How Systems Engineers can Save Time and Achieve More

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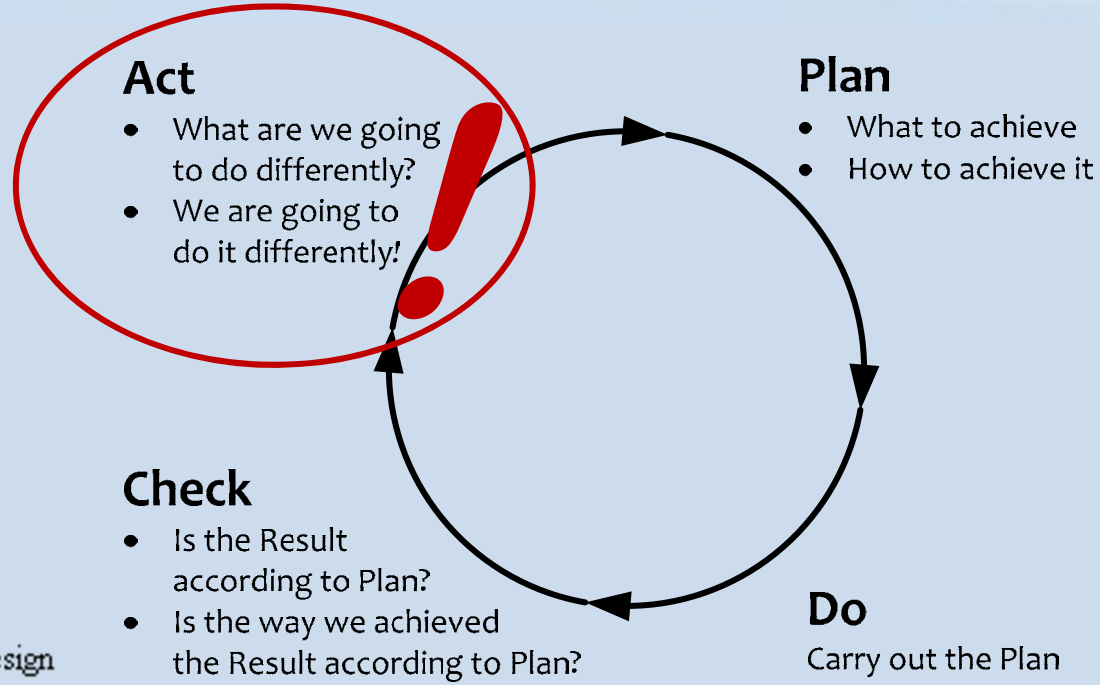
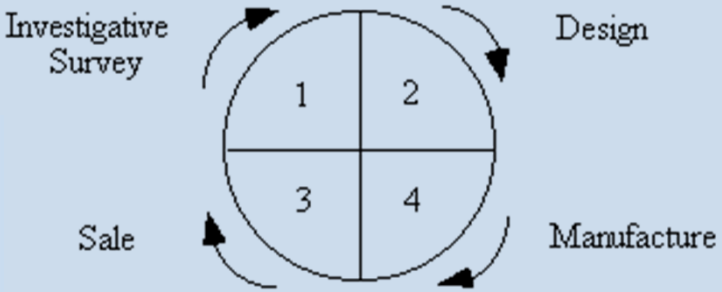
APCOSE 2010
Systems Engineering: Collaboration for Intelligent Systems

The essential ingredient: the PDCA Cycle

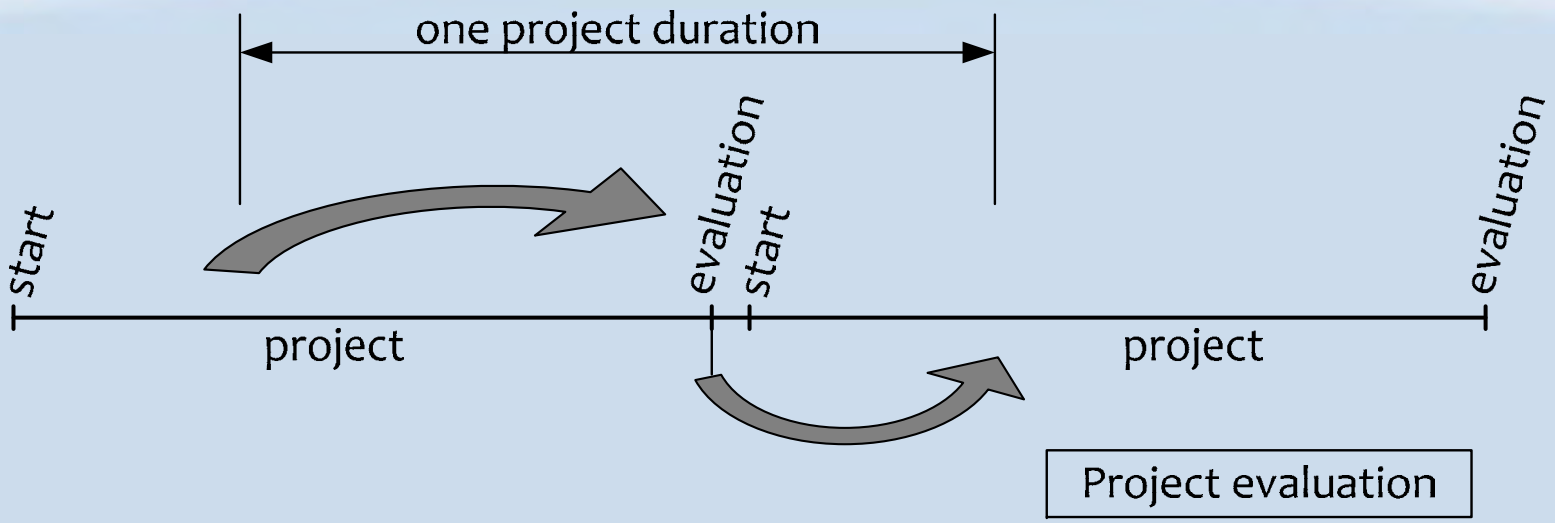
(Shewhart Cycle - Deming Cycle - Plan-Do-Study-Act Cycle - Kaizen)

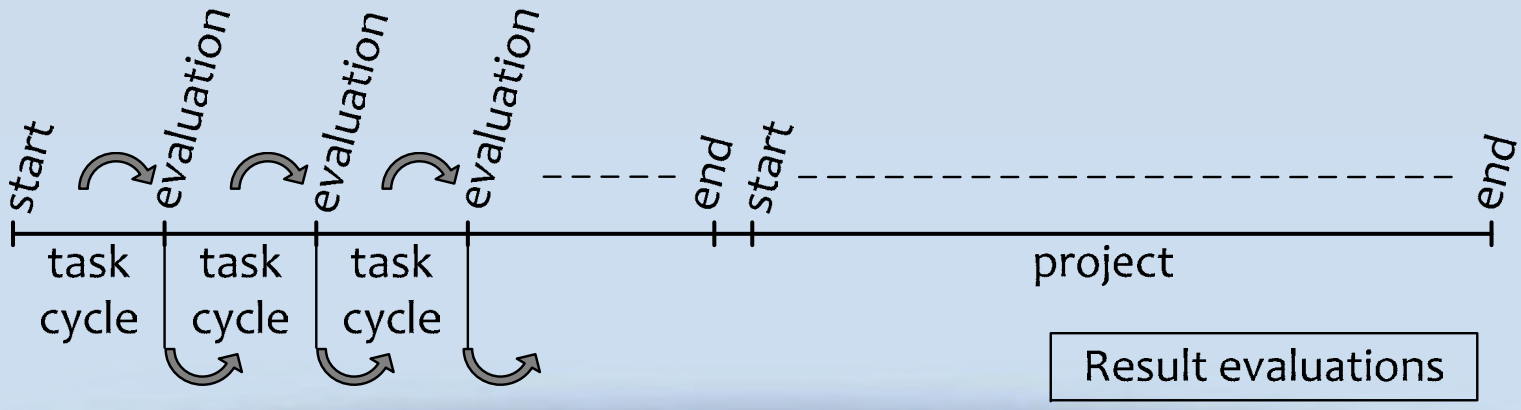




Deming talking to Japanese Top Management in 1950

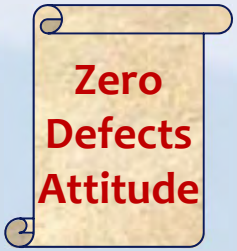
Project evaluations





Evolutionary Project Management (Evo)

- **Plan-Do-Check-Act**
  - The powerful ingredient for success
- **Business Case**
  - Why we are going to improve what
- **Requirements Engineering**
  - What we are going to improve and what not
  - How much we will improve: quantification
- **Architecture and Design**
  - Selecting the optimum compromise for the conflicting requirements
- **Early Review & Inspection**
  - Measuring quality while doing, learning to prevent doing the wrong things



Right product

Evo Project Planning

- **Weekly TaskCycle**
  - Short term planning
  - Optimizing estimation
  - Promising what we can achieve
  - Living up to our promises
- **Bi-weekly DeliveryCycle**
  - Optimizing the requirements and checking the assumptions
  - Soliciting feedback by delivering Real Results to eagerly waiting Stakeholders
- **TimeLine**
  - Getting and keeping control of Time: Predicting the future
  - Feeding program/portfolio/resource management

Right time

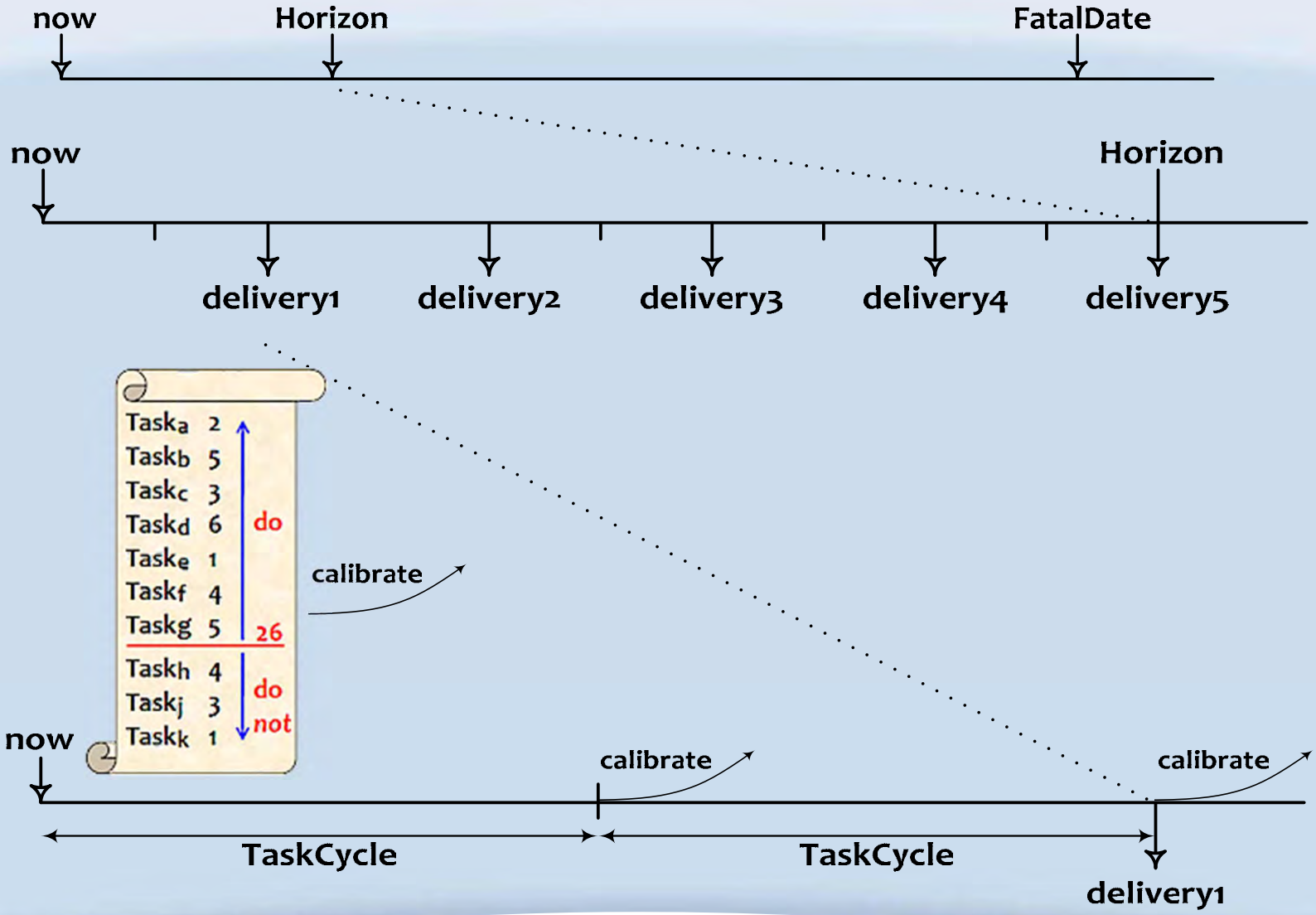
Ultimate Goal of a Project

Quality on Time

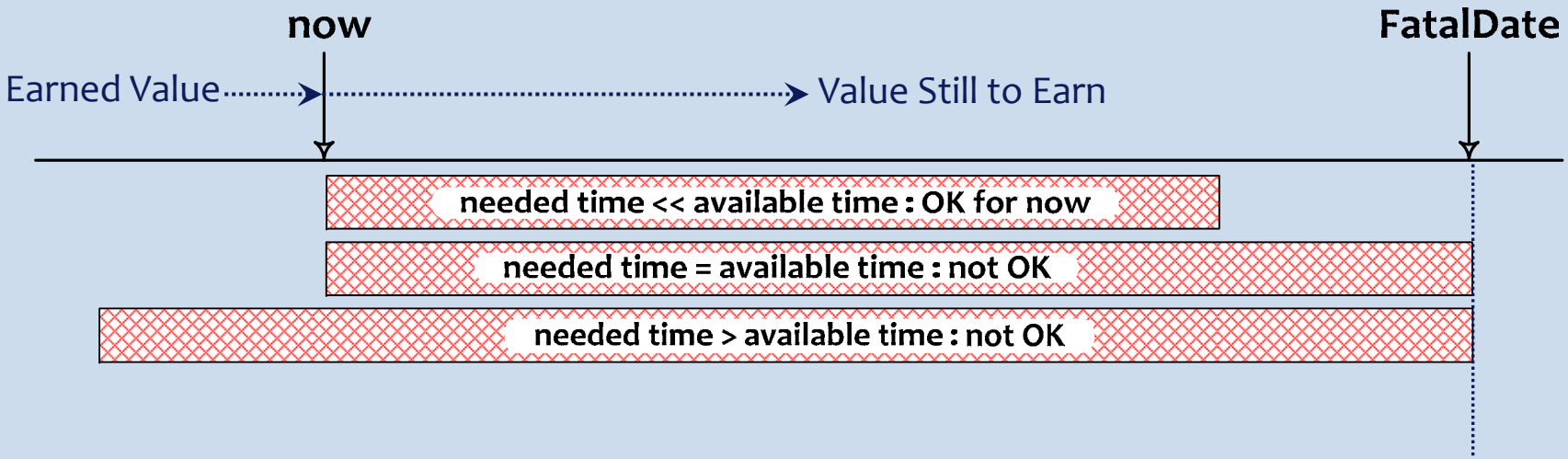
- Delivering the Right Result at the Right Time, wasting as little time as possible (= efficiently)

- Providing the customer with
  - what he needs
  - at the time he needs it
  - to be satisfied
  - to be more successful than he was without it
- Constrained by (win - win)
  - what the customer can afford
  - what we mutually beneficially and satisfactorily can deliver
  - in a reasonable period of time

Result to Tasks and back



What do we do if we won't make it on time ?



Deceptive options

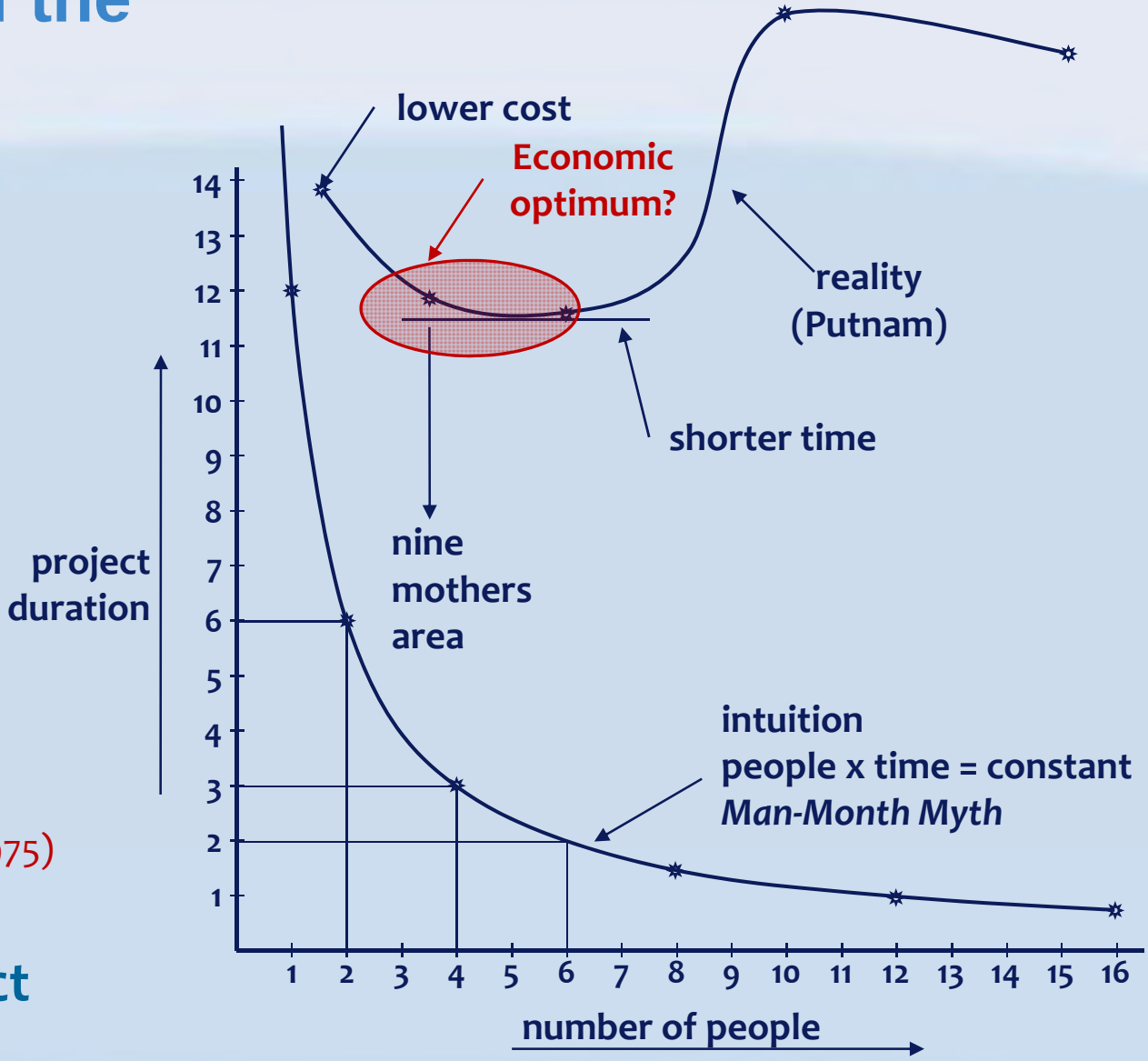
- Hoping for the best (fatalistic)
- Going for it (macho)
- Working Overtime (fooling ourselves)
- Moving the deadline
  - Parkinson's Law
    - Work expands to fill the time for its completion
  - Student Syndrome
    - Starting as late as possible,
      only when the pressure of the FatalDate is really felt

Adding people to a late project ...

makes it later

(Brooks' Law, 1975)

The Myth of the Man-Month



Brooks' Law (1975)
Adding people to a late project makes it later

What has this to do with Systems Engineering ?

- The Project Manager is *responsible* for *delivering* the right result at the right time
- The Systems Engineer's and other worker's decisions *determine* the *result* and the *time* it is delivered
- This makes everybody in the project implicitly *as responsible as* Project Management

Saving time

We don’t have enough time, but we can save time
without negatively affecting the Result !

- Efficiency in *what* (*why*, for *whom*) we do - doing the right things
  - *Not* doing what later proves to be superfluous
- Efficiency in *how* we do it - doing things differently
  - The product
    - Using proper and most efficient solution, instead of the solution we always used
  - The project
    - Doing the same in less time, instead of immediately doing it the way we always did
  - Continuous improvement and prevention processes
    - Learning doing things better and overcoming bad tendencies
- Efficiency in *when* we do it - right time, in the right order
- TimeBoxing - much more efficient than FeatureBoxing

www.malotaux.nl/Booklets

More

1 **Evolutionary Project Management Methods** (2001)
Issues to solve, and first experience with the Evo Planning approach

2 **How Quality is Assured by Evolutionary Methods** (2004)
After a lot more experience: rather mature Evo Planning process

3 **Optimizing the Contribution of Testing to Project Success** (2005)
How Testing fits in

3a **Optimizing Quality Assurance for Better Results** (2005)
Same as Booklet 3, but for non-software projects

4 **Controlling Project Risk by Design** (2006)
How the Evo approach solves Risk by Design (by process)

5 **TimeLine: How to Get and Keep Control over Longer Periods of Time** (2007)
Replaced by Booklet 7, except for the step-by-step TimeLine procedure

6 **Human Behavior in Projects** (APCOSE 2008)
Human Behavioral aspects of Projects

7 **How to Achieve the Most Important Requirement** (2008)
Planning of longer periods of time, what to do if you don't have enough time

8 **Help ! We have a QA Problem !** (2009)
Use of TimeLine technique: How we solved a 6 month backlog in 9 weeks

RS **Measurable Value with Agile** (Ryan Shriver - 2009)
Use of Evo Requirements and Prioritizing principles

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Inspection pages

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