Enterprise Scrum: Creating an Agile Company

Dan Greening
Director, Agile Program Office

Dan Greening, Ph.D., CSP

- **Director, Agile Program Office, Citrix Online**
- **Formerly**
  - Serial entrepreneur (3 startups: 2 wins, 1 loss)
  - Member Technical Staff, IBM Research
    - Optimization, parallelism, complexity
  - Paper Boy
- **Micro-author**
  - Enterprise Scrum, best agile paper HICSS 2010
  - http://knol.google.com/k/scrum
  - http://scrumerati.com

Development processes and us

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The blind perspective

- We need more engineers
- We must support change-resistant customers
- I am more valued if my group is bigger
- I contribute best when alone, and working on favored stuff
- If they create a tight release date, we produce faster

The elephant that matters

GoToAssist			GoToMyPC			GoToMeeting		
Release	Date	Span	Release	Date	Span	Release	Date	Span
G2AC4.0	4/10/03		G2P3.0	8/29/02		G2M1.0	7/29/04	
G2AC5.0	10/23/03	6	G2P4.0	6/12/03	10	G2M1.1	12/9/04	5
G2AC6.0	8/12/04	10	G2P4.1	11/11/04	17	G2M2.0	7/28/05	7
G2AC7.0	9/29/05	13	G2P5.0	12/8/05	13	G2M3.0	8/24/06	13
G2AC8.0	4/26/07	19	G2P6.0	1/11/07	13	G2M4.0	6/26/08	22

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Before Scrum

- Increasing delays between releases
- Startups and competitors eating our market
- Engineers being thrown under a bus
- Good people leaving
- Execs felt trapped

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Before Enterprise Scrum

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Jan 2008	GoView goes pure Scrum, some XP
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...	...

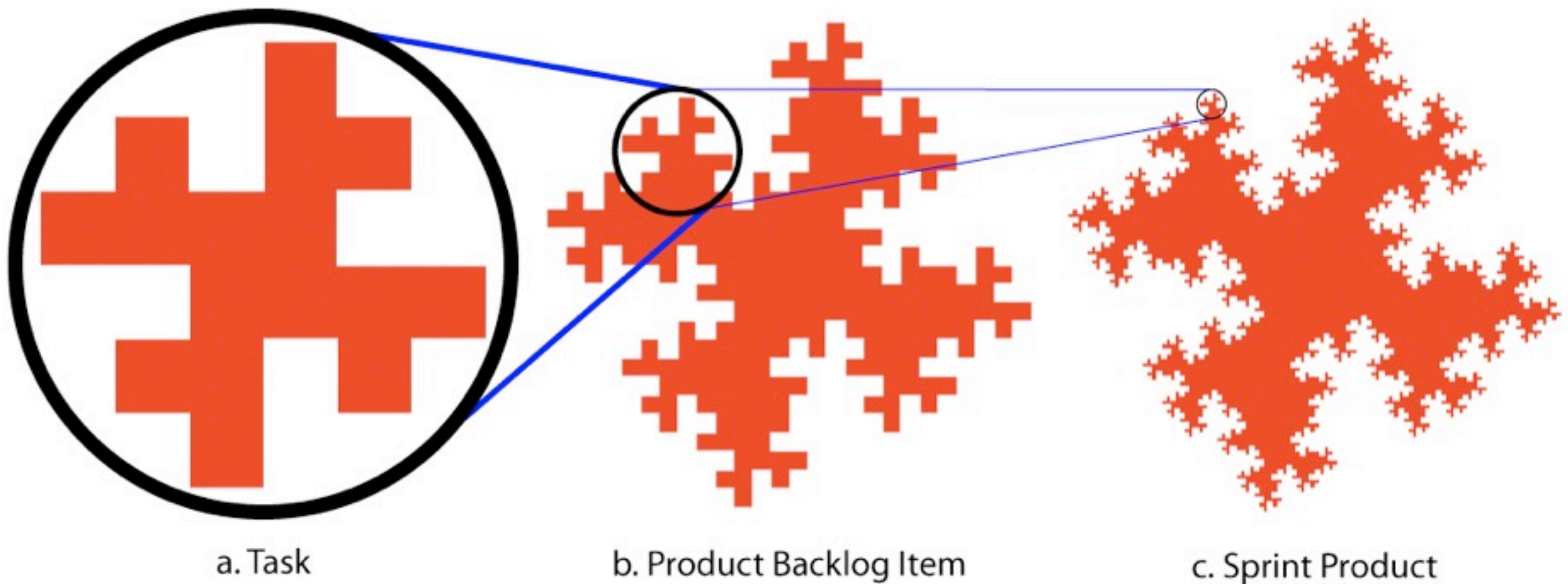dan@greening.org - +1 (415) 810-3693

Sutherland Challenge

Investors: Ask your CEO these questions

- 🔴 What is your current engineering velocity?
- 🔴 What blockers impede your progress?
- 🔴 What are you doing about them?

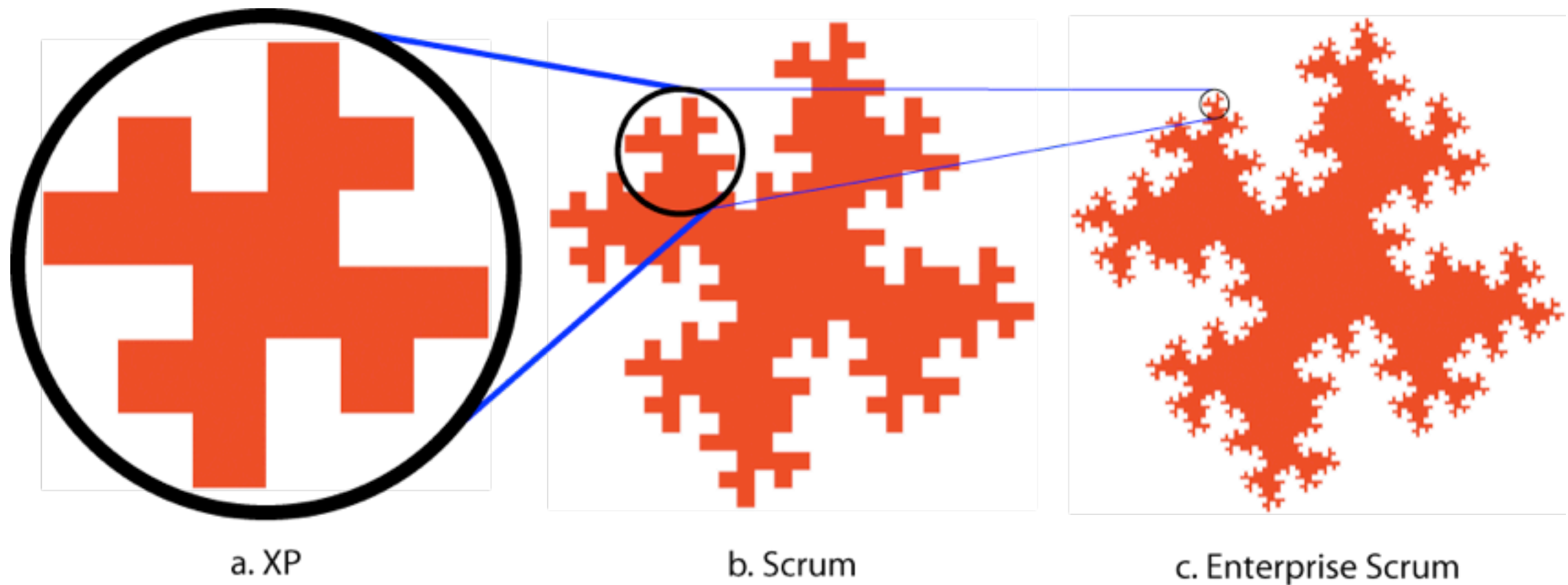**Can't answer thoughtfully?**

✓**The company is not agile**

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Fractals in Scrum: Principles that Scale

a. Task

b. Product Backlog Item

c. Sprint Product

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Example: Done Criteria by Scale

Task Scale	
Confirm	unit tests written, succeeded
Ecosystem	a local build with all tests still succeeds
Validate	code was peer reviewed
Product Backlog Item Scale	
Confirm	automated feature test written, succeeded
Ecosystem	continuous build on all platforms succeeds
Validate	team accepts quality and marks it Done
Sprint Scale	
Confirm	upgrade/revert tests written, succeeded
Ecosystem	operations successfully installed into stage system
Validate	Product Owner accepts items and accepts the Sprint

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Generating Enterprise Scrum

a. XP

b. Scrum

c. Enterprise Scrum

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What is Enterprise Scrum?

Weekly Standup

Testing, development, staging

Quarter

Retrospective

Deployment

Quarter Backlog

Releasable Products

Planning, Team Formation

Enterprise Backlog

Released Products

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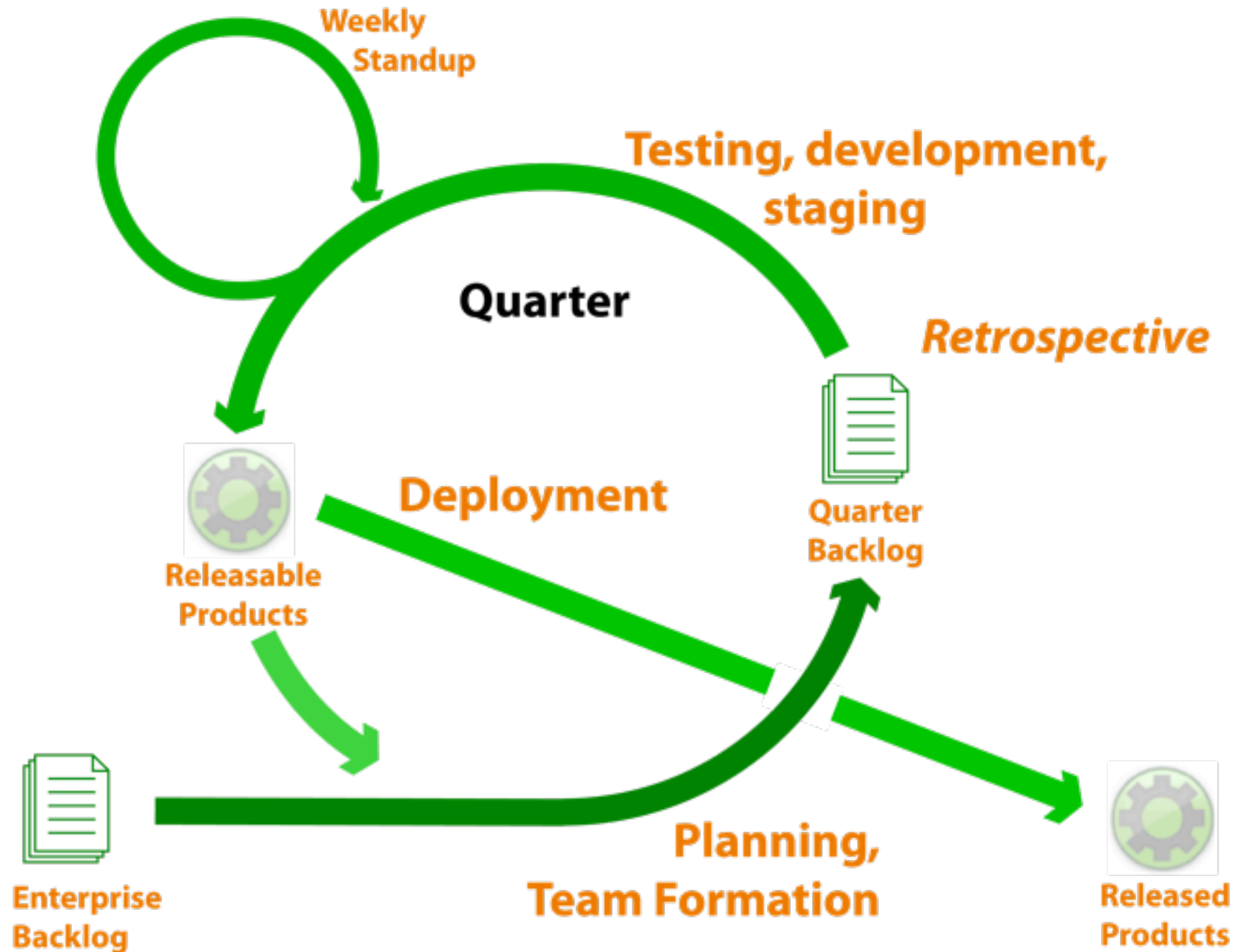
Enterprise Backlog Item (EBI)

Value side (story)

- 🔴 Acceptance criteria verifiable by mortals
- 🔴 No time limits or deadlines
- 🔴 Desired: *NPV*
- 🔴 Desired: *Value confirmation metrics*

Effort side (points)

1 est. team months
  ≤ effort
  ≤ 9 est. team months
Can finish in 3 months
Team estimates with poker

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EBI Template

10Q3 <product/service> <featureset>

As a <stakeholder>, I can <do something> using <product/service>, so that COL <receives some business value>.

- Acceptance test 1. (If you were giving someone else instructions on how to test whether engineering implemented this EBI, what would you have them do, and what would be the outcome?)
- Acceptance test 2.
- ...

[more explanatory remarks, references to other materials, wiki pages, etc.]

[NPV discussion, with the name of the person who estimated its value and how it was estimated. Here is an example: "Joe Smith estimates this project will gain 5% new-subscriber revenue upon completion, based on UX Research studies. This will create $20M in Net Present Value." A less assertive example: "Jill Andrews estimates this project will gain $10M in the first year, $20M the second year, and $30M the third year. However, she wants to point out that her estimates are highly subjective. Studies are currently underway in the Customer Insights group to gain better understanding of the likely value."]

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Enterprise Story Points

- 100 = 1 estimated 5-7 developer team-month
- 50 = 1 estimated 3-4 developer team-month
- 1 estimated team-month

        = 1.5 actual team months

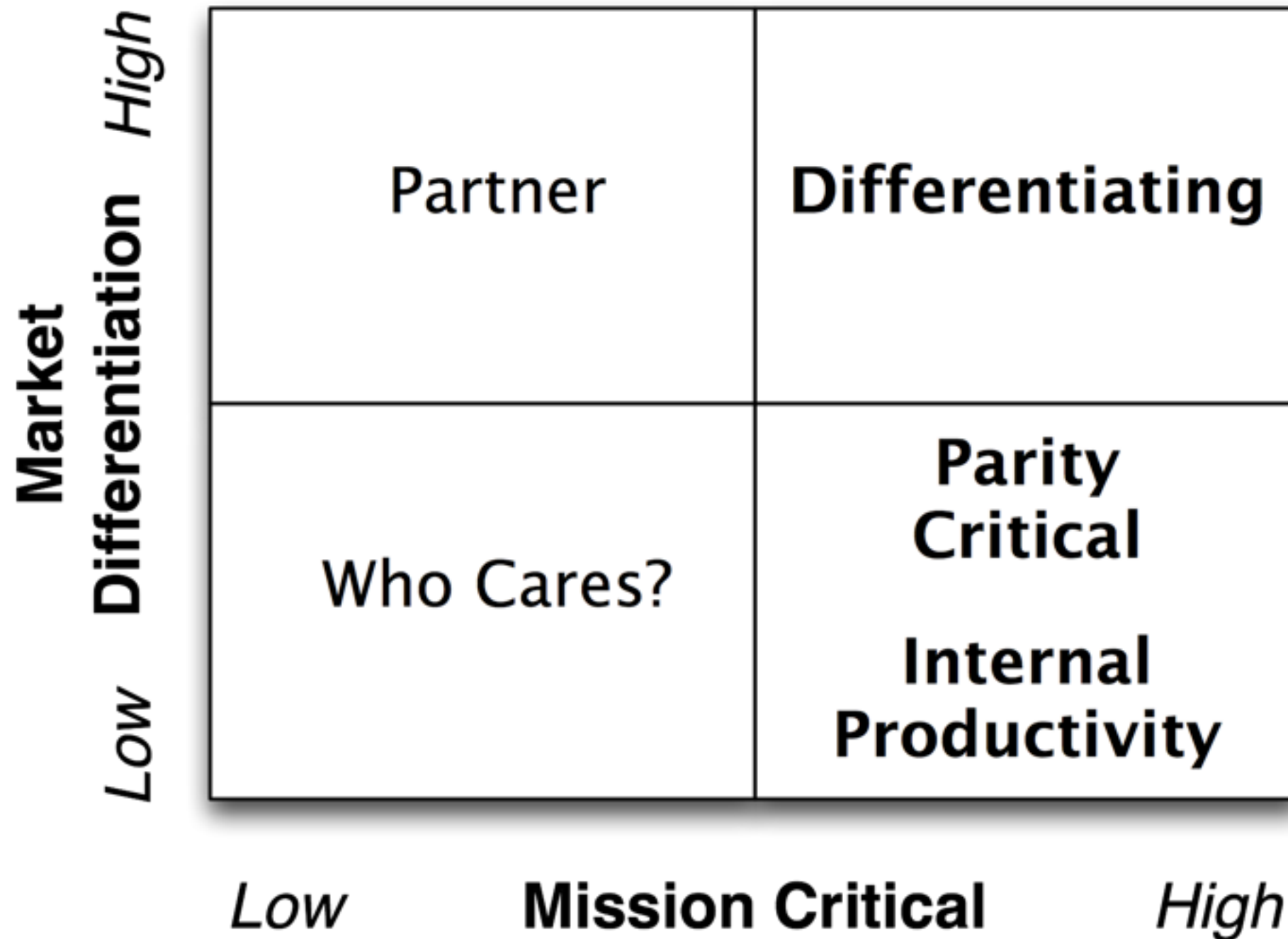Rough cost = US$1500 per point

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10Q3 EBI Ready Criteria

- **Non-KTLO EBIs are completely optional**
  - KTLO = Keep the Lights On
- **NPV is articulated responsibly**
- **An Estimation Lead and Architect agree the EBI is sufficient for a thoughtful estimate**
- **Estimation Lead makes a team-month estimate**
- **Candidate team affinity-estimates full backlog**
- **Estimation Lead and Release burndown agree:**
  - Less than 3 months
- **EBI results in an internal or external release**

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What EBIs have value?

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Prioritization Challenge: Net Present Value

- **Examples**
  - Multithreaded communication project (cost savings)
  - Source code merge (debt repayment)
  - Internationalization deployment (feature development)
  - Platform robustness (innovation enablement)
- **Our NPV variant**
  - Three year maximum horizon
  - 10% annual discount to cash
- **Questions**
  - How do you value partial completion?

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Iterative Planning

1. **Product Managers propose projects**

   PMs estimate

2. **PMs, Product Owners, team leads groom**

   Team leads estimate

3. **Proposed teams rapid-groom**

   Teams estimate with bulk affinity poker

4. **Engineering staffs projects above the capacity line**

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2009Q4 Enterprise Backlog

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Staffing

- Assign available teams from top to bottom
- When you can't staff a project, try harder
- If you still can't, refuse.

- Challenge:
  Fungible Teams

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2010Q3 Enterprise Backlog

Rank	Owner	APO	Begin Date	End Date	Closed Backlog Items - Rollup	Closed Points - Rollup	Open Backlog Items - Rollup	Open Points - Rollup	Percent Complete	Progress	Projected End Date	Unestimated Backlog Items
12.00	Tony Elia	Dave	1/1/2010	9/30/2010	69	254.00	52	202.00	56%			14
	Tony Elia	Dave	1/1/2010	9/30/2010	39	133.00	26	82.00	62%		11/5/2010	12
	Tony Elia	Dave	4/1/2010	9/30/2010	11	66.00	12	71.00	48%		1/28/2011	1
	Tony Elia	Dave	7/1/2010	9/30/2010	19	55.00	10	45.00	55%		9/24/2010	0
13.00	Barry Friedman	Marsha	4/1/2010	9/30/2010	160	501.50	27	204.00	71%			13
14.00	Michelle Knab	Alison	4/1/2010	9/30/2010	51	98.45	0		100%			1
15.00	Michelle Knab	Alison	4/1/2010	9/30/2010	26	75.00	0		100%			2
19.00	Malte Muenke	Marsha	4/1/2010	9/30/2010	59	132.00	20	53.00	71%		9/10/2010	11
22.00	Barry Dacus	Nick	7/1/2010	9/30/2010	80	94.00	35	85.00	53%		11/1/2010	55
26.00	Barry Friedman	Marsha	7/1/2010	9/10/2010	2	9.00	67	616.50	1%			36
	Barry Friedman	Marsha	7/1/2010	9/10/2010	2	9.00	46	405.50	2%		1/31/2025	17
	Barry Friedman	Marsha	7/1/2010	9/10/2010	0		11	31.00	0%			7
	Kiz Richter	Marsha	7/1/2010	9/10/2010	0		5	180.00	0%			0
28.00	Barry Friedman	Mario	1/1/2009	9/30/2010	181	718.00	21	43.00	94%		4/3/2012	10

Completing Work

- **One or more teams focus on each EBI**
- **They attempt to reach completion**
- **External services prioritize based on EBI rank "EB Lean"**
- **When complete, the team(s) move on to the next untackled item**
- **We aggressively focus on the top-ranked items**

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Weekly Enterprise Standup

Time	Item
9:00am	Pick note-taker and bailiff
9:02am	Top down: Last & this week, impediments
9:27am	Create Solver Session agenda
9:30am	Solver Session (optional)
9:59am	Meeting ends

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After Enterprise Scrum

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Citrix Online: Agile Company

- **Division President, VPs, Directors know**
  - team switching cost
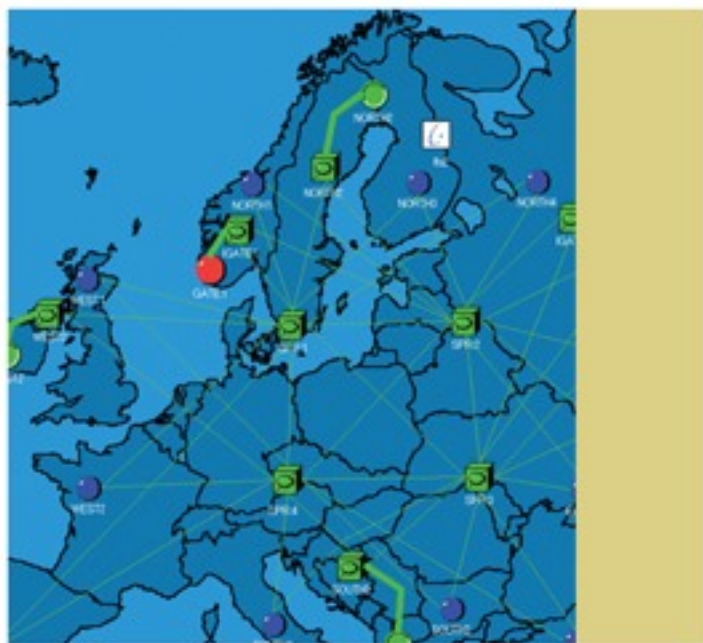 - engineering capacity
- **VPs, Directors**
  - know week's impediments
  - remove impediments
- **Execs choose**
  - NO: low-priority projects
  - YES: infrastructure and debt repayment
  - Make tough choices (before they wanted everything)

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Enterprise Scrum at Tektronix Communications

Keith Miller
Tektronix Communications Engineering

August 2010

Our Environment

- Market leader in wireline & wireless network monitoring, test and service/customer assurance products

- HQ Based in Plano, Texas

- Over $350M in annual sales

- Engineering focused with over 450 engineer world-wide

- Multiple products both new and legacy

- Multiple releases per year

- Customer commitments typically 24-36 months in advance

- Started transition from iterative to fully agile in 2008.

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Enterprise Scrum Adoption*

- **Implemented a weekly Enterprise Scrum**
  - 3 basic questions
  - Product Owners, Technical Managers, Scrum Masters, Director of Development
  - Does <u>not</u> include NPV estimation

- **Implemented Enterprise Story Points**
  - Implementation is a "team weeks" abstraction
  - Estimates are performed by architects and technical leads

- **Enterprise Backlog Items**
  - Three level hierarchy (Solution, Epic, Feature)
  - Strategic planning artifacts used as points of estimation, roadmap items, and for engineering handoffs

- **Commitment Process**
  - Supports distant commitments, but responsive to "last minute" opportunities
  - Prevents committing too quickly

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So Far So Good

- In place for only 2 months, so limited time for stakeholder feedback

- Early indications show strong support for E-Scrum stand-ups, EBIs, and the estimation process

- Too early to tell for the commitment process

- EBIs provide more abstract planning and estimating units for enterprise efficiency

- Improved visibility into commitments, estimates, and product-line planning with good linkage into Engineering

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Citrix Online Agile Program Office

- **Tactical**
  - Program Management
  - SNAFU Management
- **Strategic**
  - Engineering Process Refactoring projects
  - Enterprise Process Refactoring projects
- **Training**
  - Scrum, Lean, A3, etc.

- **We staff this effort well**
  - The ROI is high

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Agile Program Office
Our Day Jobs: Tactical Work

- **Program Managers for all engineering projects**
  - Collaboration, Remote Access, Remote Support, Platforms
  - Scrum-of-ScrumMasters, root cause analyzers, communication facilitators, process guardians
  - Enterprise Planning, Review, Retrospectives
  - Tax and financial planning and reporting
- **SNAFU management**
  - Cross-departmental SNAFU? We can facilitate a solution
- **Help with NPV analysis and estimation**

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Agile Program Office Engineering Strategic Work

- **"Big Visible Charts"**
  - Release burndowns always available
  - Semi-public progress charts
- **Enterprise Lean**
  - Can we eliminate the quarterly planning cycle?
- **Teach XP, Scrum, Lean, ToC, Value Stream, etc.**
  - Create a continuous-improvement culture
- **Optimizing facilities for high-performance**
  - War-rooms, etc.
- **Metrics**
  - Provide productivity metrics
  - Manage better-controlled experiments

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Agile Program Office External Work

- **Reduce turnaround time for customer support**
- **Research and promote NPV estimation best-practices in product management**
- **Interact with world leaders in agile**
  - to gain the best ideas, and test our own
  - Sutherland, Shalloway, Schwaber, Patton, Hohmann, Downey, Denne, Vodde, Henson, …
- **Reduce delays between research and development**

- **(and general evangelism like this)**

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APO Scrum/Lean Training

- **PRODUCTIVITY BASICS**
  - Software failures, Individual vs team productivity, lean thinking, dependencies, theory of constraints, kanban/pull, decision making skills: root cause mapping, mental bias avoidance.
- **AGILE EFFORT**
  - chaos and complexity theory, scrum statistics/motivation, Agile methods, Scrum roles, responsibilities, feedback loops, iterative/increment/feasibly-releasable, XP methods, pairing
- **AGILE VALUE**
  - stakeholder game (from Robin Dymond), prioritizing a backlog, sprint planning, work, review, retrospective, customer development cycles (market testing, user experience testing), IFM (incremental funding model), NPV (net present value)
- **ADVANCED TOPICS**
  - Enterprise scrum, scrum-of-scrums, remote teams, hyperproductive shock therapy, using VersionOne, agile challenges, cultural change, experiments in COL, Pomodoro (will largely depend on the audience).

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Summary

- **Enterprise Scrum**
  - http://scrumerati.com/2010/04/enterprise-scrum.html

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