TSP-Agile Showdown

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Team Software Process Symposium
Phoenix, AZ
September 22-24, 2008

Agenda

- What are we solving for?
- What is the resistance to Agile? to TSP?
- How are we adapting?
  - Iterative TSP
  - TSP Plus
  - TSP-Agile Blend (TAB) Model
    - Iteration 0
    - Release Launch
      - Roles
      - Story Point Estimation/Agile Processes
      - Release Planning
      - Quality "Doneness"
    - Iteration Planning
- Summary

What is Intuit solving for?

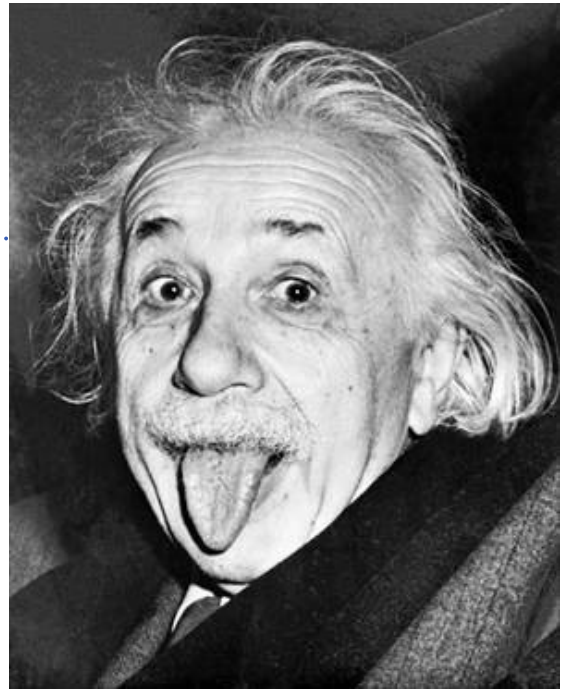
A Software Development Lifecycle that leverages

the best of the TSP and Agile development models

in order to create high-quality products
in a predictable and repeatable fashion

including projects with
rapidly changing or
unknown customer or
technology requirements.

What is the resistance to Agile? to TSP?



"Two things are infinite: the universe and human stupidity; and I'm not sure about the universe."

- Albert Einstein

Perception is the primary resistance to using either TSP or Agile

- **Perception of TSP**
  by an extreme "Agilist"
  - Heavyweight, overly burdensome, punitive process that cramps my creativity and productivity

- **Perception of Agile**
  by an extreme "TSP-er" or "Waterfall-er"
  - Ad-hoc, chaotic, shoot-from-the-hip low-quality producing brouhaha with no end-date or scope commitment

Agile Values

Perception of some TSP'ers

- Agile development values:
  - **Individuals & Interactions**
    over processes and tools
  - **Working Software**
    over comprehensive documentation
  - **Customer Collaboration**
    over contract negotiation
  - **Responding to Change**
    over following a plan

No processes!!!

No documentation!!!

No plans!!!

No quality!!!

The fine print
While there is value in the items on the right, we value the items on the left more.

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TSP's Values
Managing by Data

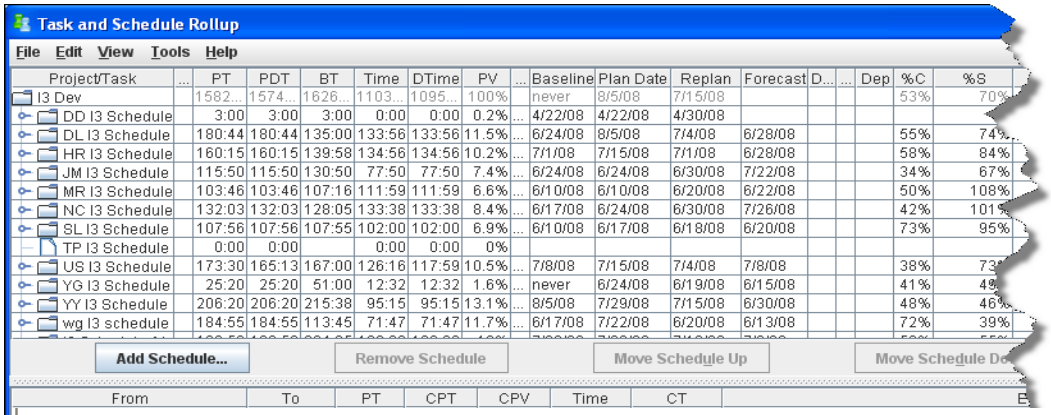
Perception of some Agilists

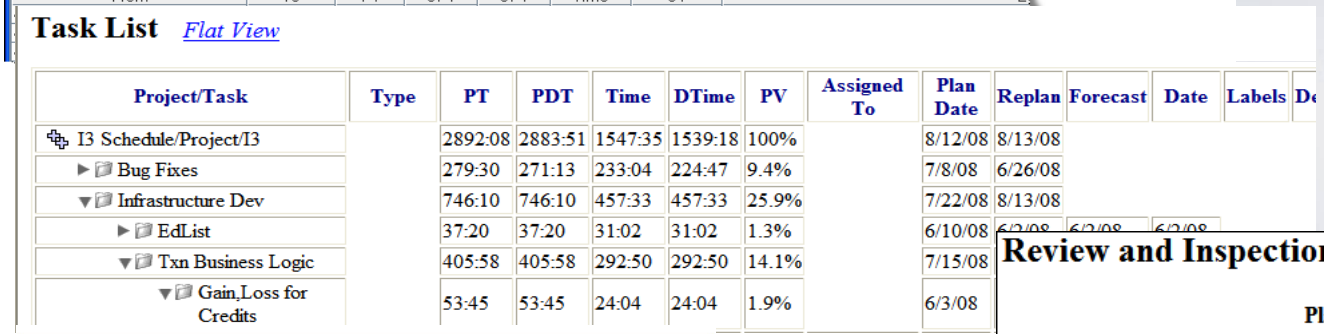
Too much process!!!

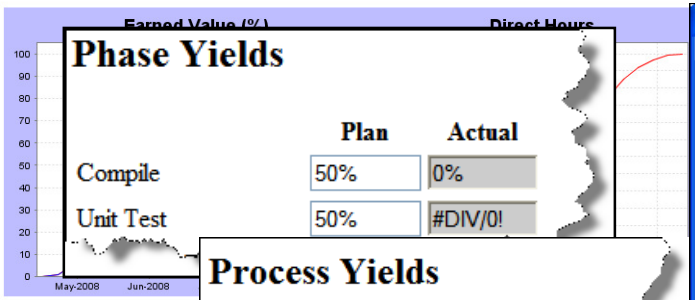
Too many metrics!!!

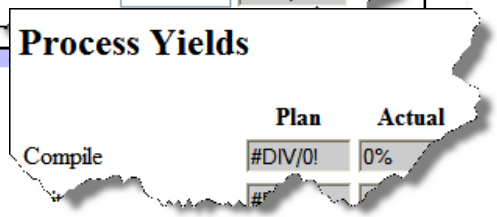
Cramps my style!!!

Will be used against me!!!









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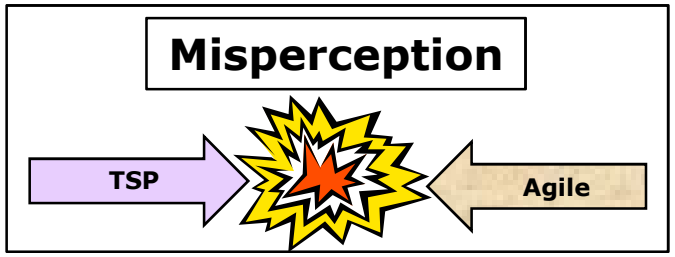
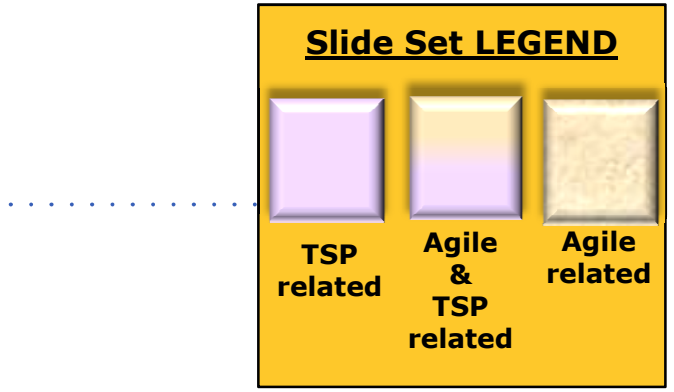
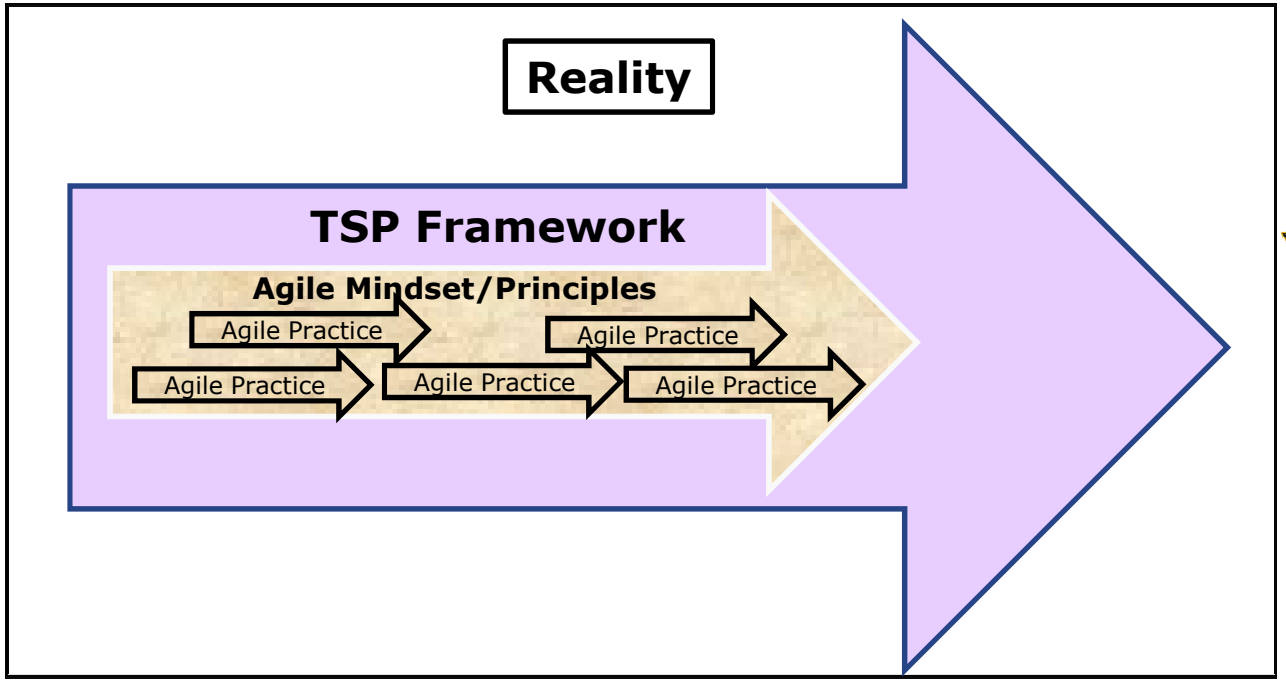
Perception & Reality







"Play Well Together!"

TSP & Agile are much more closely aligned than many TSP or Agile advocates might think!

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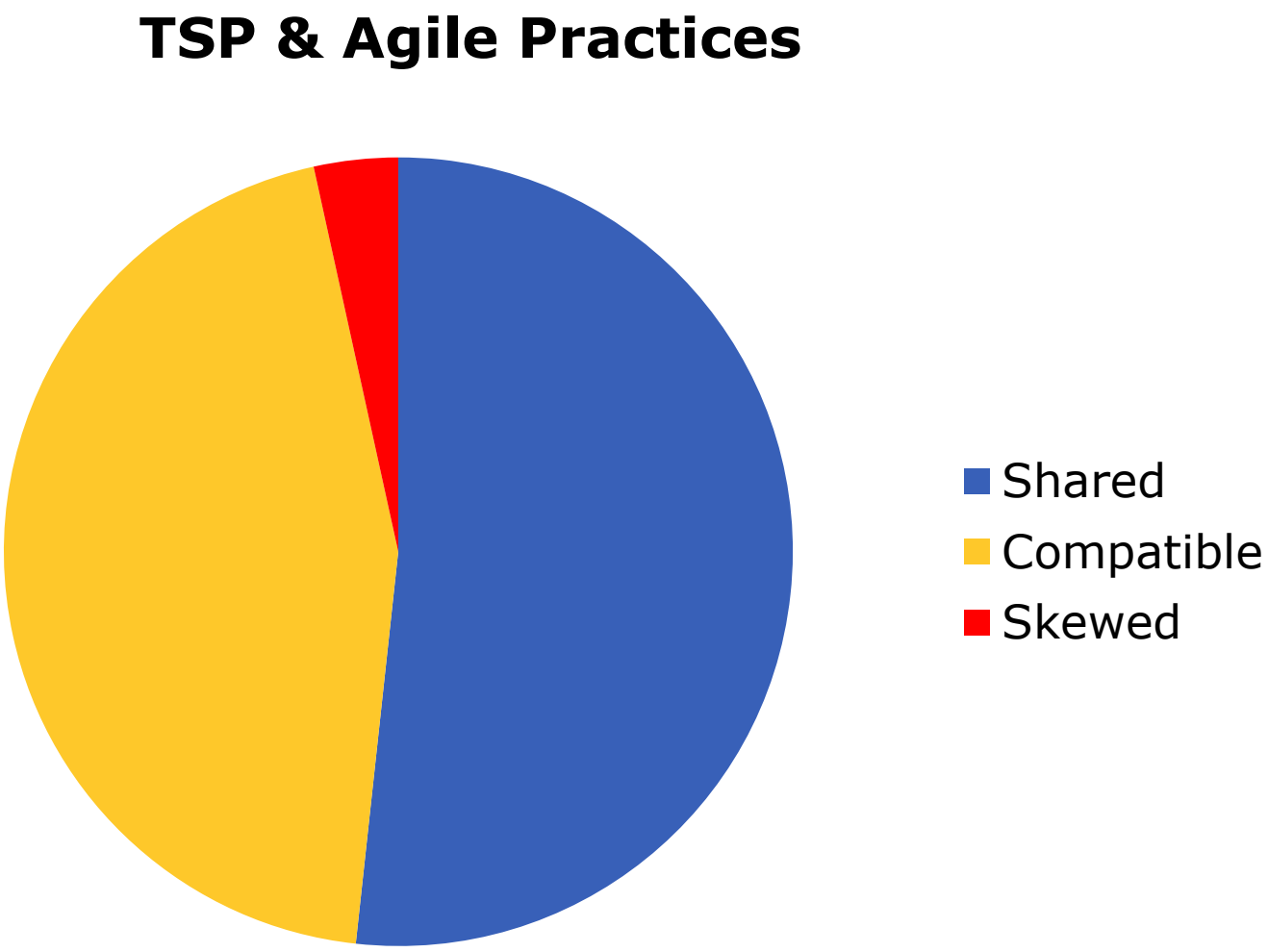
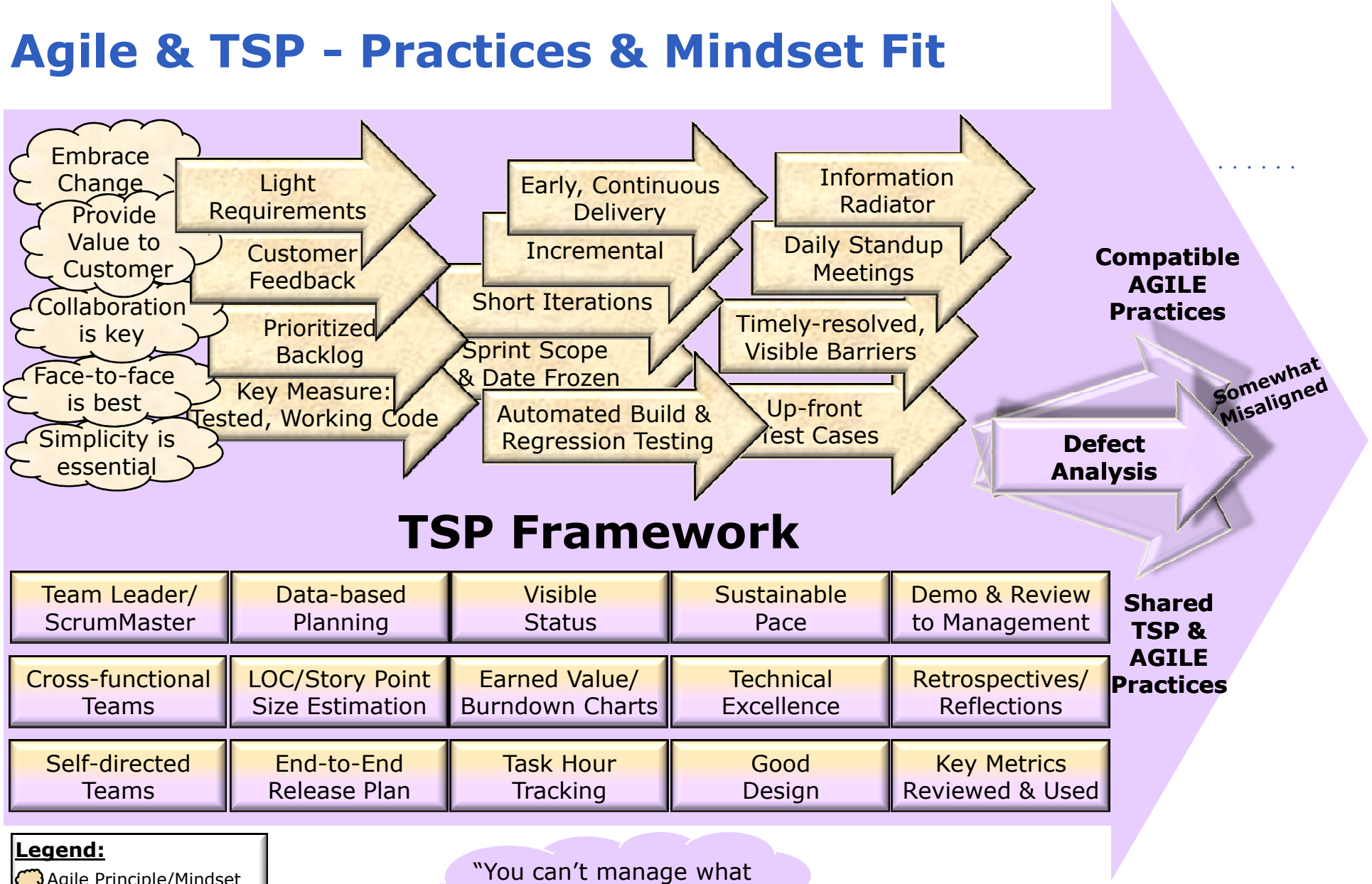
Agile & TSP Are Very, Very Aligned*



** This is just to make a point! There is no actual scientific or statistical data behind this.*

Agile & TSP - Practices & Mindset Fit



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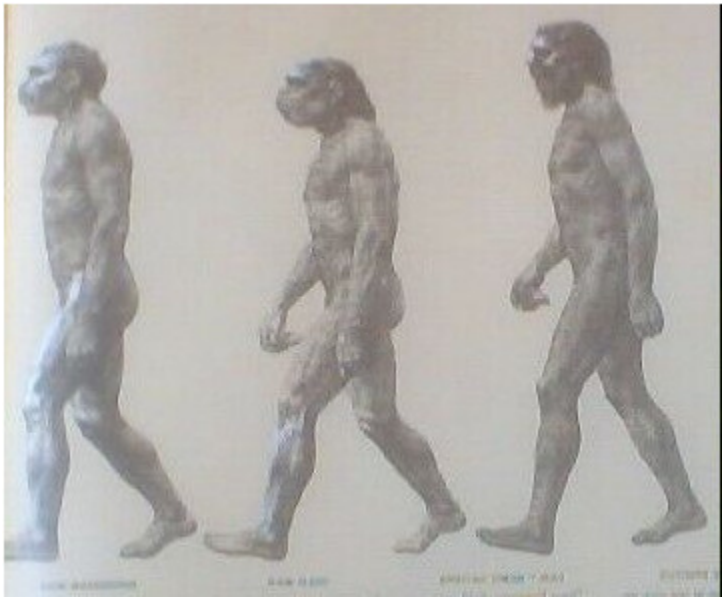
How are we adapting?



"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change."

- Charles Darwin

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You are here!

Alternative 1: Iterative TSP

Option 1: Fully-estimated conceptual design; content of all iterations defined

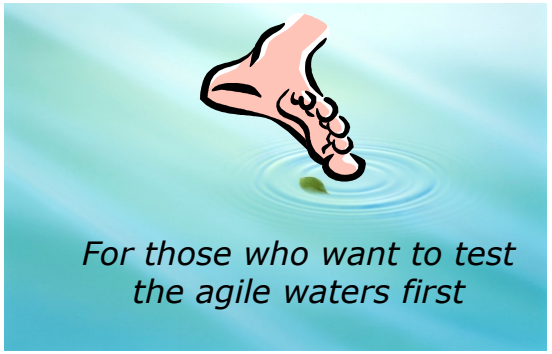
Option 2: Fully-estimated conceptual design; only current & next iteration content defined

Especially good for projects with:

- Well-known requirements
- Well-understood technology
- Little need to get feedback from the customer and want
- Greater visibility into planned progress against well-defined milestones, and
- Deep insights into their quality levels

Alternative 2: TSP Plus

Iterative TSP Frontend with an Agile Backend



Starting with..

TSP Launch --- Execute - Track - Replan --- Review

Rinse & Repeat

Especially good for projects that:

- **Meet the same criteria as "Iterative TSP"**
- **AND, want to try out or take advantage of a few, select Agile practices**

Common Intuit Agile Execution Elements

- **Daily Standups (2+/week)**
- **TDD or Concurrent Test Dev**
- **Demonstrable deliverables**
- **Customer feedback integration**
- **And many less common ones**

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EMERGING & EVOLVING

Alternative 3:

TSP-Agile Blend

USA Swim Team

400m Medley

medley

Noun

1. a mixture of various elements

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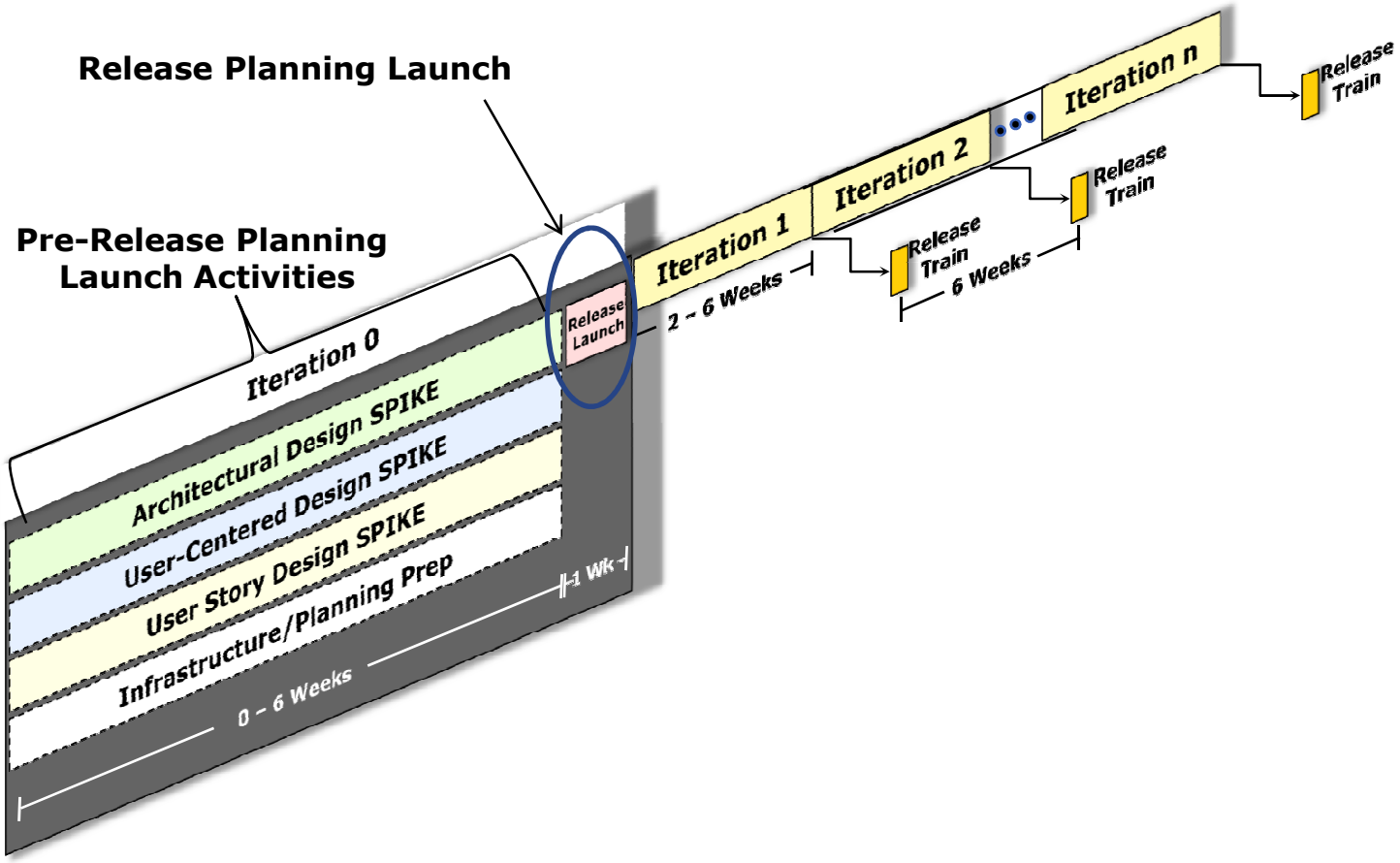
TSP Agile-Blend (TAB) Model



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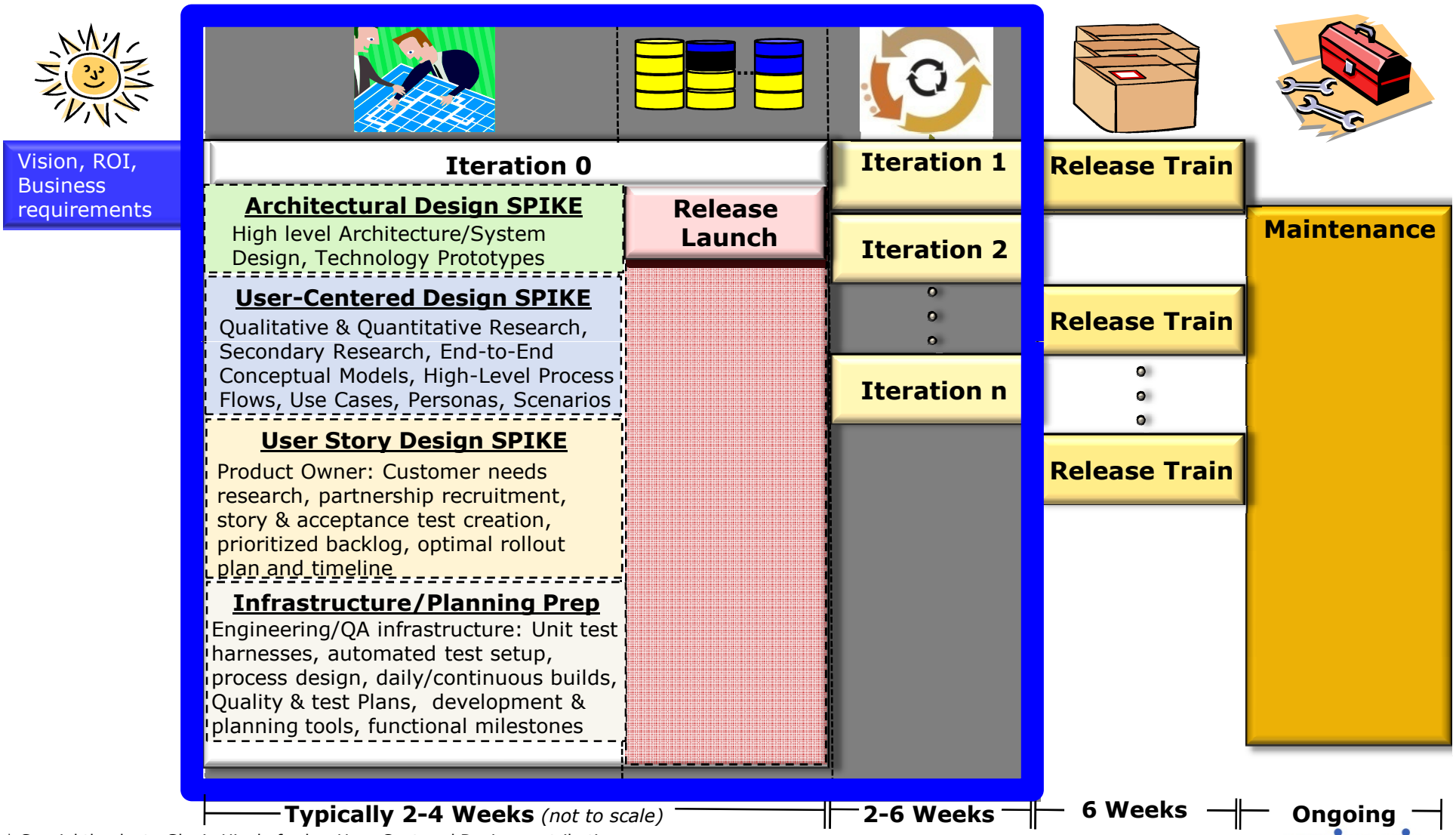
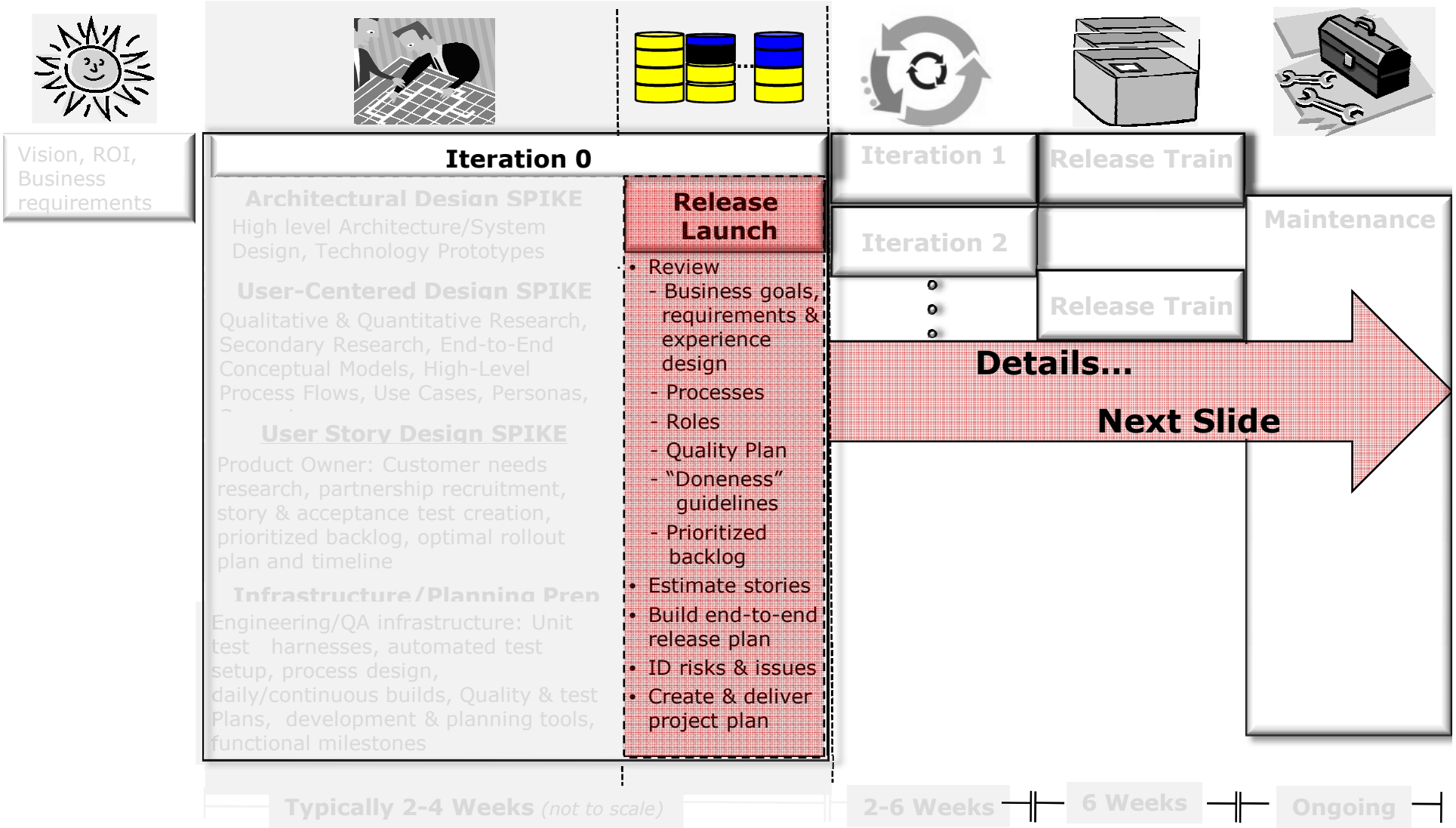
TSP Agile-Blend Model Detail



* Special thanks to Glynis Hively for her User-Centered Design contributions.

TSP Agile-Blend Model Detail



TSP-Agile Blend Release Launch

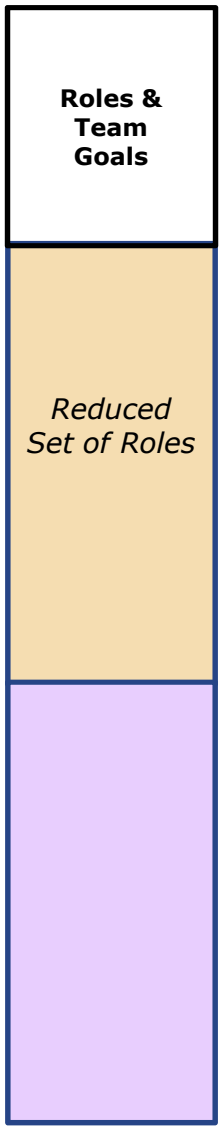
Driven more by agile thinking
Driven more by TSP thinking

Product & Business Goals	Roles & Team Goals	Development Strategy --- Conceptual Design --- Sizing	Top Down & Next-Phase Plans	Bottom-up & Balanced Plans	Quality Plan	Risk Assessment	Briefing & Launch Report	Management Review
	Reduced Set of Roles	*StoryPoint Estimation* *Agile Processes & Practices*	*StoryPoint-Based End-to-End Release Plan without a detailed WBS* *WBS for next cycle only with Tasks, Hours, & Assignments*		*Definition of "Done"* *Less emphasis on defect analysis*			
		Iteration 0 Architecture & High-Level Design			*More rigor with metrics*			

Significant differences from a typical "Waterfall" Project in the TSP Framework

Significant differences from a typical "Agile" Project

Roles



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Roles

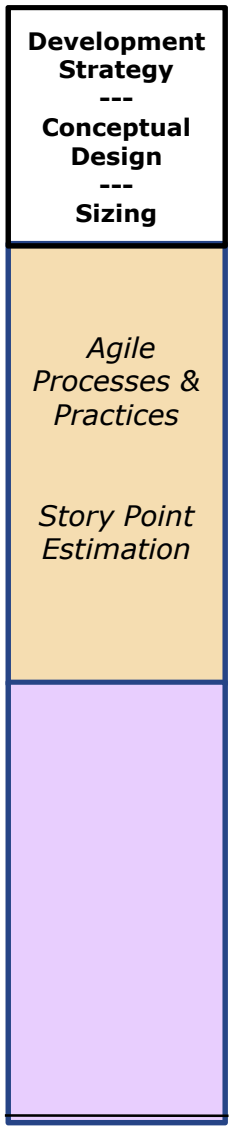
- **ScrumMaster** — Team Leader, Planning Mgr, Process Mgr
  - Makes sure Scrum rules are followed
- **Scrum Team** — Team Member
  - Self-managed, cross-functional team builds the product
- **Product Owner** — Customer Interface Manager
  - Sets release plan, iteration goals & content & acts as a customer proxy

Other TSP roles to consider:

- **Quality Manager**
- **Test Manager**
- **Implementation Manager**
- **Design Manager**
- **Support Manager**

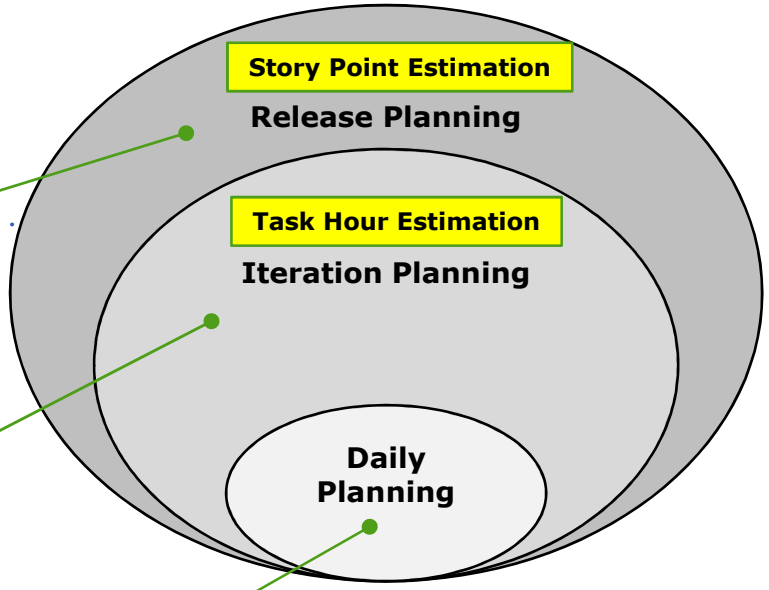
Traditional Scrum roles
TSP roles

Story Point Estimation



Planning Levels

- Release planning
  - End-to-end plan
  - Done at Iteration 0 launch then <u>continuously</u> refined
- Iteration planning
  - During launch and each re-launch
  - Once underway– no changes are allowed unless spawned by the team itself
  - Repeatedly done for the "current launch/re-launch"
- Daily planning
  - During execution of each iteration



User Stories

- Describes something of value to the user of the system:
  - Has a role and a specific outcome
    - *Role, Requirement, Intent*
    - *As a ___, I want to ___, so that I can ___*
  - Is testable
  - Is estimable ("100 days or instead, x in 15 days")
  - Is prioritized (by the user)

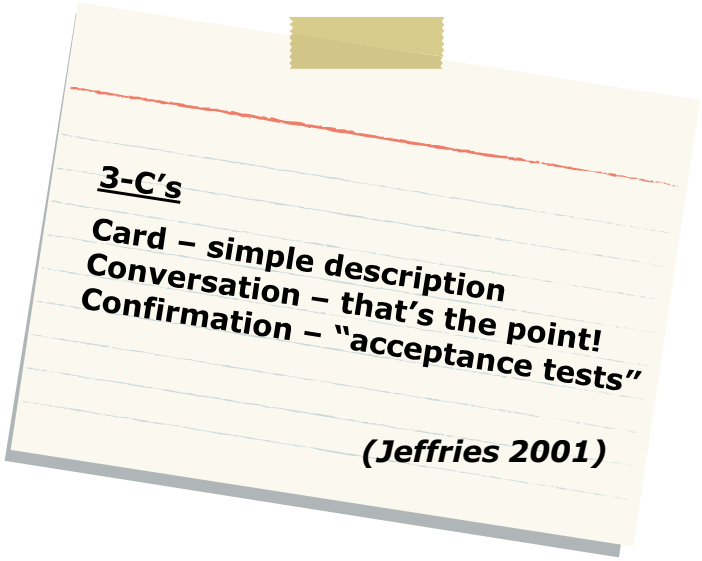
Optional if obvious

- Example:

  As a "Preferred Gold" member,

  I want to convert my options to points,

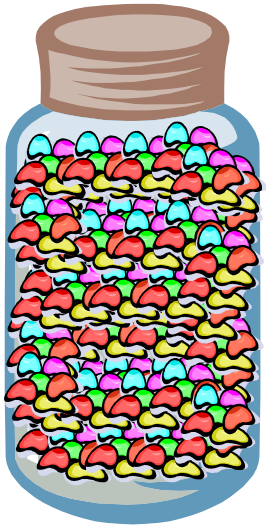
  so that I can stay in international hotels.



My Favorite Reference: Mike Cohn, "User Stories Applied"

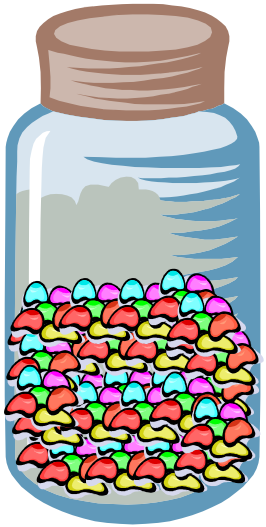
Story Points

- An unit of relative measure for expressing the over all size of a user story
- Influenced by difficulty, risk, complexity, et al

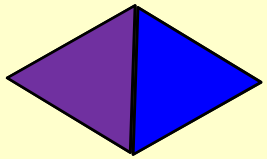


Which is easier to answer?

1. **How many jelly beans are there in Jar 1? In jar 2?**
2. **How many jelly beans are there in Jar 1 relative to Jar 2?**



TSP
Earned Value



Agile
Story Point Burndown

The Same
But Different

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Story Point Estimation with Planning Poker

Team discusses User Story

Each person chooses their estimate

Simultaneously, each person shows estimate

People with high & low estimates explain their reasoning

Until the numbers are close

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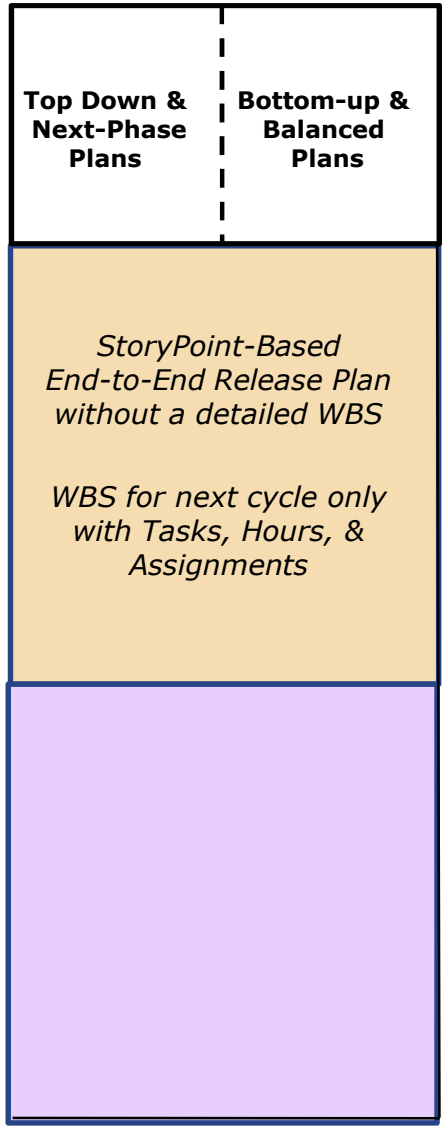
Release Plan



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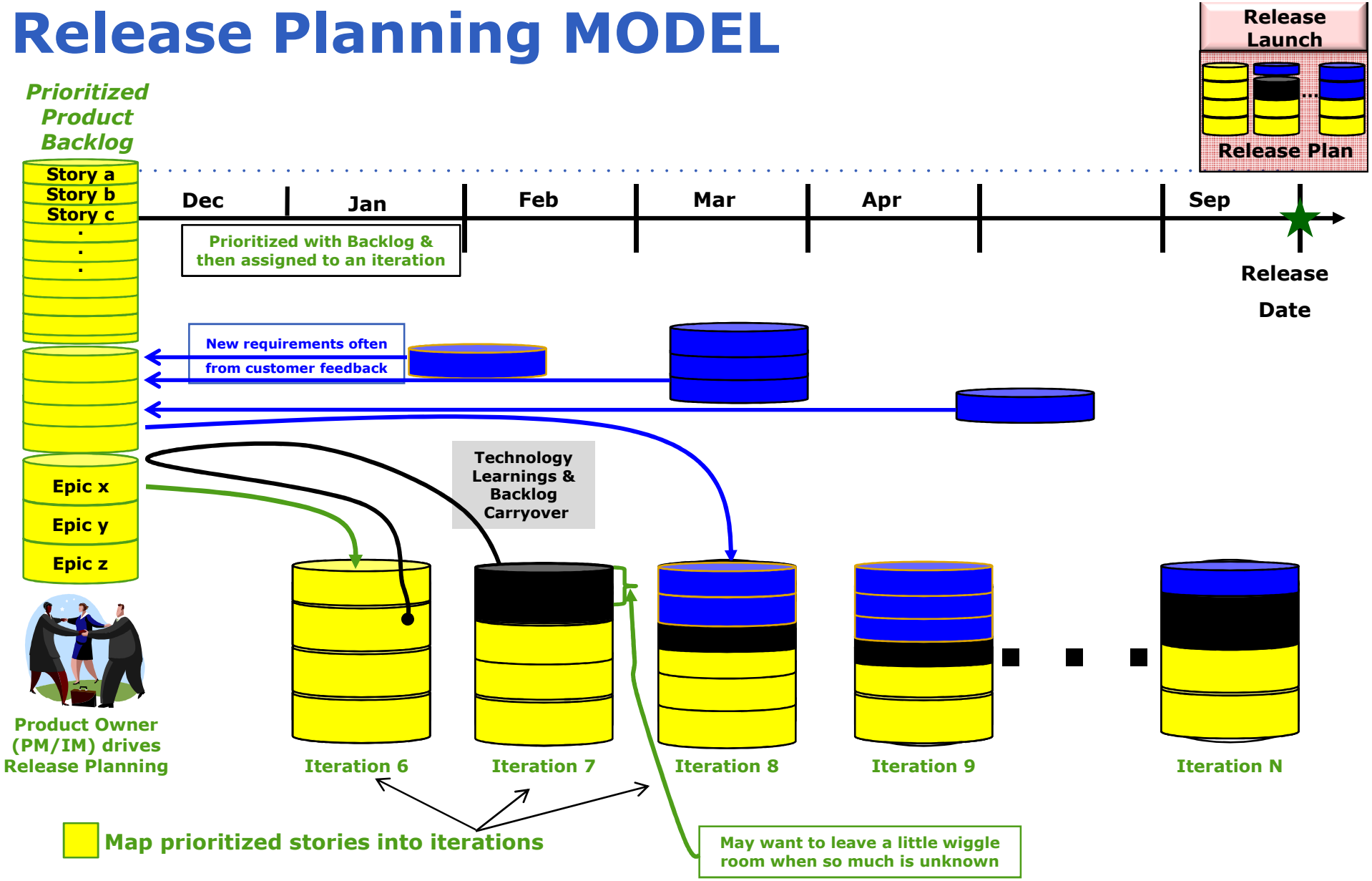
Release Planning MODEL



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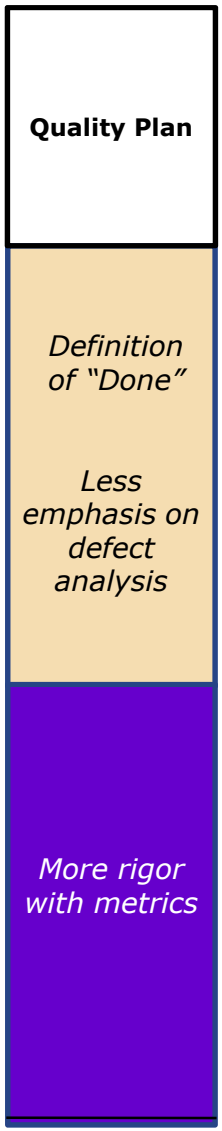
"Doneness"



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Definition of "Done" – Metrics Only*

Schedule Metrics

- **Iteration Burndown –** Task Hours
- **Release Burndown –** Earned Value (EV) or Story Points
- **Task Hours –** Planned (P)/Actual (A) Hours
- **Story Points or EV –** P/A

Scope Metrics

- **Scope** – EV Growth/Time or Story Point Count

Productivity[1] Metrics

- **Productivity –** LOC/Hour or Story Points/Iteration (Velocity) – Task Hours/Week

Quality Mindset

- Working, ready-to-ship software that meets or exceeds customer expectations
- Quality is everyone's job & is continuously built-in
- Two customers must be served:
  1. End-user
  2. Funding organization

Quality Metrics

Reviews

- **Reviews: Time, Defects Found**[2]
- **Design : Review Time**
- **Code : Review Time**
- **Test : Test Review Time**
- **Design : Code Time**

Test

- **Test Code Coverage %**[3]
- **Feature/Story Coverage %**
- **Test Execution – Results**
- **Test Automation – %**

Bugs

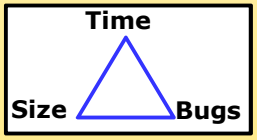
- **#/KLOC**
- **# Incoming, Open, Closed**
- **# Open by Impact & Severity**
- **# Post-release defects**

Optional[4]

- Defect Type
- Defect Phase Insertion
- Defect Phase Detection

"Still" Derivable

- Cost of Quality
- Review Rates
- Yield
- Defect Cost
- Defect Predict



[1] *For planning only – never used in performance reviews!*

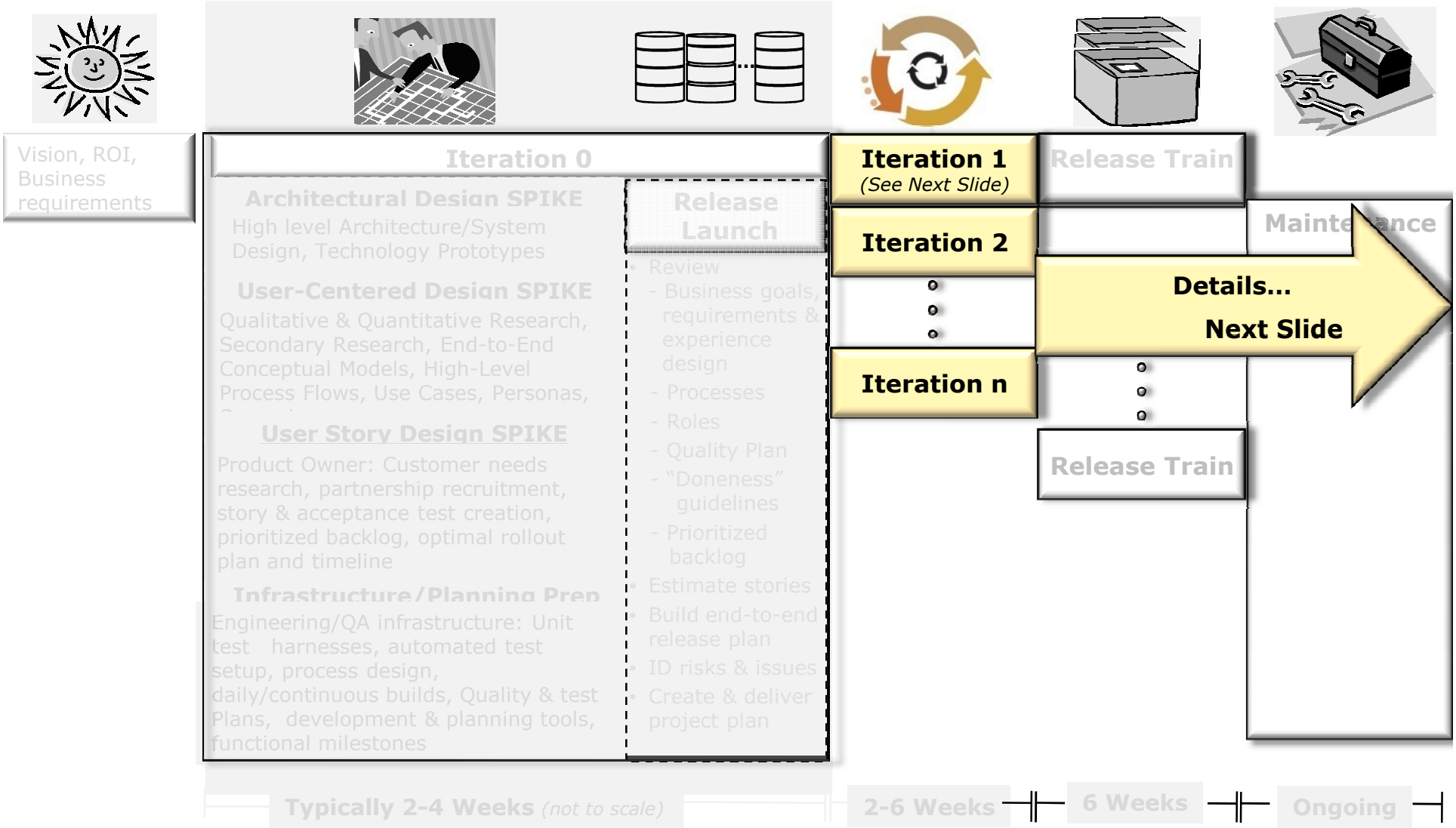
[2] *- Reviews may include collaborative design or pair programming time which are common agile practices.*
- Planned (P) measures for Quality are desirable but optional.
- Significant (non-cosmetic) defects only

[3] *Test Code Coverage includes unit & black box testing*

[4] *A valuable empirical method to help determine the most important areas for improvement is lost*

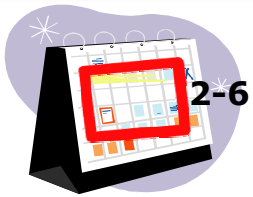
**There is other criteria besides these type of metrics that go into defining "done" for agile projects*

TSP Agile-Blend Model Detail



Iteration Process

Launch



Execute

Review

- Define iteration goal
- Identify desired stories
- Create WBS for stories
- Define "Doneness"
- Commit

- Do tasks
- Be part of Daily Standup

- Present results
- Demo code
- Conduct retrospective
- Deliver working code, tests, & results
- Update end-to-end Release Plan

SUMMARY

- Perceptions about TSP & Agile are generally skewed --- training & education help
- TSP is a terrific framework that most Agile principles and practices fit into very nicely
- Blending the two can give you the best of both worlds enabling you to:

Create high-quality products
in a predictable and repeatable fashion

including projects with
rapidly changing or
unknown customer or
technology requirements

Contact Information

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