

Thoughts on Agile, Hybrid Projects and Risk

NIH – May 12, 2015

Mark Tolbert, PMP

mark.tolbert@verizon.net

<http://www.bestpracticesteam.com>

The Challenging Landscape for Both Companies and Project Managers Today!

- “The only thing that is constant is change!”
- More competition than ever.
- Customers are very demanding, very fickle
- The need to adapt to changing marketplace conditions is greater than ever
- Thomas Freidman – *The World Is Flat & That Used to Be Us* –

The Challenging Landscape for Both Companies and Project Managers Today!

- Therefore, companies need to be very good at projects: creating new products and services that meet the demands of this changing marketplace.
- As project managers, we are agents of change, and key drivers of change.

Key Points of this Presentation

- **Many of our key risks and challenges occur right at the beginning of the project.**
- **Agile provides a very different approach for the dealing with these risks**
- **There is no one perfect approach or methodology.**
 - **Most projects are probably hybrid**
 - **Project Managers must know traditional approaches, as well as Agile**
- **Agile is not just for project management. It can be used for product management, and even portfolio management**

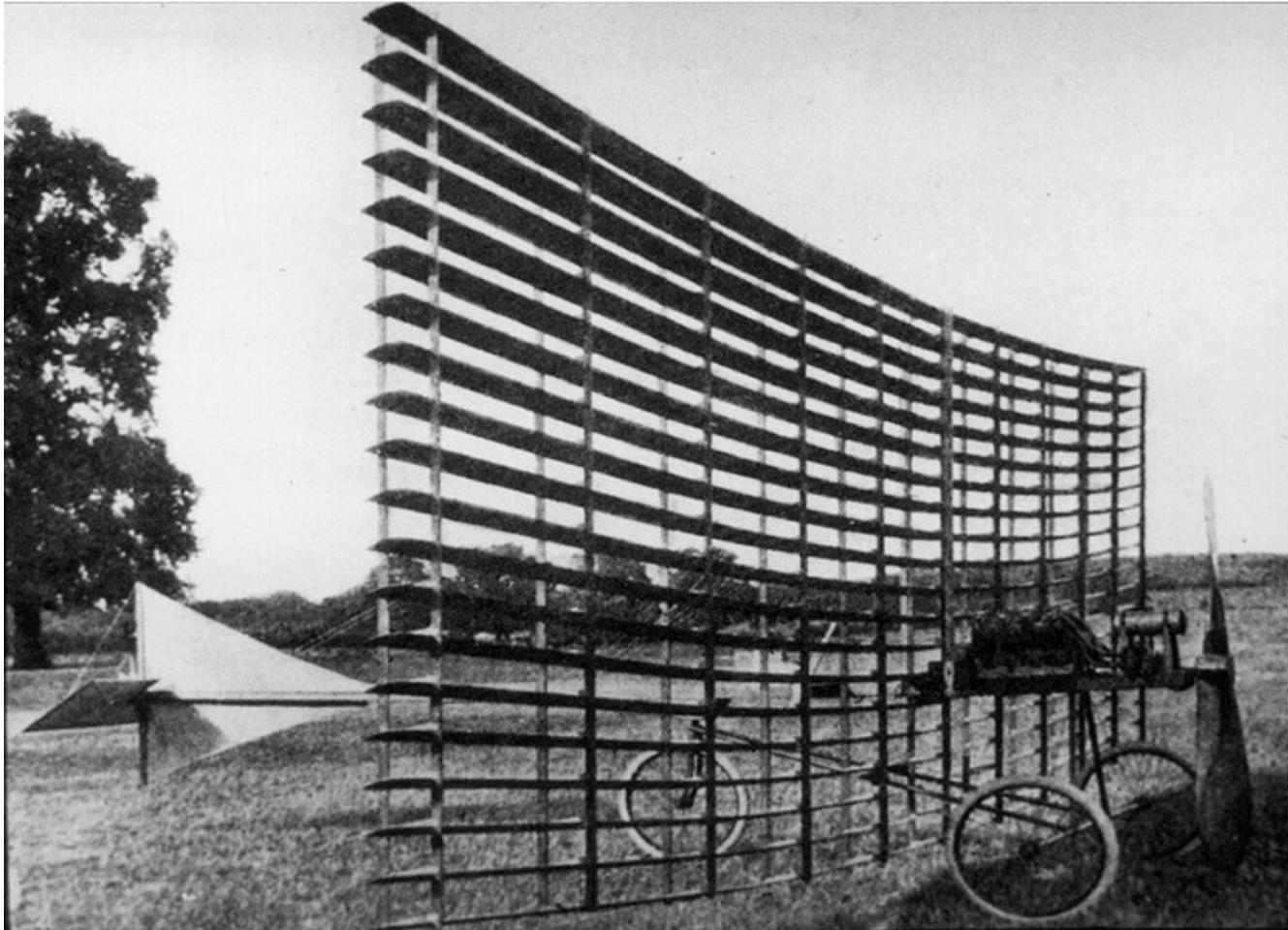
“When projects fail, they fail at the very beginning!”

**Dr. Stephen Meier – PMIWDC Meeting –
2010**

Too often, our projects start out - **Red!**

- **We start out behind schedule!**
- **With next to no budget!**
- **Unclear what resources we will be able to get**
- **Difficult Stakeholder Issues**
- **Customer and sponsor don't know what they really want!**

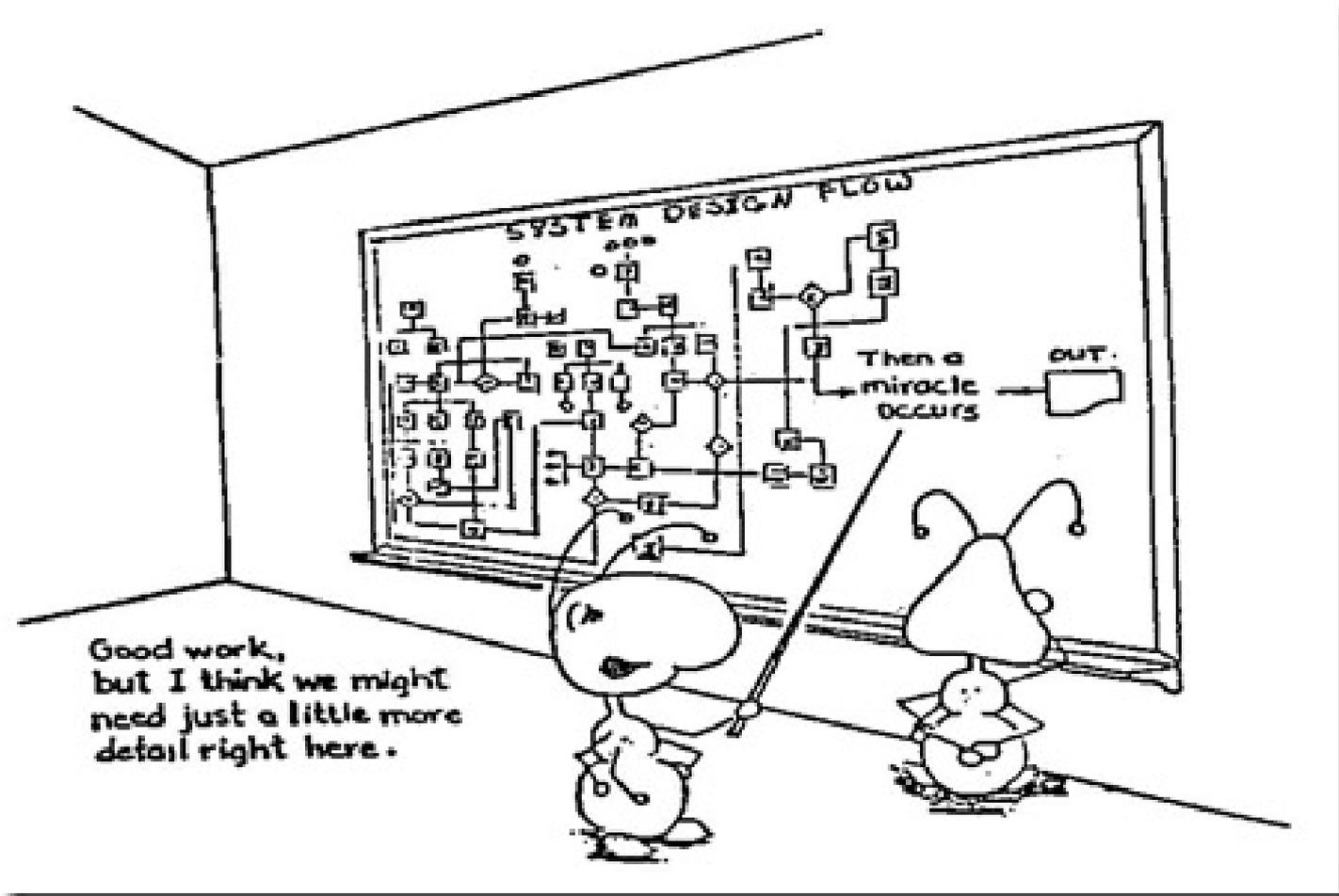
“Half-Baked Ideas!” – “A Wing and a Prayer?”



Projects Starting Out Red!

- **Sometimes, projects are just “thrown over the fence” to us!**
- **We had little to no input into the sales process, but ...**
- **We have to make it work somehow!**

Project Flowchart



Projects Starting Out Red!

**“How to Manage the Impossible Project”
Michael Dobson, PMP
August 16, 2011**

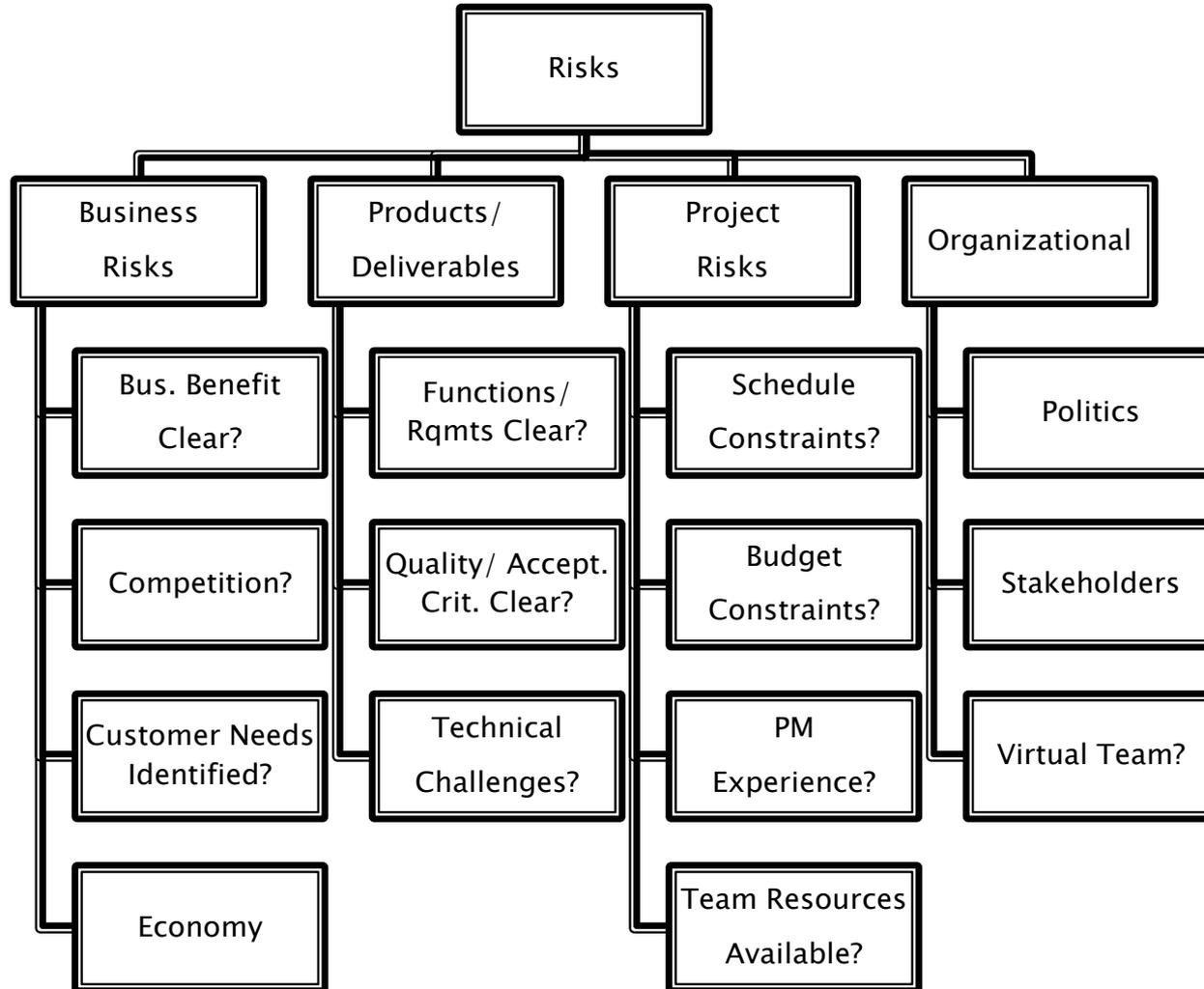
Check out PMIWDC “eView library”

<https://www.pmiwdc.org/eview3/2011/08/how-manage-impossible-project>

There are two major approaches to managing projects:

- **Traditional Project Management – A “Predictive” Approach**
- **Agile Methodologies – Iterative Approaches**
 - Scrum
 - XP – (Extreme Programming)
 - Lean Software Development
 - Crystal
 - DSDM – (Dynamic Systems Development Method)
 - FDD – (Feature Driven Development)
- **Each provides a different approach for handling risk on our projects**

Risk Breakdown Structure – (RBS)



What Is Most Often Cited As The Cause of Project Failure?

#1) A poorly written Scope Statement which leads to “Scope Creep.” – (Also called “Requirements Creep.”)

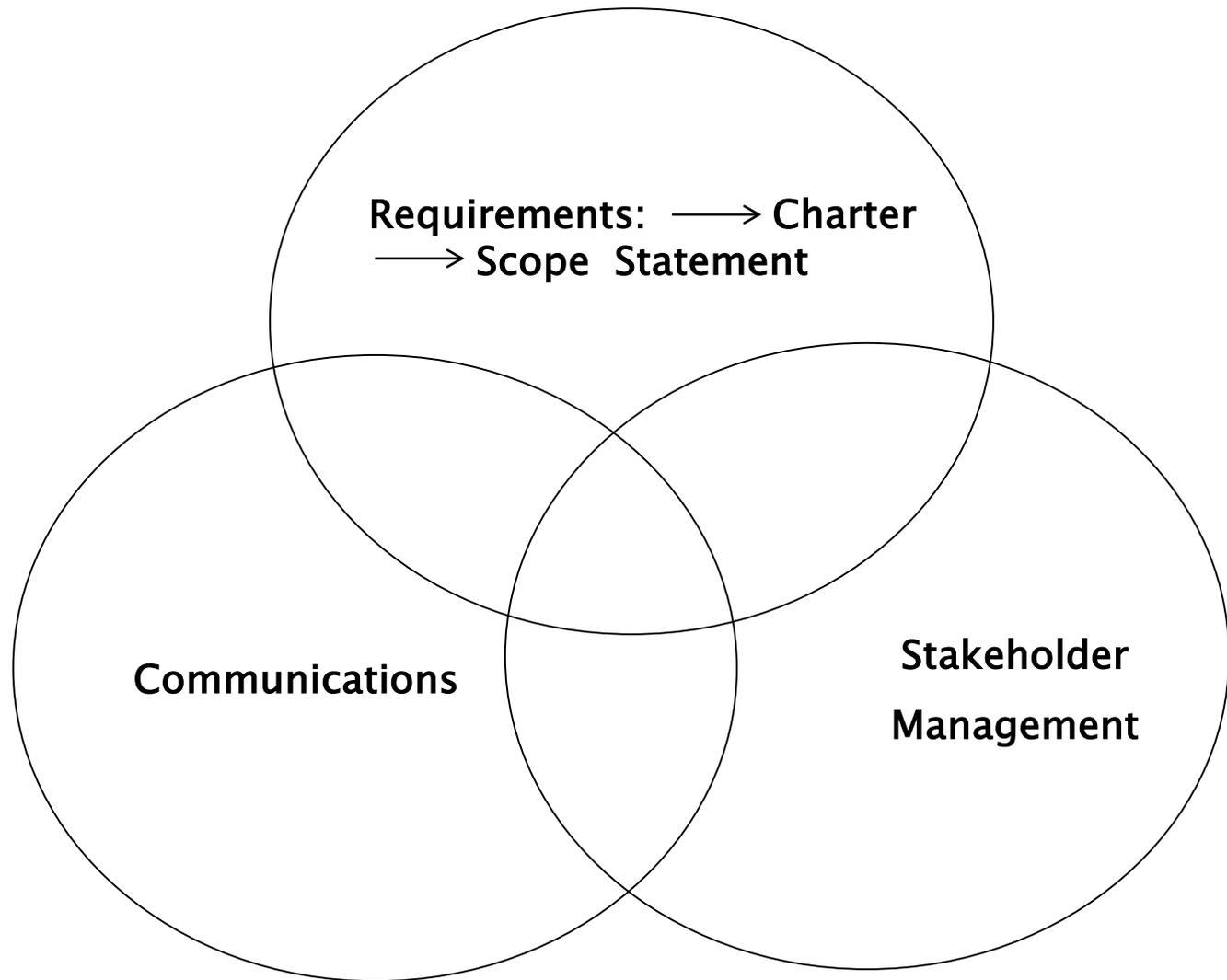
- **Missed requirements**
- **Misunderstood requirements**
- **Complexity - Requirements were not decomposed properly**
- **Missed key stakeholders in obtaining requirements**
- **A vague, ambiguous Scope statement with no “boundaries” or “exclusions”**

What Is Most Often Cited As The Cause of Project Failure?

#1) A poorly written Scope Statement which leads to “Scope Creep.” – Also we need:

- **Acceptance criteria well defined and “SMART”**
 - **Specific**
 - **Measurable**
 - **Acceptable/Attainable/Agreed/Achievable**
 - **Realistic/Reasonable**
 - **Timebound**

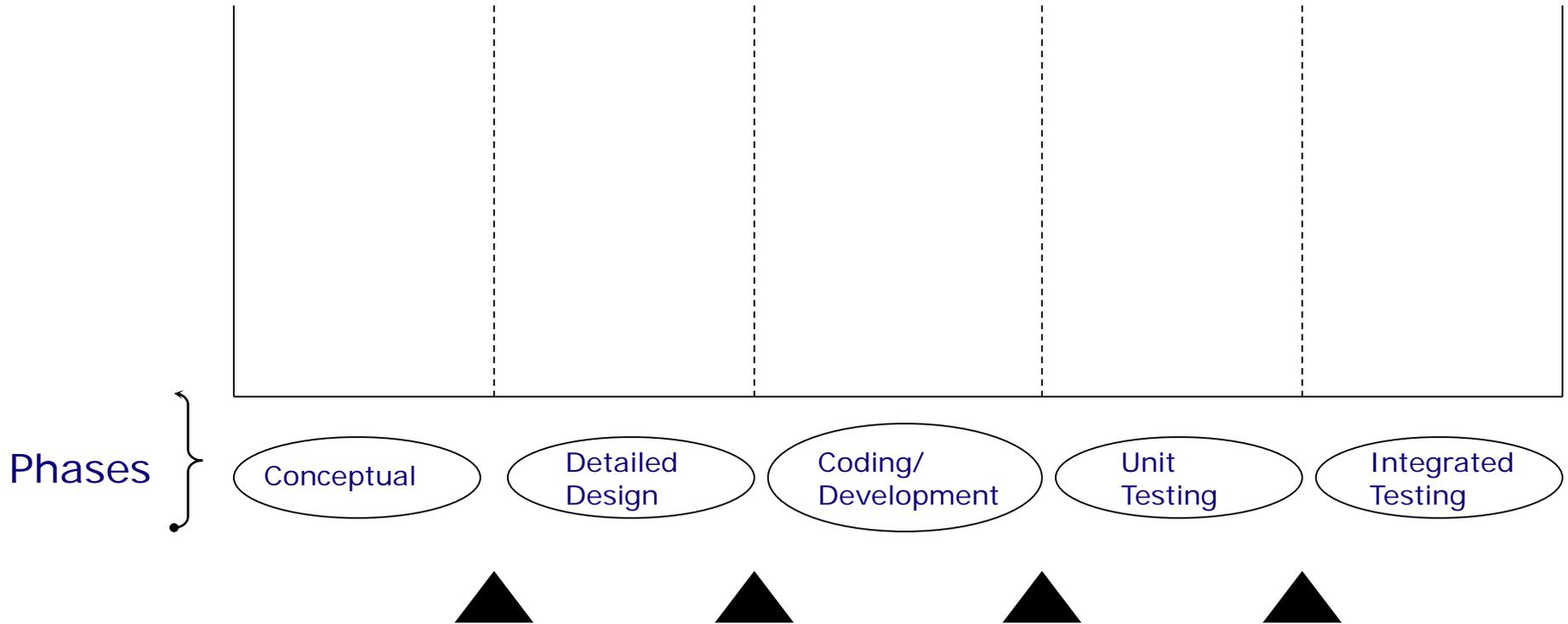
Foundational KAs – (Processes)



What is the traditional approach for dealing with this “Scope risk?”

- Use a “Predictive Approach” – “Push Concept”
- First, exhaustively determine all the requirements
- Create a detailed Scope statement with SMART acceptance criteria
- Then Create WBS
 - -> Develop Schedule
 - -> Estimate Costs
 - -> Determine Budget
 - Protect the project against risks by calculating contingency reserves for the Schedule baseline and Cost baseline
 - Use Earned Value

Project Lifecycle – Kill Points



'Phase gates' and 'Kill points' occur as we move from phase to phase.

Panama Canal – First Attempt – 1879-1892

- **French project led by Ferdinand de Lesseps who had just successfully directed building the Suez canal**
- **Initial Cost estimate - \$200M with a schedule estimate of 12 years**
- **Attempted to build a sea-level canal across ~50 miles with no locks**
 - **Almost none of the engineers supported this design!**
 - **Completely underestimated effort of digging and moving earth in a very rainy environment**
- **After 10 years, \$300M and not completing half of the canal, the project was cancelled**
 - **20,000 – 25,000 lives lost due to Malaria and Yellow-Fever. (Didn't understand cause of the disease.)**
 - **Caused the French government in place at the time to fail**

F-22 – Raptor

- **World's most expensive fighter airplane. Each plane was estimated to cost \$138M, but actual costs were \$412M each when production was stopped in 2011.**
- **Years behind schedule**
- **According to Dr. Stephen Meier, the program suffered from:**
 - **Requirements creep**
 - **Design by committee**
 - **Over-zealous stakeholders advocating for including requirements. Especially untested, immature technologies**
 - **Overly optimistic estimates of time and cost for adding numerous features**
 - **Overly complex design**

Is this “Traditional Approach” always the right path? Is it always going to work? – No!

We can do all these steps and processes correctly, and still fail! Why?

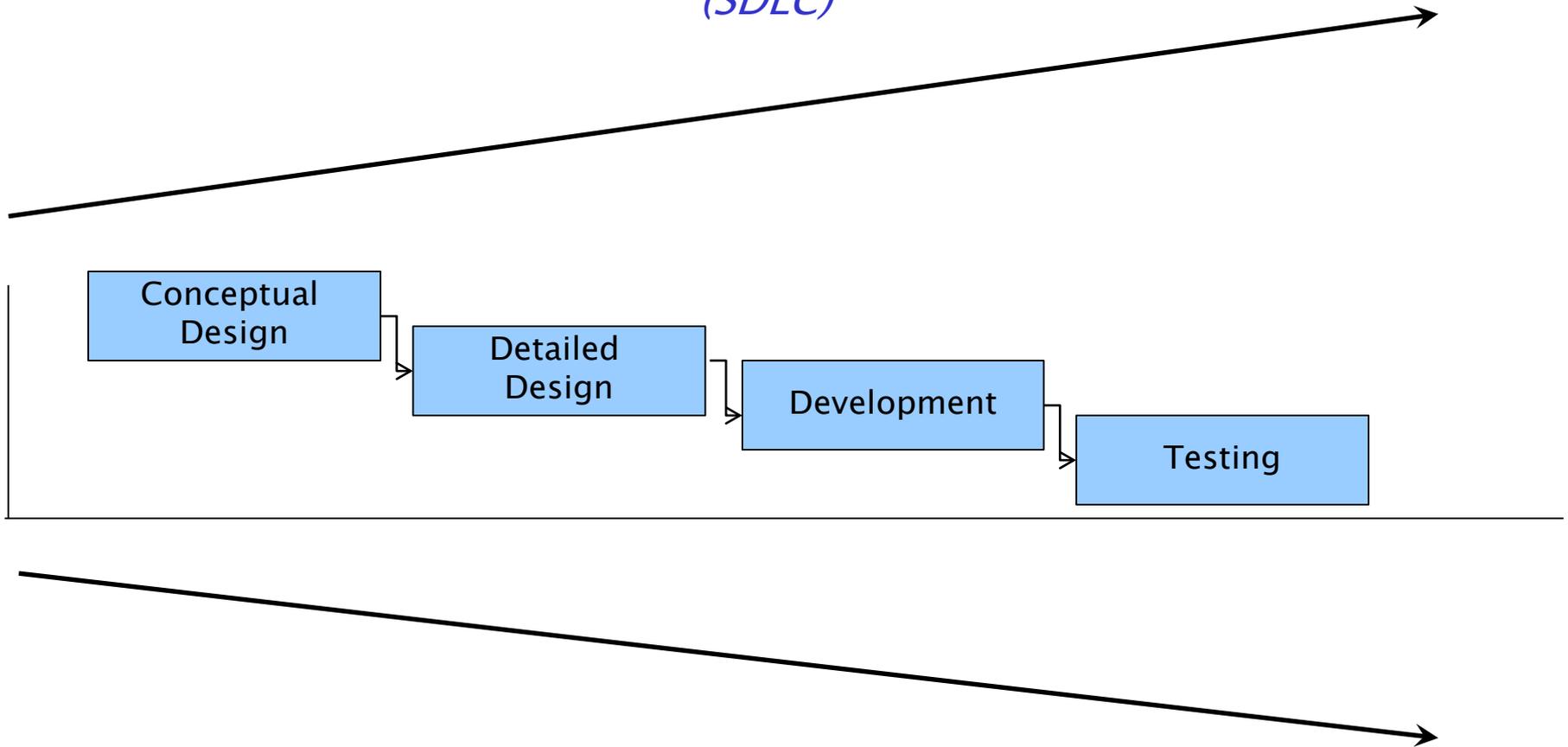
Because, oftentimes at the outset, the customer doesn't know what they really need.

We'll need to use an iterative approach to explore and discover the requirements.

Use one of the Agile methodologies. Use "Lean" or a "Pull concept."

The Cone of Uncertainty

A simple four phase sequential lifecycle approach for a software project – (SDLC)



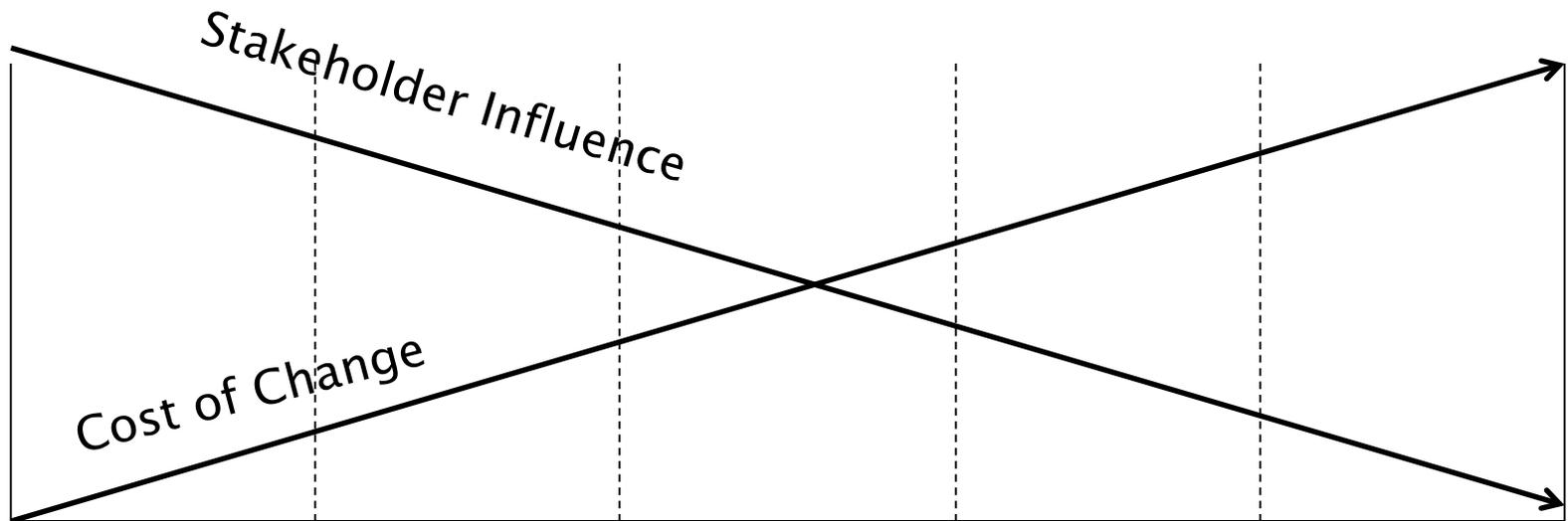
With Agile – Explore & Discover the Requirements in Iterations

- Product Owner defines product backlog – (requirements)
- Top priority requirements, most urgent requirements or most risky requirements are chosen for the first iterations
- Then very quickly – (ideally, within 2-4 weeks) – build first iteration/prototype and get customer feedback
- “Identify fast failures!” - Adapt and choose requirements for next iteration
- Pareto’s law for requirements: “20% of the requirements fulfill 80% of the need”
- Standish Survey – 65% of requirements are never used
- So use a “Lean” approach: delay adding features until last feasible moment – “MMF” – Minimum Marketable Features
- Doug DeCarlo: “If a picture is worth a thousand words, a prototype is worth a thousand pictures.”

But the Customer and Senior Management Must Be Much More Involved.

- **There must be more flexibility & trust; especially flexibility with the scope requirements**
- **Ken Schwaber – “Scrum is about the art of the possible, not “you give me what I paid for, when you said you’d deliver it.”**

Stakeholder Influence & Cost of Change in Traditional Projects

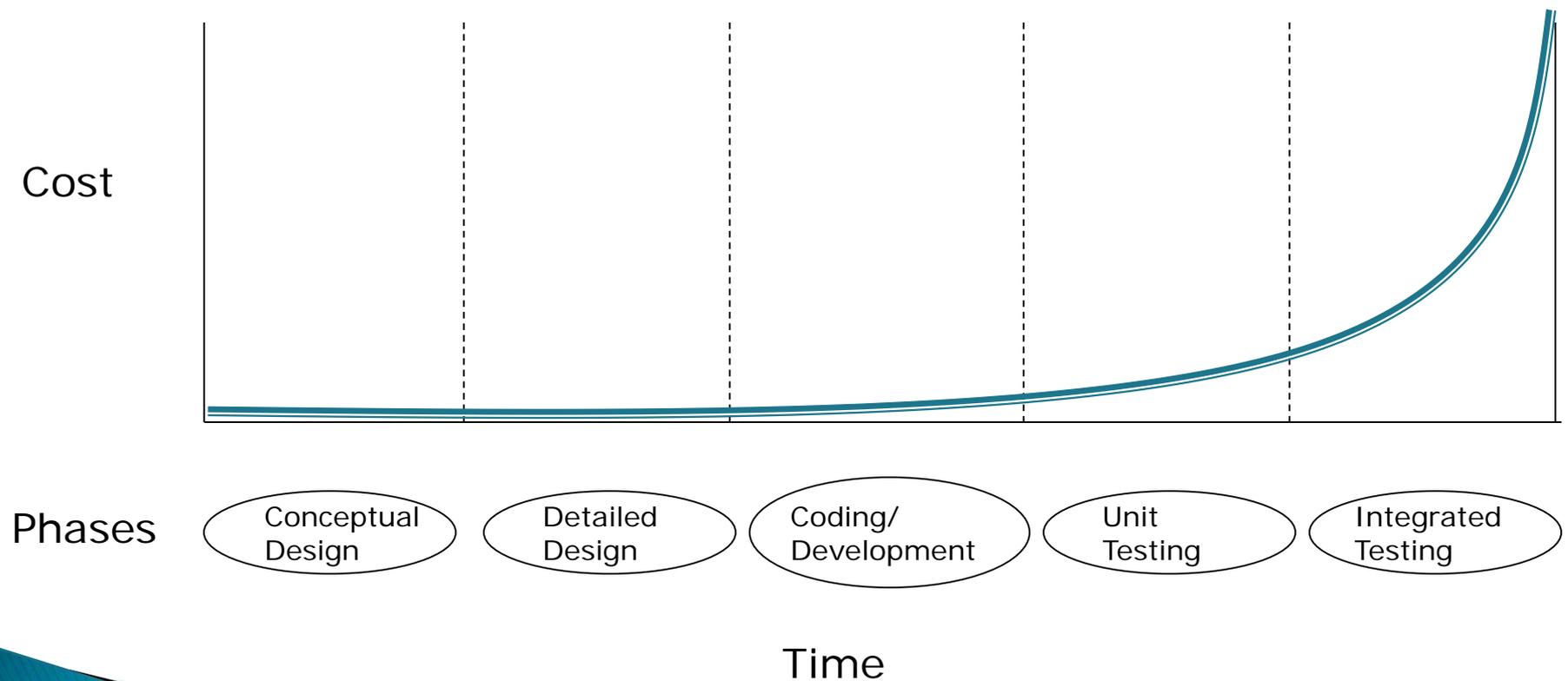


Phases

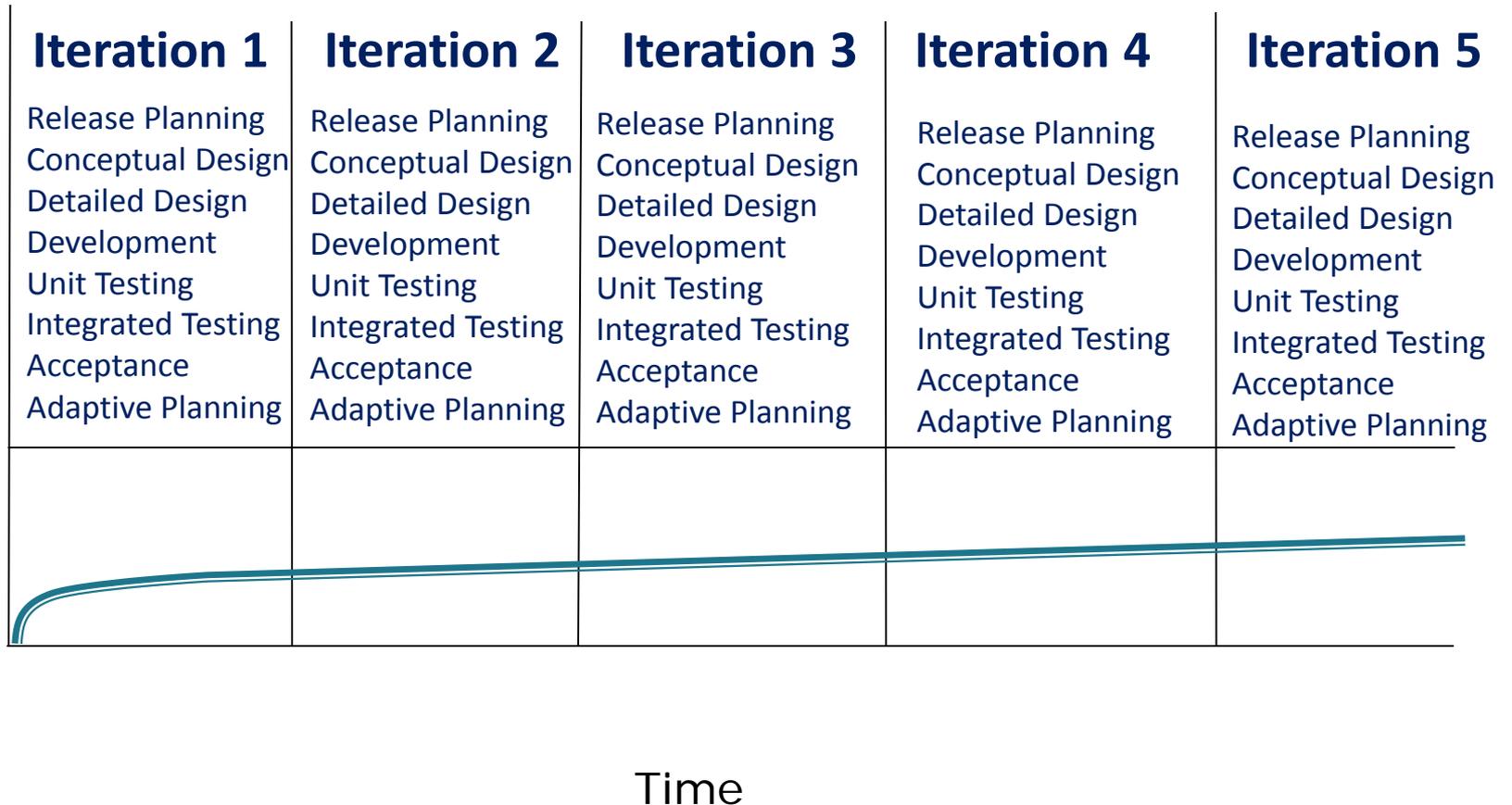
- Conceptual Design
- Detailed Design
- Coding/Development
- Unit Testing
- Integrated Testing

Time

“Cost of Change” In Traditional Projects



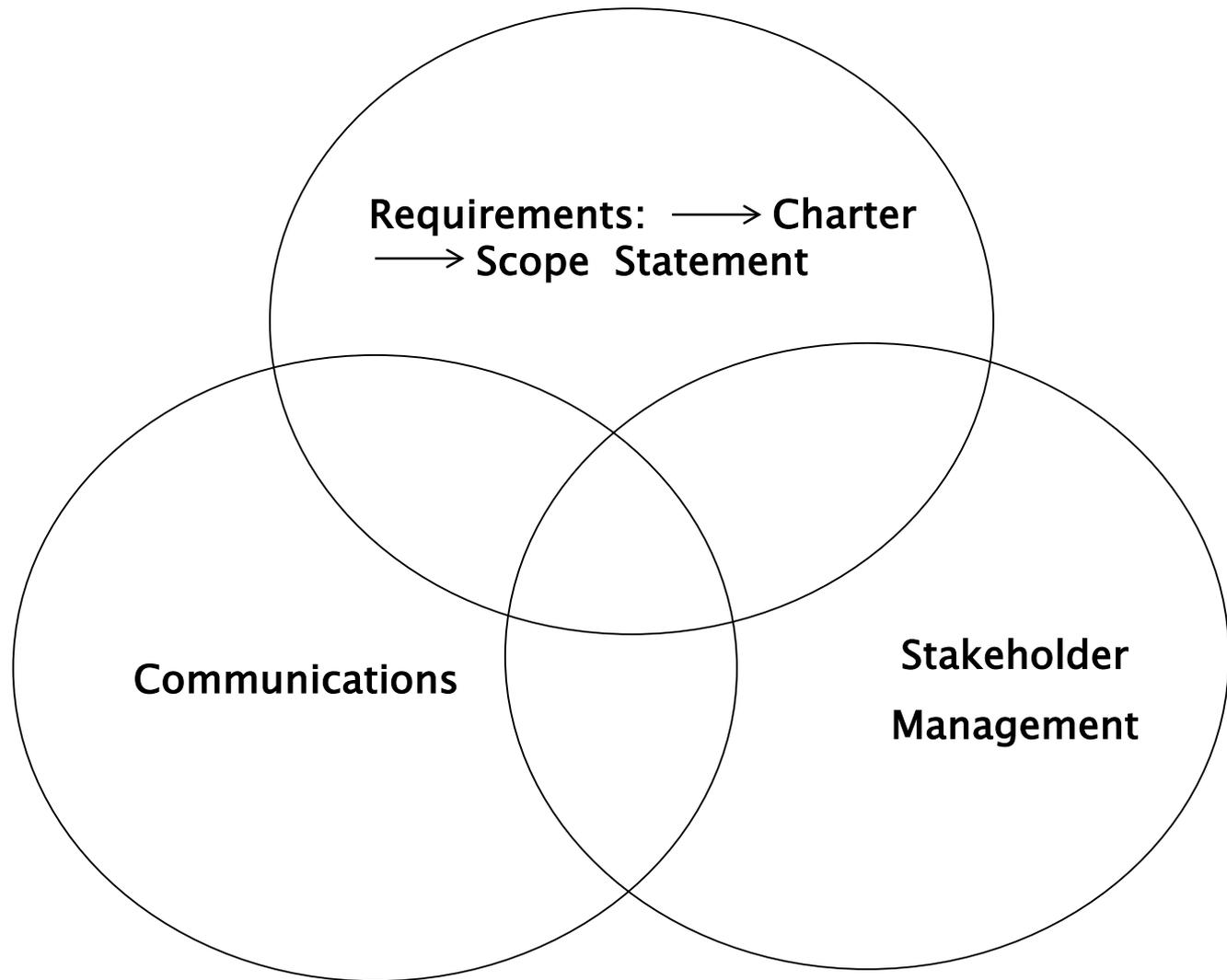
Reducing the “Cost of Change” With Agile



Conclusions – To Best Handle Key Risks That Occur Early in a Project:

- **As PMs, we must be versatile:**
 - **Know how and when to use Traditional Project Management “predictive planning” method, and how and when to use Agile Project Management**
 - **Must be able to explain to senior management and the customer the advantages and disadvantages of both**

Foundational KAs – (Processes)



Conclusions

- **But it's not about processes and methodologies. It's really about people skills, and managing teams and other Stakeholders.**
 - **This is really about Communications**
 - **Which is really about good listening skills!**
 - **It starts with *Develop Charter*, really understanding “Who needs what and why?” and then defining what product(s) best meet this business need.**

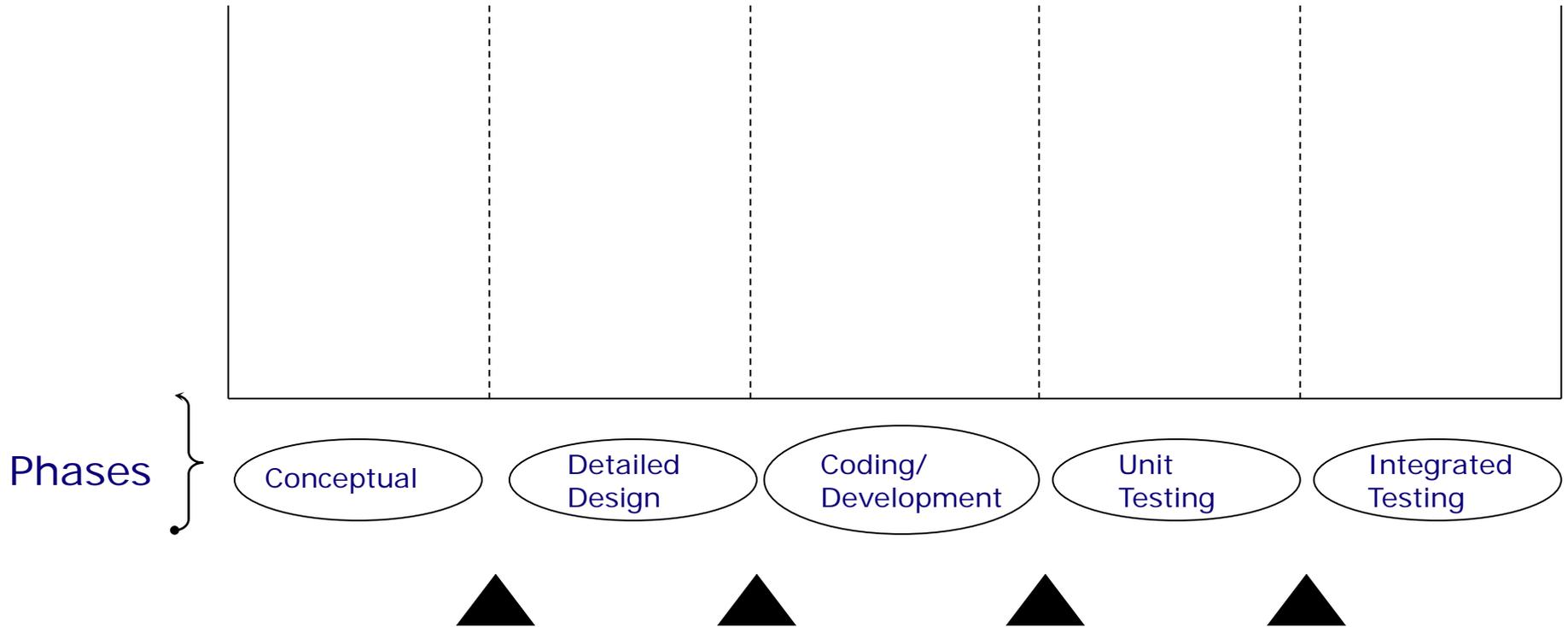
Conclusions

- **Agile can help improve communications and stakeholder management**
 - **Getting the customer involved much more frequently and regularly**
 - **Providing something tangible and empirical**
 - **Let them “kick the tires”**
 - **Team communications are improved too**
 - **Cross-functional team members**
 - **Co-located, dedicated teams**

Conclusions

- **If constraints seem impossible, an Agile approach would probably make a lot of sense.**
- **Or, - use our influence with the “Kill Point” decisions**
- **If there’s a lot of uncertainty about the product or solution, and we’re not sure if this is a “half-baked idea, then again, an Agile approach could be very good.**

Project Lifecycle – Kill Points



'Phase gates' and 'Kill points' occur as we move from phase to phase.

Conclusions

- **Perhaps a “Hybrid Approach” would be best!**
- **Do the first 2-3 iterations to get the “20% of the requirements” that will fulfill “80% of the need.”**
- **Then, if the customer wants more precision, and a fixed price for the remaining part of the project, go with the traditional approach for this part.**

Conclusions

- **Use the traditional project management approach if:**
 - **Fixed-Price contracts**
 - **There's a lack of trust**
 - **There's a high-level of complexity**
 - **You are using a virtual team**
 - **You are using a number of subcontractors, and don't have a lot of past-performance data on them.**

Agile is Also For Product Management; Program Management; Portfolio Management!

- **Can Help Define the Product Roadmap**
- **Can Help Define Portfolios and Programs**
- **Don't use a centralized, detailed planning approach for defining product roadmaps and portfolio. Instead, use a decentralized, iterative approach with Lean concepts.**
- **Many companies today – especially in Tech – like to describe how “agile they are” – (how quickly they are turning over their product lines).**

For Further Reading - References Used For This Presentation

- ▶ ***That Used to Be Us: How America Fell Behind in the World It Invented*** - Thomas Freidman & Michael Mandelbaum
- ▶ ***Agile Estimating and Planning*** - Mike Cohn
- ▶ ***Agile Excellence for Product Managers*** - Greg Cohen
- ▶ ***Agile Project Management: Creating Innovative Products*** - Jim Highsmith
- ▶ ***Agile Project Management With Scrum*** - Ken Schwaber
- ▶ ***Extreme Project Management*** – Doug DeCarlo
- ▶ ***Identifying and Managing Project Risk: Essential Tools for Project Managers*** – Tom Kendrick

Contact Information

Mark Tolbert, PMP

Best Practices Team, LLC

mark.tolbert@verizon.net

<http://www.bestpracticesteam.com>

(703) 283-4460