Project Management Infrastructure
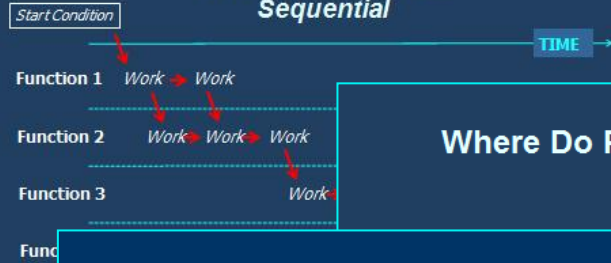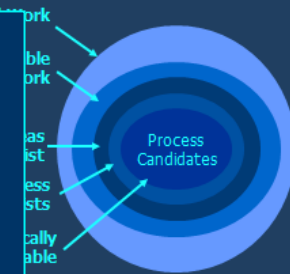
"What Every Organization Needs to Make Projects Successful"

Operating Model
Sequential

Start Condition

TIME →

Function 1 — Work → Work
Function 2 — Work → Work → Work
Function 3 — Work
Func...

Where Do Processes Apply?

Process Candidates

Prescriptive vs. Not Prescriptive

Not Prescriptive
- Artist

Prescriptive
- Development
- Surgery
- Pilot
- Construction
- Legal

Success Measures
Integration Required

OUTCOMES
Positioned for the Future
Profit
Satisfied Customers
Developed Employees

Process

- Measure A
- Measure B
- ....

Organization

Measure B — Team or...

How Are These Dimensions Integrated?

Success Factors
Operating...
Processes
Personnel Development
Experts

Seminar is > 90 Slides

Let's Start At the Top

Our Purpose, Reason for Our Existence
ORGANIZATION MISSION

Where We Want to Go
CURRENT VISION

How the Vision Will Be Reached, Success Measures
STRATEGIES & OBJECTIVES
New Customers — New Products
New Markets — Operations Improvements

Actions to Perform Strategies and Attain Objectives
STRATEGIC PLANNED ACTIONS

What's Needed to Take Action
MEANS
People — Operating Model & Processes
Systems & Tools — Measurements

Desired Results
OUTCOMES
Positioned for the Future — Developed Employees
Profit — Satisfied Customers

Example Topics Only, Every Business Is Different

Personnel Development Components

Personnel Development
- Training
- Peer-to-Peer Learning
- Job Rotations
- Special Assignment
- Experts & Coaching
- Mento...
- ...other...
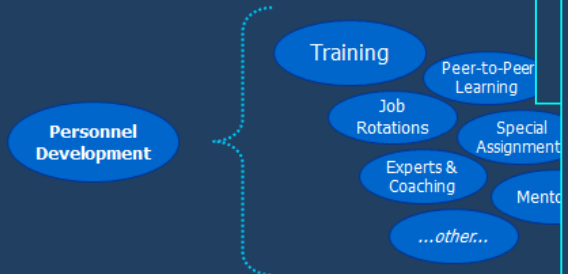
Multiple Development Methods Are Needed

Metrics Pitfalls

Metrics Are Essential, BUT Metrics Have Pitfalls

- **Manipulation**

- **Unintended Consequences**
  - Funds Spent vs. Value Received
  - Learning Time vs. Learning
  - Time vs. Quality
  - Volume vs. Quality
  - Process Adherence vs. Quality or Resources Expended or Time

- **Loss of Focus on Organiztion's Core Role**

Understanding Learning
"Thoughts About Learning to Support Implementing Improvements"

Summary
Levels of Learning

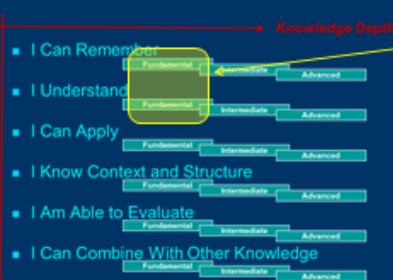I Can Remember

I Understand

I Can Apply

...ontext and S...

...to Evaluate...

...mbine...

Notional Depths of Learning

Knowledge Depth

- I Can Remember

  Fundamental | Intermediate | Advanced

- I Understand

What Some Believe Learning To Be

Knowledge Depth

- I Can Remember — Fundamental | Intermediate | Advanced
- I Understand — Fundamental | Intermediate | Advanced
- I Can Apply — Fundamental | Intermediate | Advanced
- I Know Context and Structure — Fundamental | Intermediate | Advanced
- I Am Able to Evaluate — Fundamental | Intermediate | Advanced
- I Can Combine With Other Knowledge — Fundamental | Intermediate | Advanced

Some incorrectly believe this is all learning is.

Some think if you know a few terms and can recite a few basics, that they…
"know it all."

This is not the case as additional and significant...

Incomplete Learning
Real Learning Gaps- The Bottom Line
The result can be that "Real Learning Gaps" exist and organizations interested in improvements need to be aware of those gaps.

- I Can Remember — *School* — Fundamental | Intermediate | Advanced
- I Understand — Fundamental | Intermediate | Advanced

Learning Opportunities

- **Training** – Seminars, courses and workshops both internal and external.

- **Learning On Demand** – Use websites for tutorials, guides, short seminars, FAQs, etc. to support "learning on demand" and "just-in-time" learning.

- **Job Rotation** – Move individuals into new positions or have individuals support another function, perhaps on...

- **Peer-to-Peer** – Establish and support CoPs (Communities...) ... (Special Interest Groups) and let the employees run them with some guidance...

- **Special Assignments** – Have individuals take short term or part time "Special Assignments" to broaden experience, skills and context awareness.

- **Coaching** – Long term one-on-one pairing of senior and junior employees for frequent advice discussions; this is "real work" advice, not career mentoring.

- **Experts** – Identify experts for critical topics and have experts advise teams on lessons learned, best practices, pitfalls to avoid and to answer team questions.

- **Mentoring** – Longer term one-on-one pairing of senior and junior employees for career growth discussions; this is not coaching as the focus is career growth.

Fundamentals Are Essential

Why Fundamentals Are Important

- Fundamental knowledge is the foundation for advanced knowledge, without fundamentals, retainable and truly understood advanced knowledge is not possible.
- ...mentals can be applied in a broad... ...ation...
- ...ur... remember all the...
- Recalling fundamentals is one of the keys to *"not getting lost in the weeds"* when solving problems and making improvements as one can focus on the basic concept.
- Fundamentals help teams find common ground for understanding, agreements and cooperation.

What Do You Remember?

> 5 or

Seminar is > 80 Slides

Systems Engineering Basics for PMs and Development Teams
"SE Basic Concepts"

"System"

Application examples of modular created based on the Business Components

Method Combinations for Software

Lean Principles
Eliminate Waste, Deliver Fast, ...

Crystal Principles
Focus on People, Communications, ... Properties of Frequent Delivery

Kanban
Continuous Incremental Changes

Scrum
Release Planning, Prioritized Backlog, Sprints, Scrum Master,....

Agile Principles
Customer Focus, welcome changes, delivery frequently, ...

Scrumban

Refactoring

Pair Programming, TDD, ...

Base Processes

...s Have Dimensions

What Can Go Wrong In Developments?
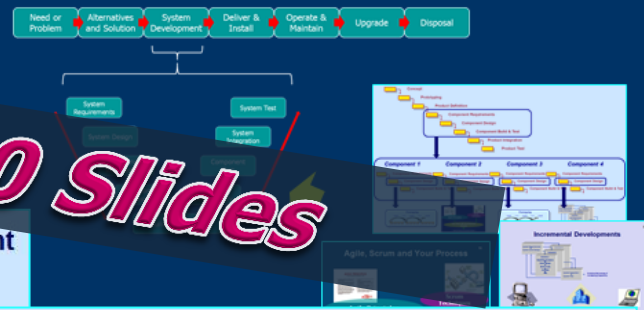*Partial List*

1) The Problem or Need is Misunderstood
2) Alternative Solutions Not Identified and Evaluated
3) Wrong Technical Solution Selected
4) All System Level Requirements Not Defined
5) Requirements Not Mutually Compatible or Misunderstood
6) All Appropriate System Dimensions Not Addressed
7) All System Lifecycle Phases Not Addressed
8) Poor Overall System Level / Architectural Design
9) Detail Requirements Before System Level Design Baseline
10) Users Insufficiently Involved in Development
11) Maintenance Approach Not Considered in Requirements or Design
12) Upgradeability Not Considered in Requirements or Design
13) Stakeholders Not on the Same Page for Requirements or Design
14) Inaccurate Estimates of Time and Resources
15) Inadequate Lower Level Requirements
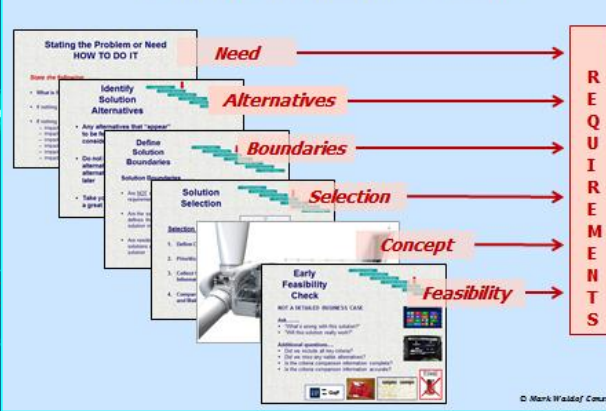
System Variables vs. Project Types Notional Relations...

System Variable	System Dimensions Involved	Coupling	System Breadth and Depth Complexity
Project Type			
		None or Low / High	Low / Medium / High
Remodel		All	Very High
New Development	One / Several	None or / High	

A System Development May Employ Many Internal Lower Level Models

Need or Problem → Alternatives and Solution → System Development → Deliver & Install → Operate & Maintain → Upgrade → Disposal

System Requirements — System Test
System Integration

Component 1 Component 2 Component 3 Component 4

Incremental Developments

Seminar is > 130 Slides

Level of SE Needed

System Coupling

Significant S...

System Depth

System Breadth

Low SE

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All Steps Drive System Requirements Development At Increasing Levels of Detail

Stating the Problem or Need
HOW TO DO IT
Need →

Identify Solution Alternatives
Alternatives →

Define Solution Boundaries
Boundaries →

Solution Selection
Selection →

Concept →

Early Feasibility Check
NOT A DETAILED BUSINESS CASE
Feasibility →

R E Q U I R E M E N T S

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What Is Systems Engineering?
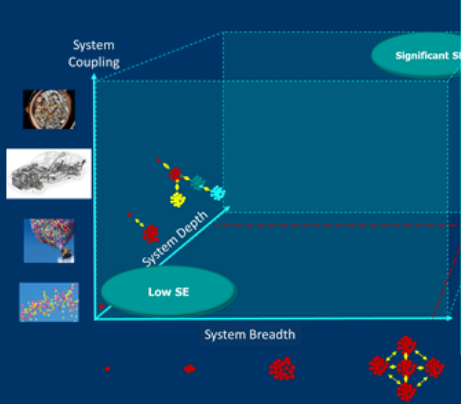
What Is Systems Engineering?

Systems Engineering is an engineering discipline that focuses on understanding the problem or need, reviewing alternative solutions, picking the right solution based on prioritized criteria. SE is developing solution requirements and designing the solution at a system level that meets the requirements, addresses all stakeholder needs, all system lifecycle phases and all dimensions of a system. Following system level design, systems engineering technically manages the subsequent development, integration, testing, delivery and deployment of the system solution.

"Systems Engineering"
is the
"Engineering of Systems"

What Can Go Wrong In Developments?

What Is Systems Engineering?
(Continued)

The technical discipline that:
- Defines and allocates s...
- Oversees component d...
- Conducts system integ...
- Validates and verifies th... needs
- Supports System Imple... Maintenance ...

What Is Systems Engineering?

The technical discipline that:
- Defines the solution detail requirements
- Designs the solution at the system level that
  - Meets all requirements
  - Takes into consideration all dimensions of the system
  - Addresses the needs of all system stakeholders
  - Forms an adequate foundation for the development and integration of all system components

Systems Engineering is the Solution

SE is A Solution to Many Project Issues

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