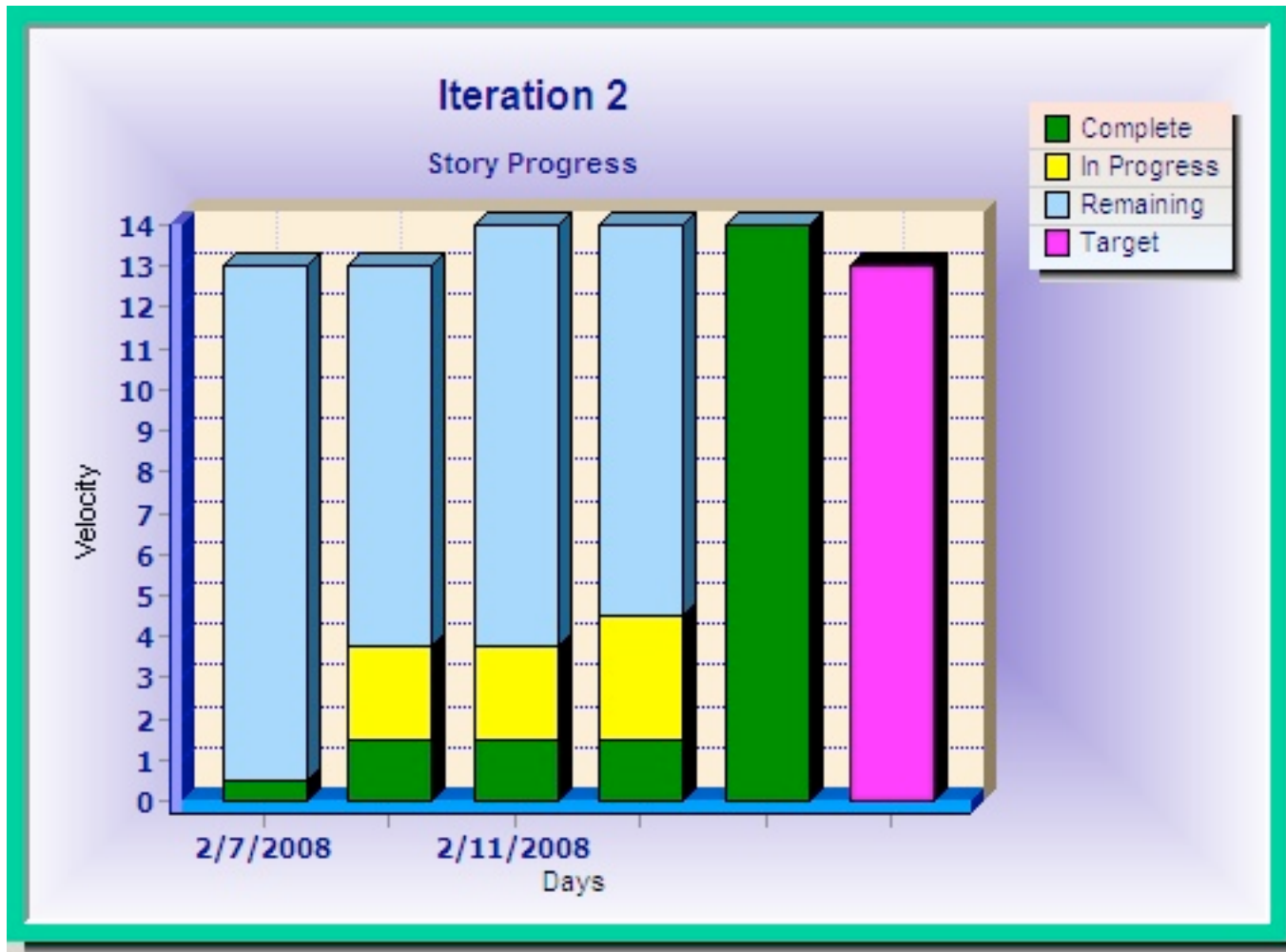
Burnup Signatures



Tracking diagrams from Iterex Story Card

Ask audience how well they think the team is doing in these situations

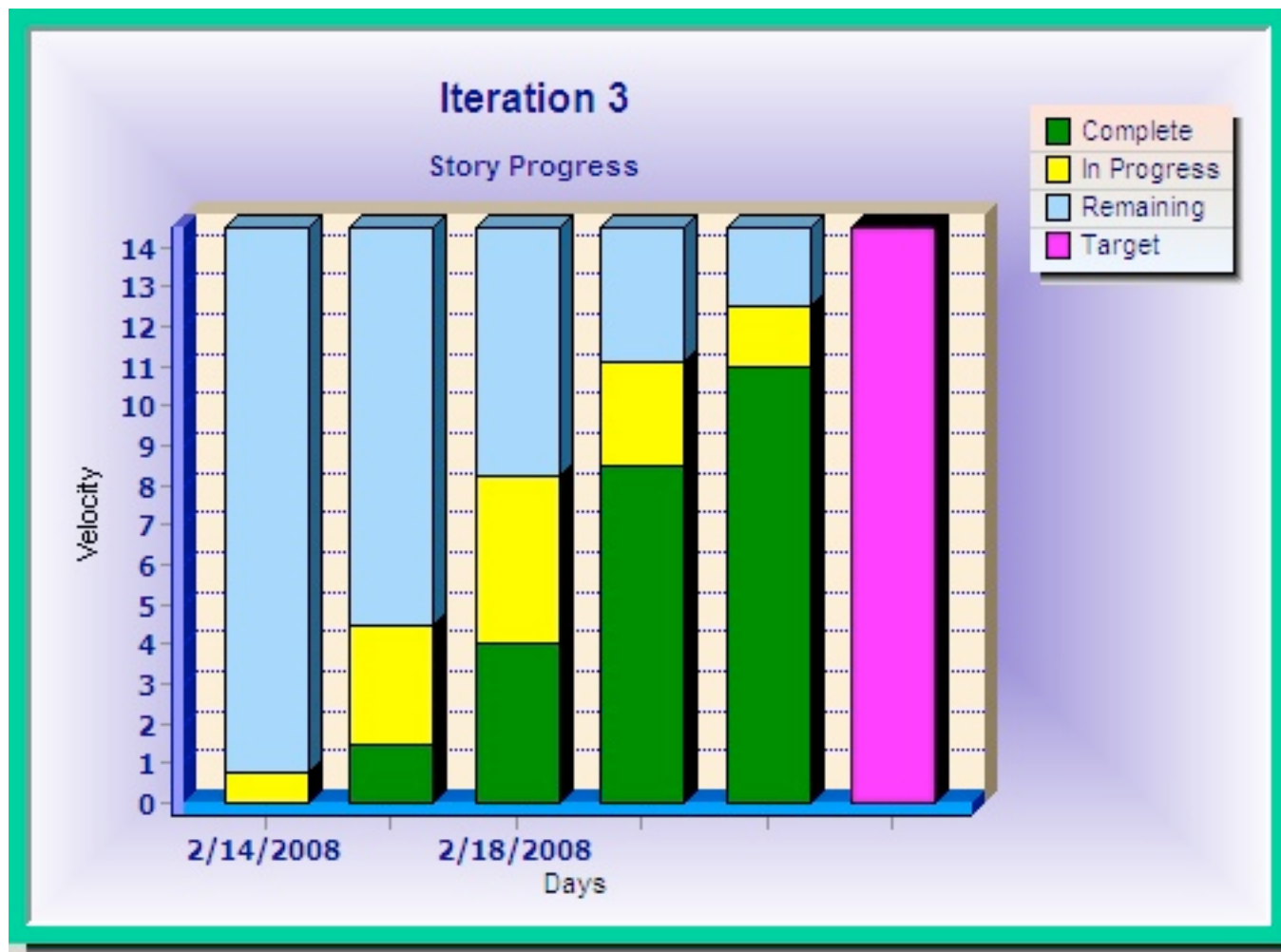
Burnup Signatures



Tracking diagrams from Iterex Story Card

Ask audience how well they think the team is doing in these situations

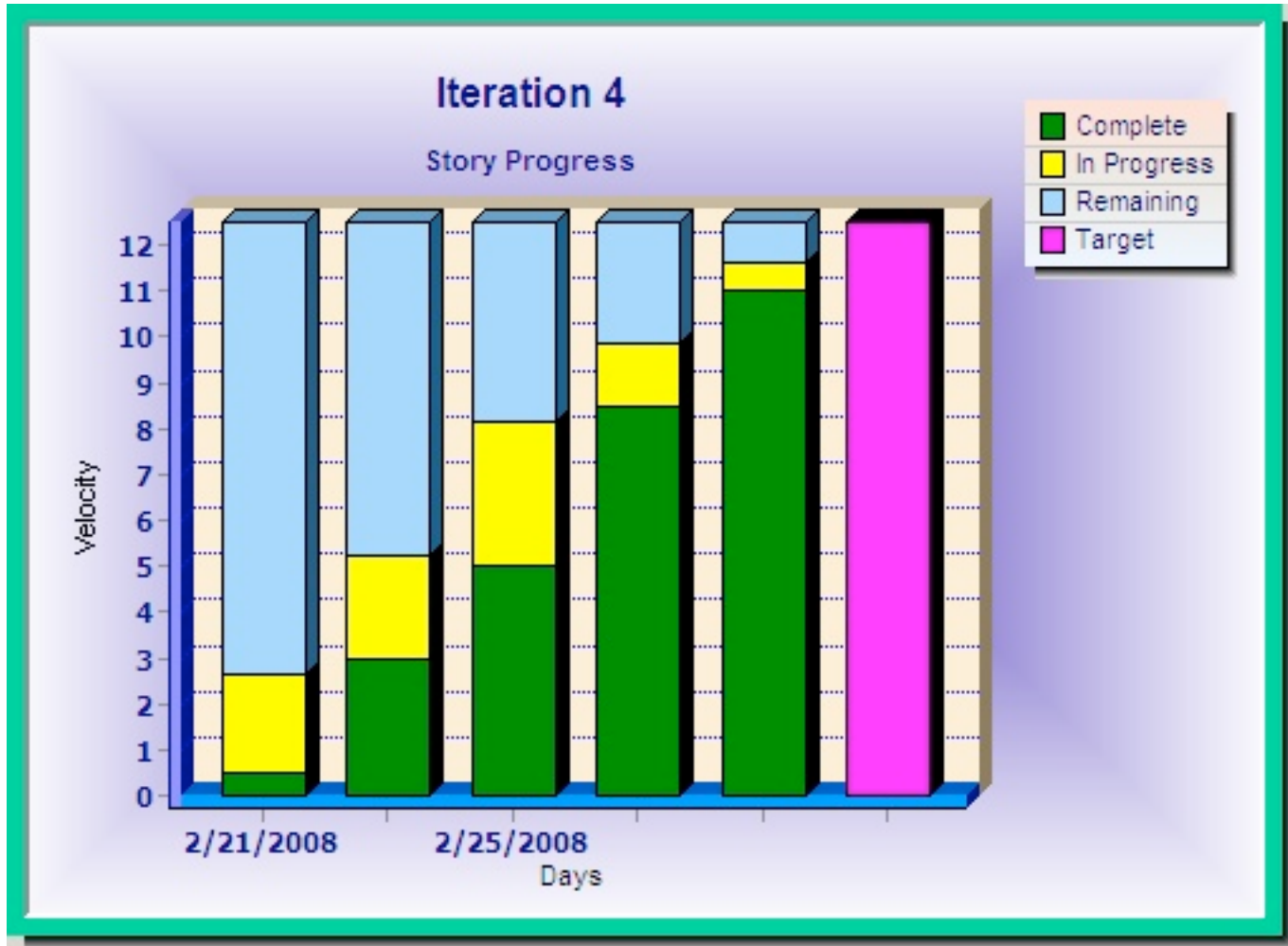
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Tracking diagrams from Iterex Story Card

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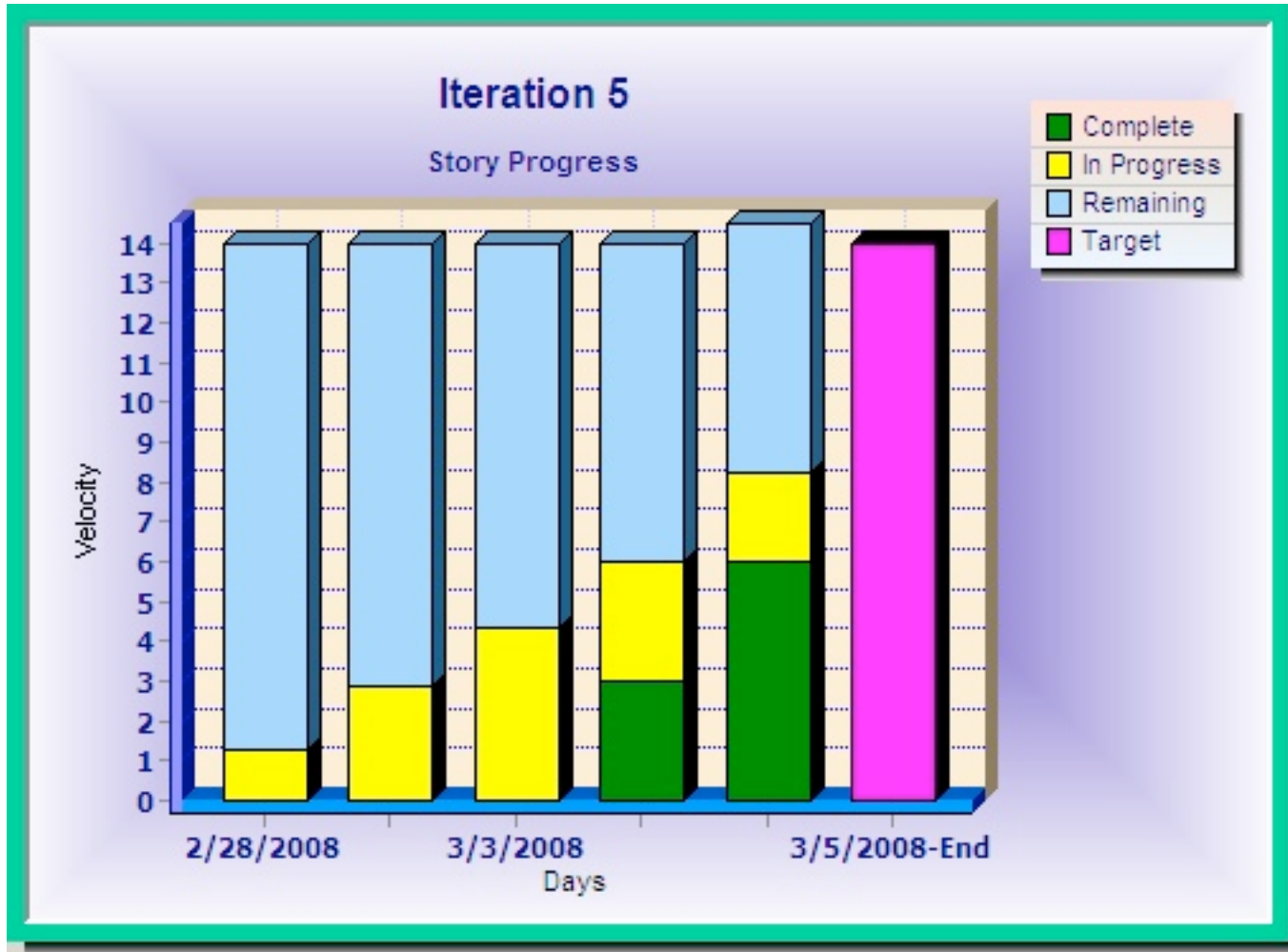
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Tracking diagrams from Iterex Story Card

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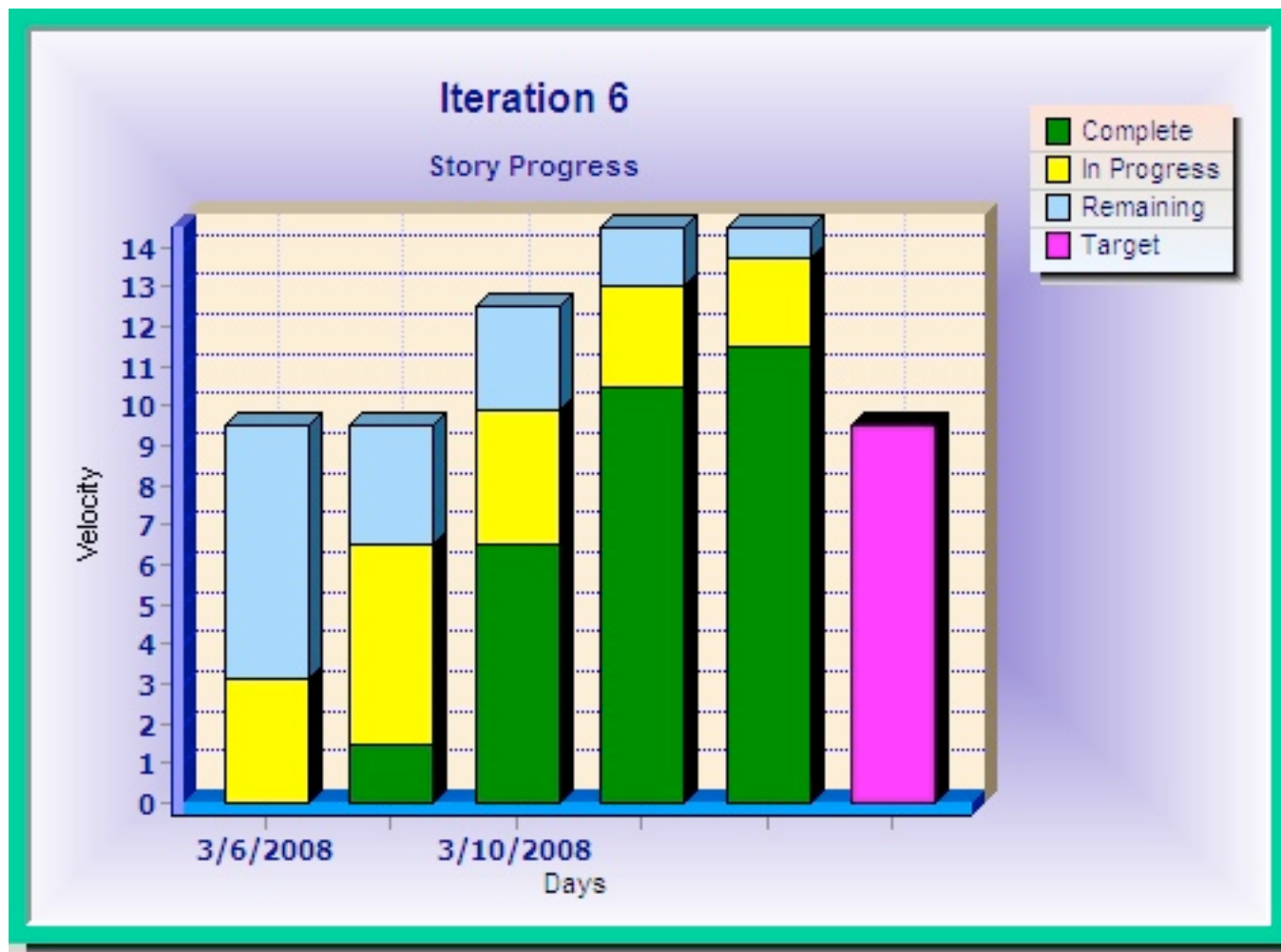
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Tracking diagrams from Iterex Story Card

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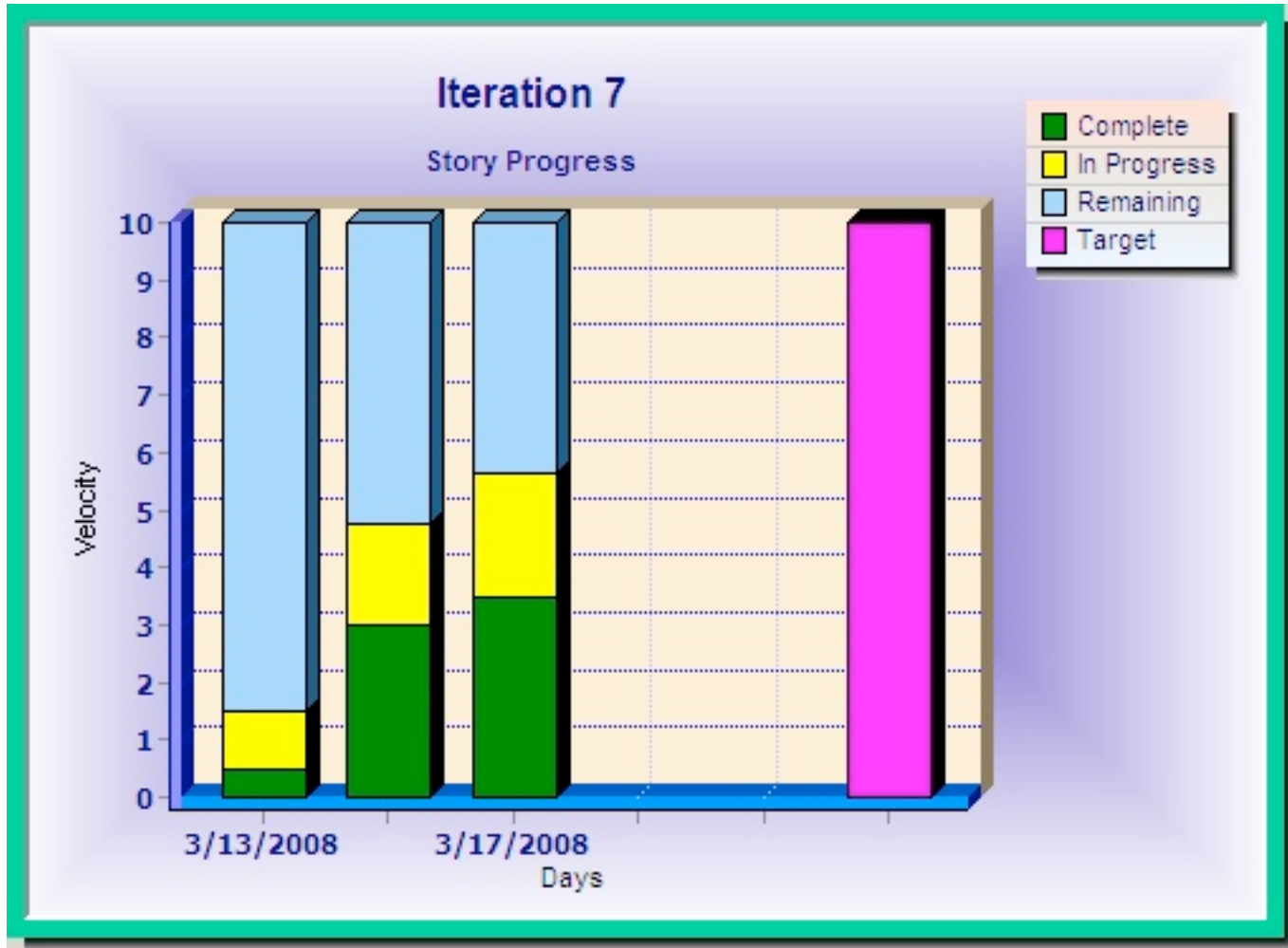
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Tracking diagrams from Iterex Story Card

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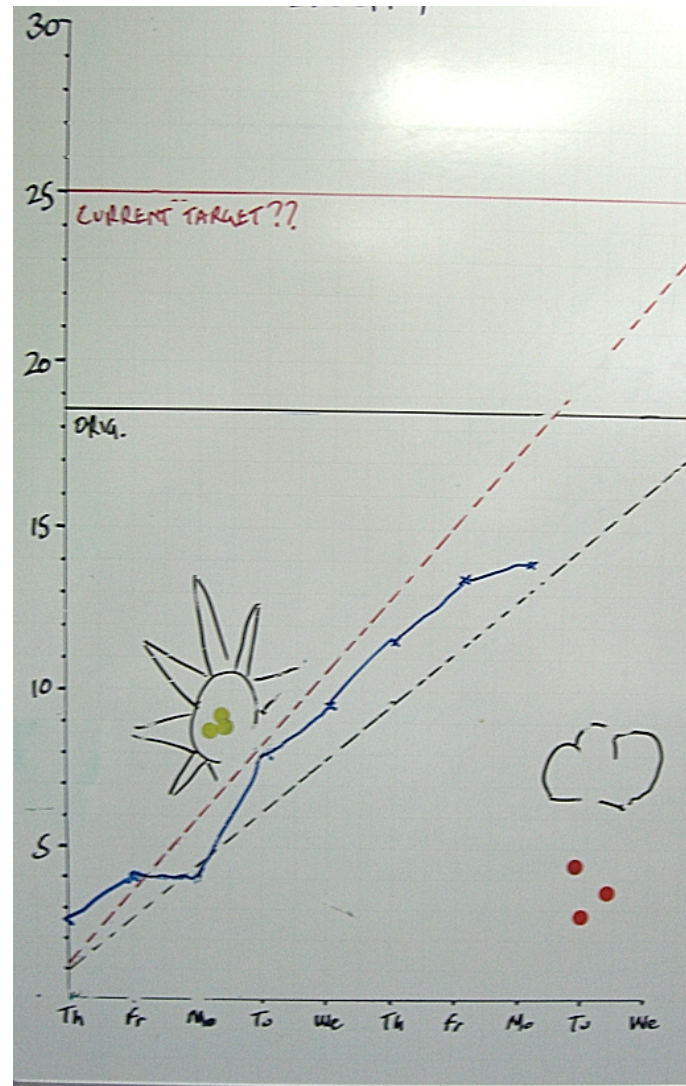
Burnup Signatures



Tracking diagrams from Iterex Story Card

Ask audience how well they think the team is doing in these situations

Low-Tech can also work better...



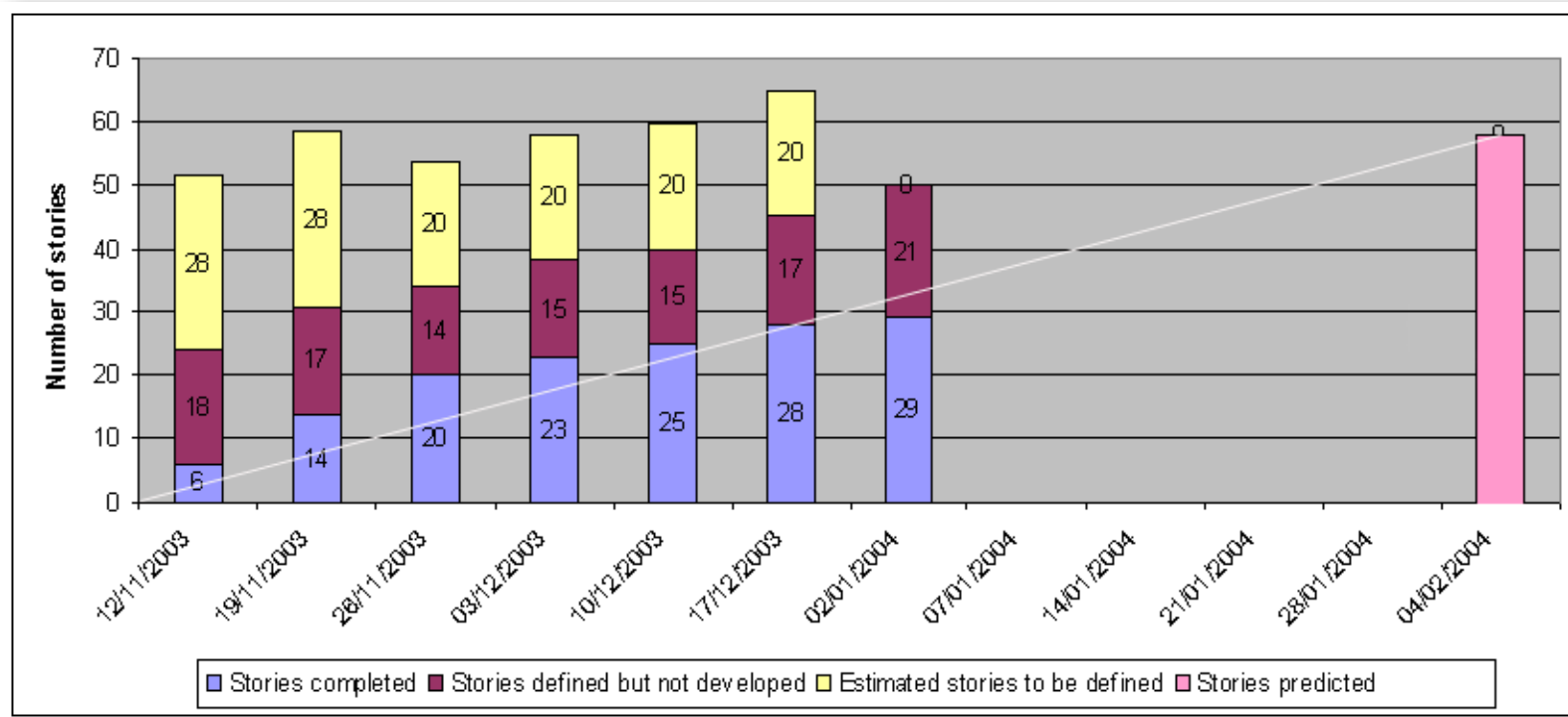
A simple whiteboard that team members update each day can be very educational

Leaning towards Equal Cards

- Keep cards to between 0.5 to 2 days
- Errors tend to cancel each other out
- Allows for easier believable forecasting
- Experiment with Avg. card size

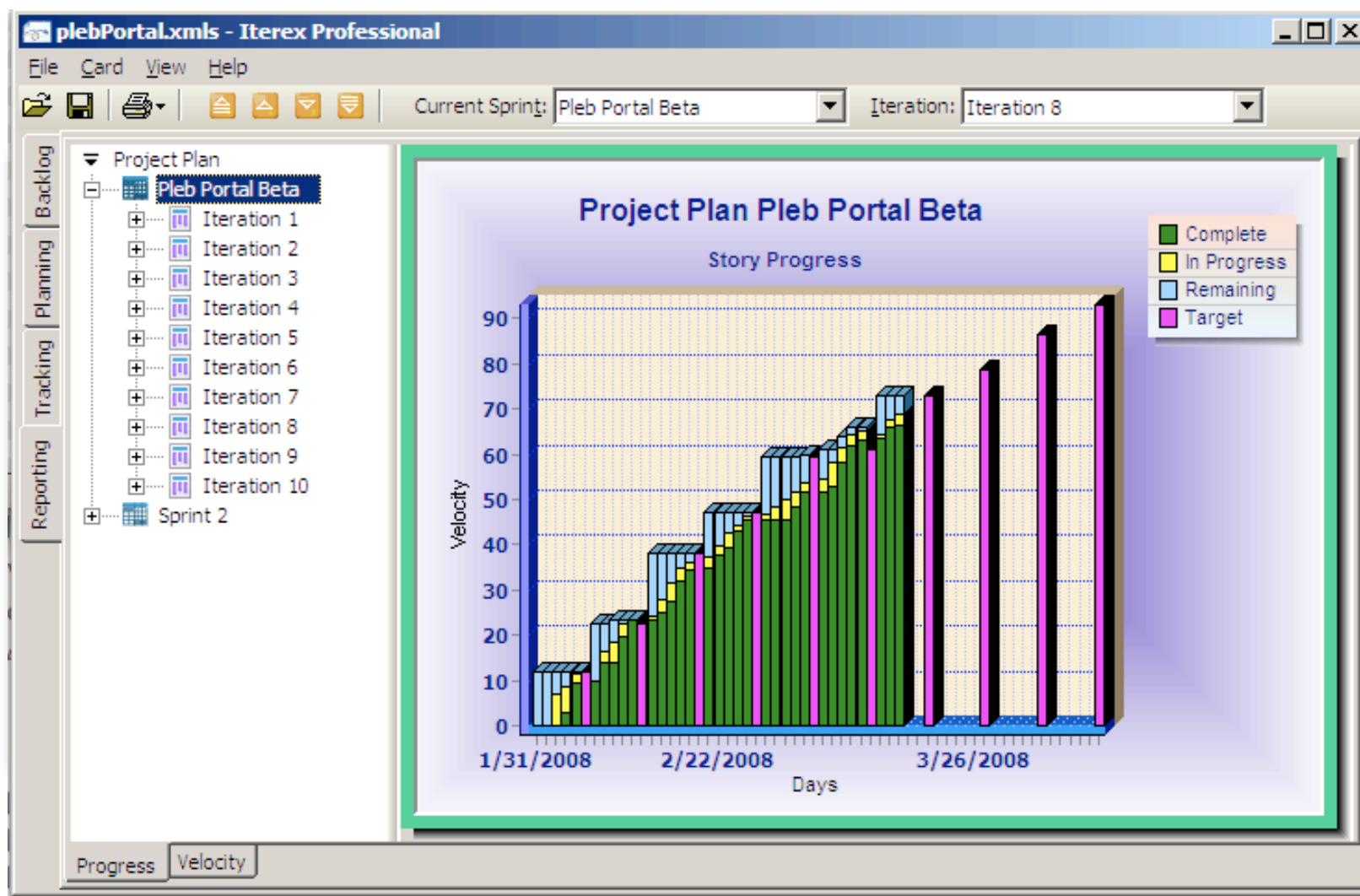


Projecting Velocity



Talked about early experiments, and avoiding a trending line which leads to better questions of whether things are on track

Projecting Velocity



Talked about early experiments, and avoiding a trending line which leads to better questions of whether things are on track

What about hi-level planning?

	FL	H		L	H
3.1.1	2	4	3.4.1	2	3
3.1.2	3	5			
3.1.3	2	5	3.5	3 1/4	5
3.2.1	1/2	1	3.6		
3.2.2	1/2	1	3.7		
3.2.3	1/2	1	3.8		
3.3.1	0	1/4			
3.3.2	0	1/4			
3.3.3	0	1/4			

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	U
		TimB		Paul		Matt		TimM		JeffL		Sam		Dave		Nev		
Estimates (days)		High		High		High		High		High		High		High		High		Avg
Functional Story		High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	Avg
1	Access & Entitlements	15	4	10	5	10	6	12	8	6	3	14	7	10	6	15	10	9
2	More on Diagnoses	7	4	5	3	5	4	7	4	4	2	5	3	6	3			4
3	More on Differential Diagnoses	12	8	13	6	15	10	20	15	10	3	10	5	12	7			10
4	Classification Codes	10	5	5	3	6	4	8	5	4	2	5	2	10	5			5
5	Staging and Grading	6	4	3	2	6	4	5	5	5	3	5	3	5	2			4
6	Searching	10	6	7	5	8	4	15	10	10	5	10	5	10	4			8
7	Technical Stories	15	10	10	5	9	6	15	10			12	6	25	12			11
8	Data Tools	10	3	8	6	10	8	10	5			10	5	15	10			8
9	Wireframes and Homepages	2	1.5	4	2	2	2	5	3			3	1.5	2	1			2
10	Revise IHC information	0	0															0
11	Protocol for handling specimens	3	2	2	1	5	3	5	3	5	2	2.5	1	3	2			3
12	Reporting information	5	2	3	1	4	2	5	2	2	1	10	1	2	1	6	3	3
13	Data Tools 8.2 (incl 8.1)	15	10	15	8	16	12	15	10					25	15			0
14	.																	
15	.																	
16	.																	
Total		110	59.5	85	47	96	65	122	80	46	21	86.5	39.5	125	68	21	13	69
Pairs				2														
Predictions - 2 pairs				Velocity Months														
Pessimistic				1.25														6.9
Optimistic				2.25														3.8
Avg				1.75														4.9
Other				2														4.3

Described experiments with hi level planning and individual blink estimation

Kanban + No Estimation



Reconstructed from photos of boards used at Yahoo

Talked about KanBan card system, queue sizes, siloing issues.
Driver to force choice of stories (without velocity)
Driver to split/change stories (without estimation)

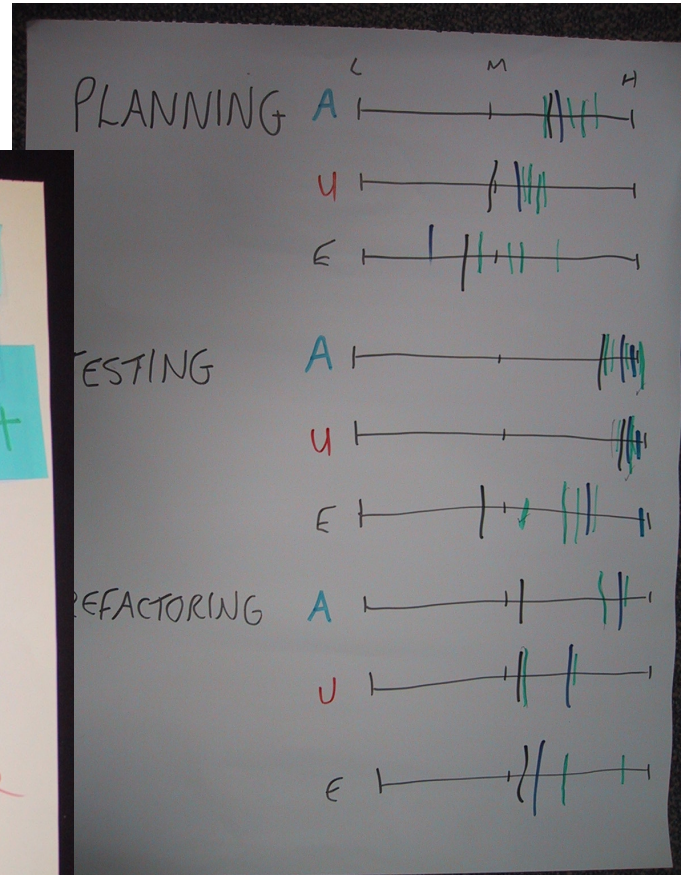
Fishbowl estimation



Measuring other project aspects...

Handwritten notes on a sticky note:

- 5 - most things
- 4 - so things
- 3 - not much
- 1 - smile agree



Handwritten notes on a whiteboard:

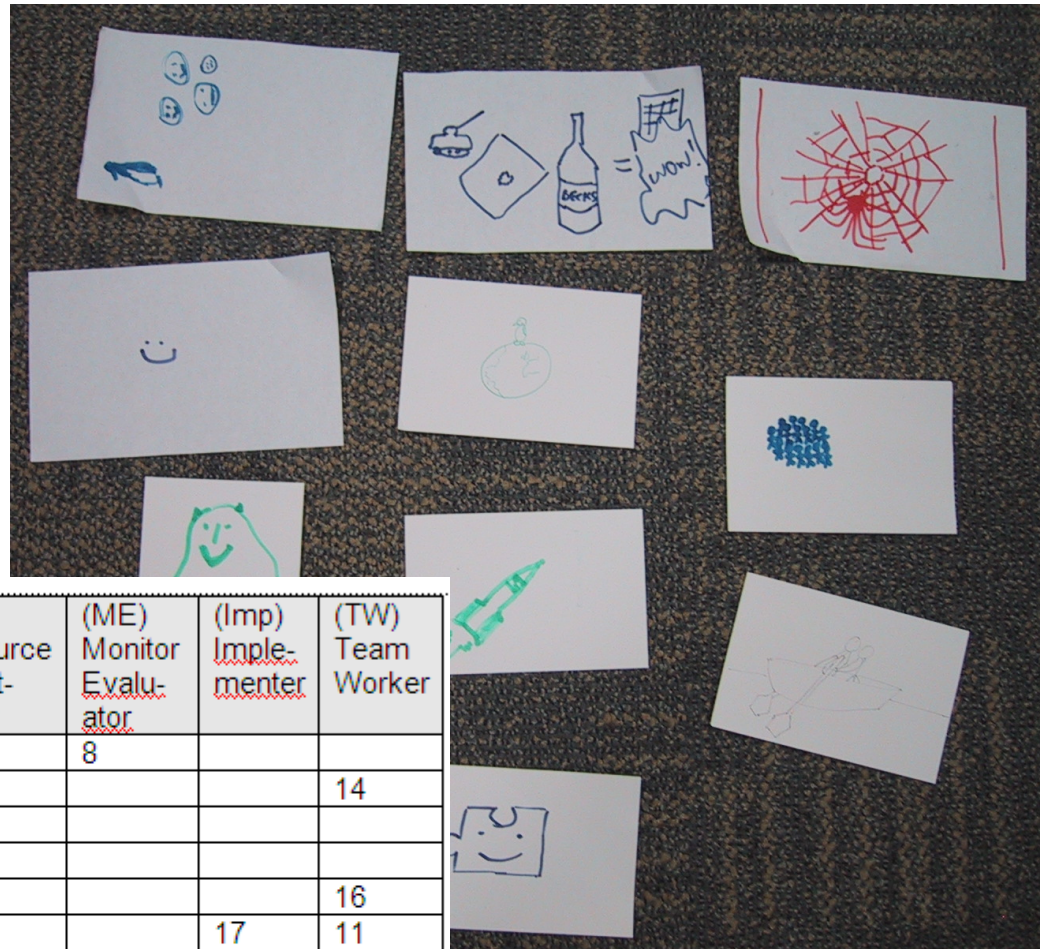
NOT SO WELL

EVENINGS AS LUNCHES ARE BUSY

- ✓✓ LACK OF ACCEPTANCE TESTS
- USE A BA w/ DOMAIN EXP.
- ACCEPTANCE TESTS. (ARE CRAP!)
- REFUSE TO START w/O TESTS DOC'D.
- ✓✓✓ HIRE MORE DOMAIN EXPERTS BA.
- TRAINING
- MORE COMMITMENT FROM DEVS TO LEARN.
- get full time BA in the POD
- Domain Andy like a domain specialist

Safety check, practices sliders, retrospectives...

Honest feedback not just lip service...



Role /Name	(SH) Shaper	(CO) Chair	(CF) Completer Finisher	(PL) Plant	(RI) Resource Investigator	(ME) Monitor Evaluator	(Imp) Implementer	(TW) Team Worker
N	17	8		17	8	8		
A		20	10					14
Joe		11		22	17			
S		11	12	10				
W			12		13			16
C	11	17					17	11
K		12			14			11
T			9		19			16
Total	28	79	43	49	71	8	17	68

Other interesting activities to try: Project pictures, Belbin team roles

Don't be afraid to make process fun...

