Capability-Level-3 Quick-turn-around Web Development

Gordon Ward (presenter)
Juan Ceva & Rose-Marie González
Raytheon Information Solutions

Agenda

- Introduction
- Raytheon Six Sigma™
- The Fast Food Approach
- Our Process vs. the Model
- Applicability to other disciplines
- Conclusions

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Raytheon Web Solutions

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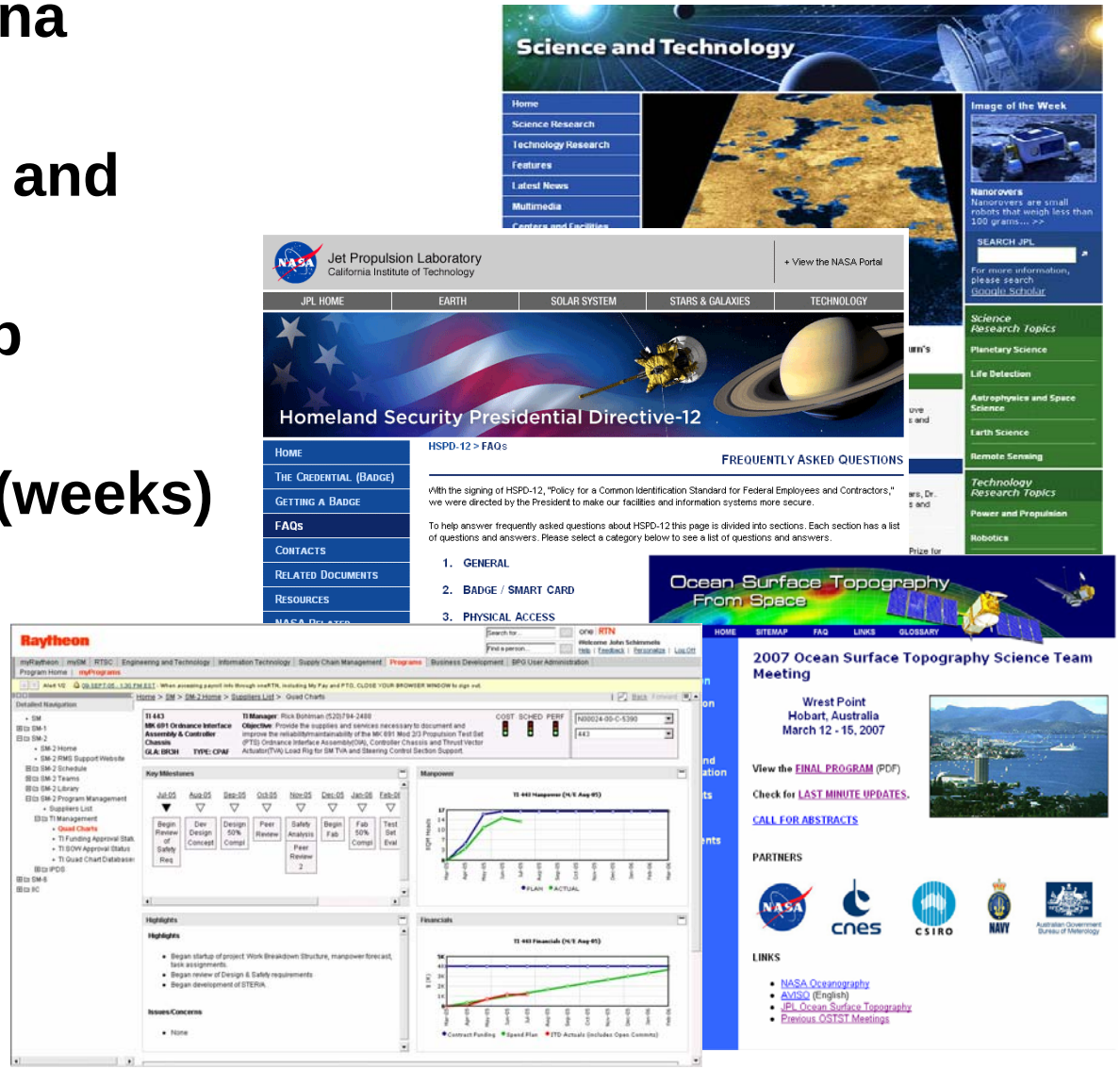
- Part of RIS Pasadena Operations
- Serving NASA JPL and other customers
- State-of-the art web services
- Short turn-around (weeks) projects
- ***Rated SEI***

CMMI® Capability L3

in Eng. Practices



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Raytheon Six Sigma™

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Achieve your Objectives
SCAMPI A

Design, Deploy Processes to Fill Gaps

Our Engine for Process Improvement

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The Final Product: How does this happen in two weeks?

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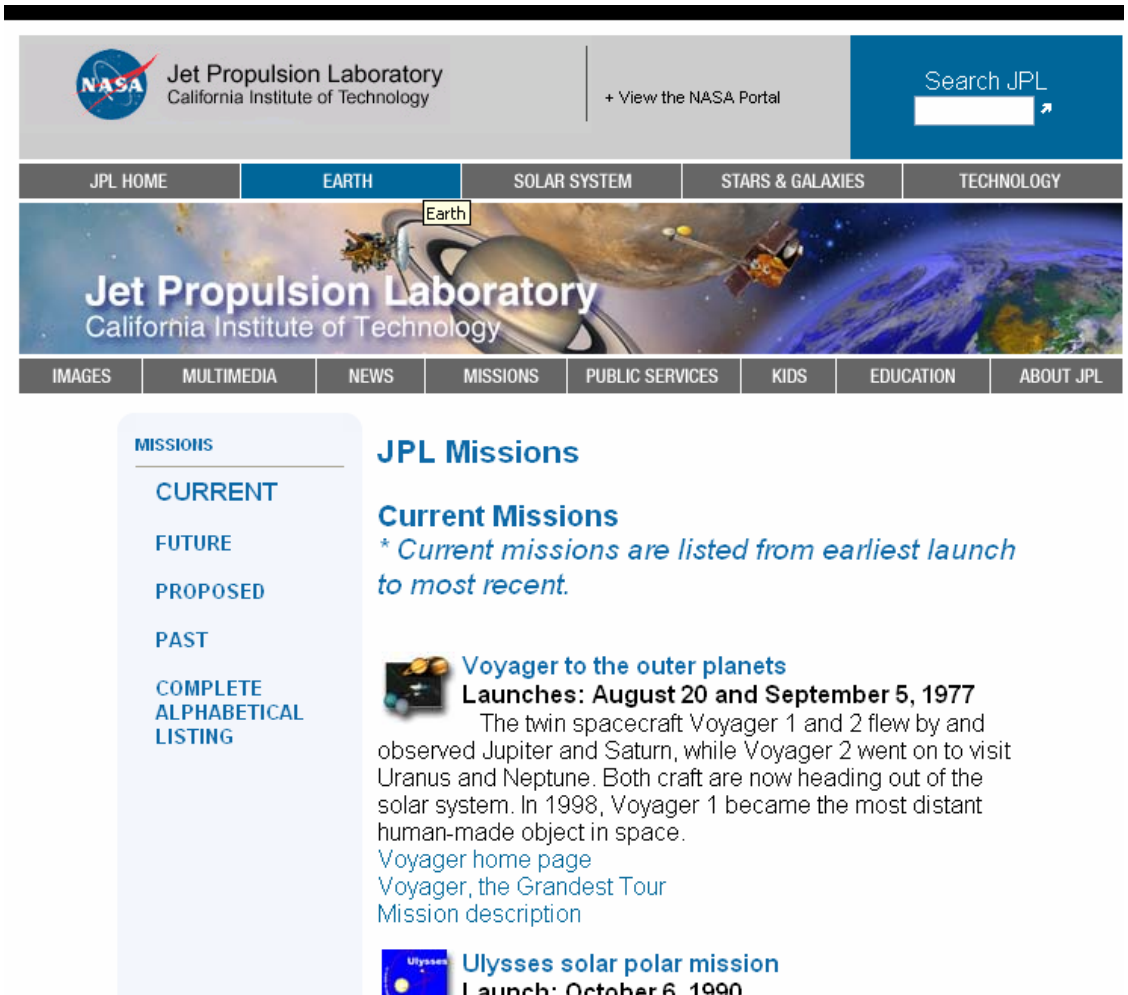

Fast Food Approach: Website Portfolio

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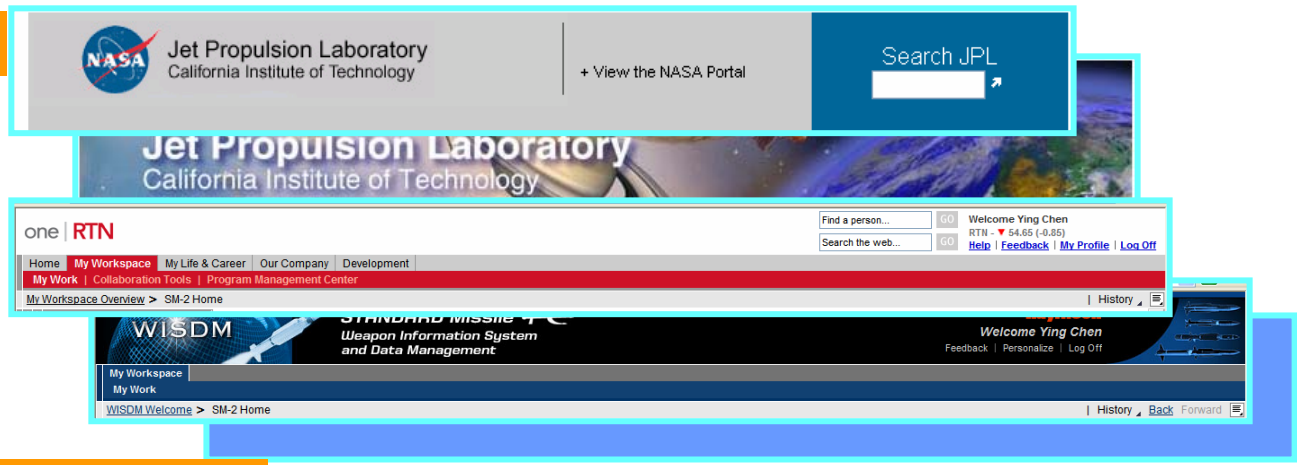
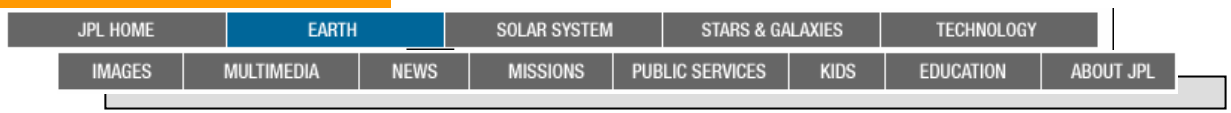
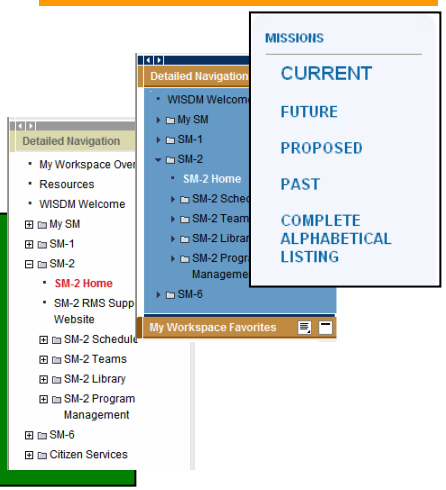
Banners



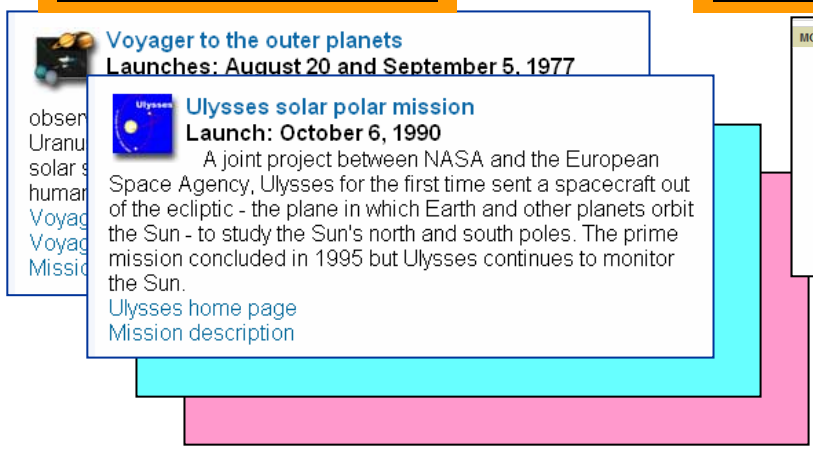
Navigation (Horizontal)



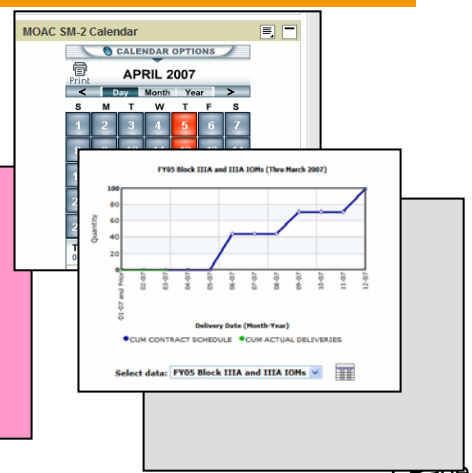
Navigation (Vertical)



Windows (with Links)



Windows (with Functions)



Requirements Development with High Level Design

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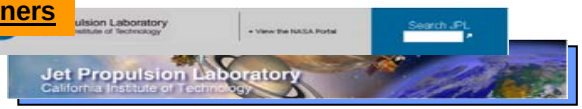
RWS Website Portfolio

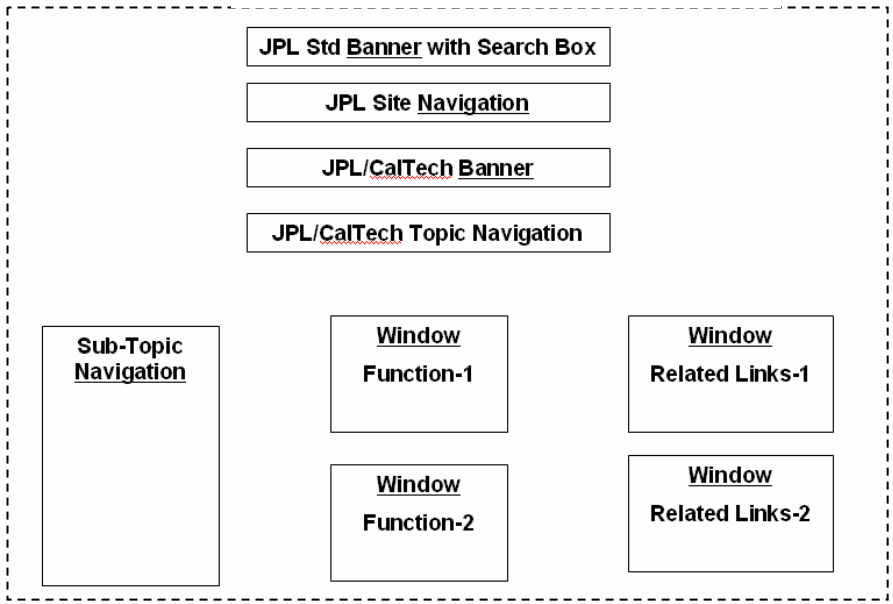
Banners



Navigation (Horizontal)

Navigation (Vertical) **Windows (with Links)** **Wind... ...ns)**

Customer/RWS Engineering Mockup



Customer/Raytheon Work with Engineering Mockup

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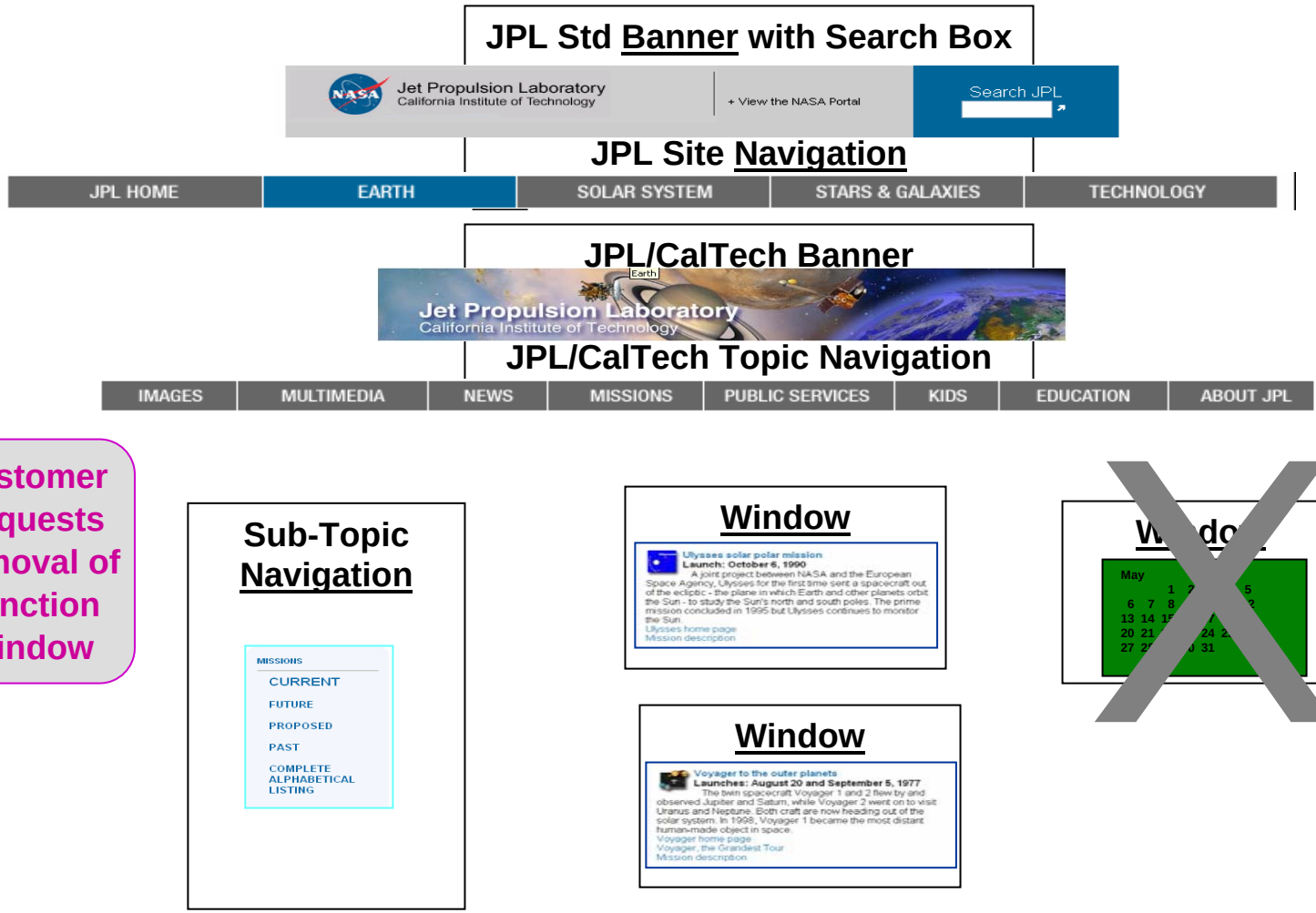
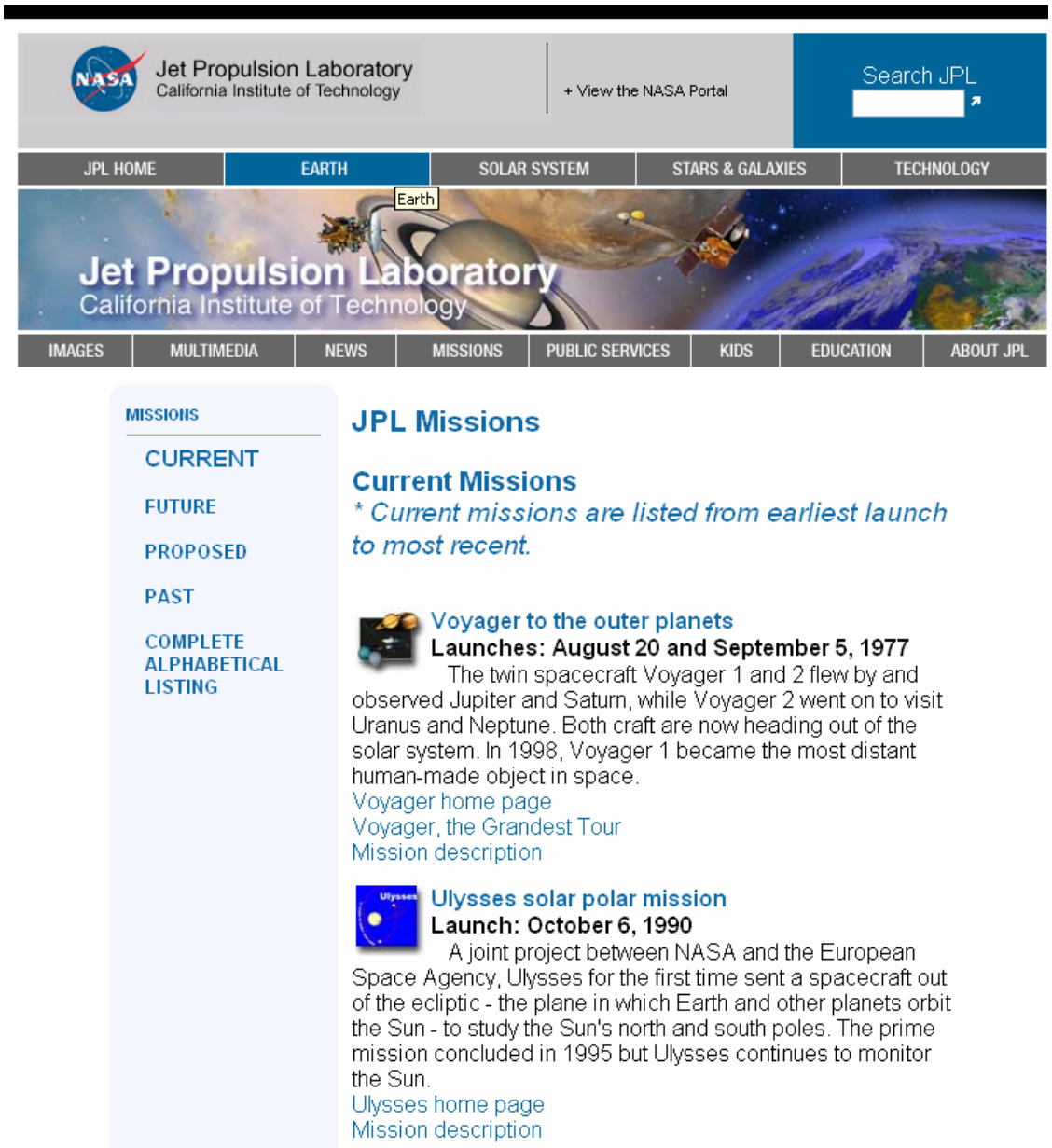


Voilà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JPL Missions
Current Missions
* Current missions are listed from earliest launch to most recent.
Voyager to the outer planets
Launches: August 20 and September 5, 1977
The twin spacecraft Voyager 1 and 2 flew by and observed Jupiter and Saturn, while Voyager 2 went on to visit Uranus and Neptune. Both craft are now heading out of the solar system. In 1998, Voyager 1 became the most distant human-made object in space.
Voyager home page
Voyager, the Grandest Tour
Mission description
Ulysses solar polar mission
Launch: October 6, 1990
A joint project between NASA and the European Space Agency, Ulysses for the first time sent a spacecraft out of the ecliptic - the plane in which Earth and other planets orbit the Sun - to study the Sun's north and south poles. The prime mission concluded in 1995 but Ulysses continues to monitor the Sun.
Ulysses home page
Mission description

The work-flow is driven by a master checklist Engineering Development Plan (EDP)

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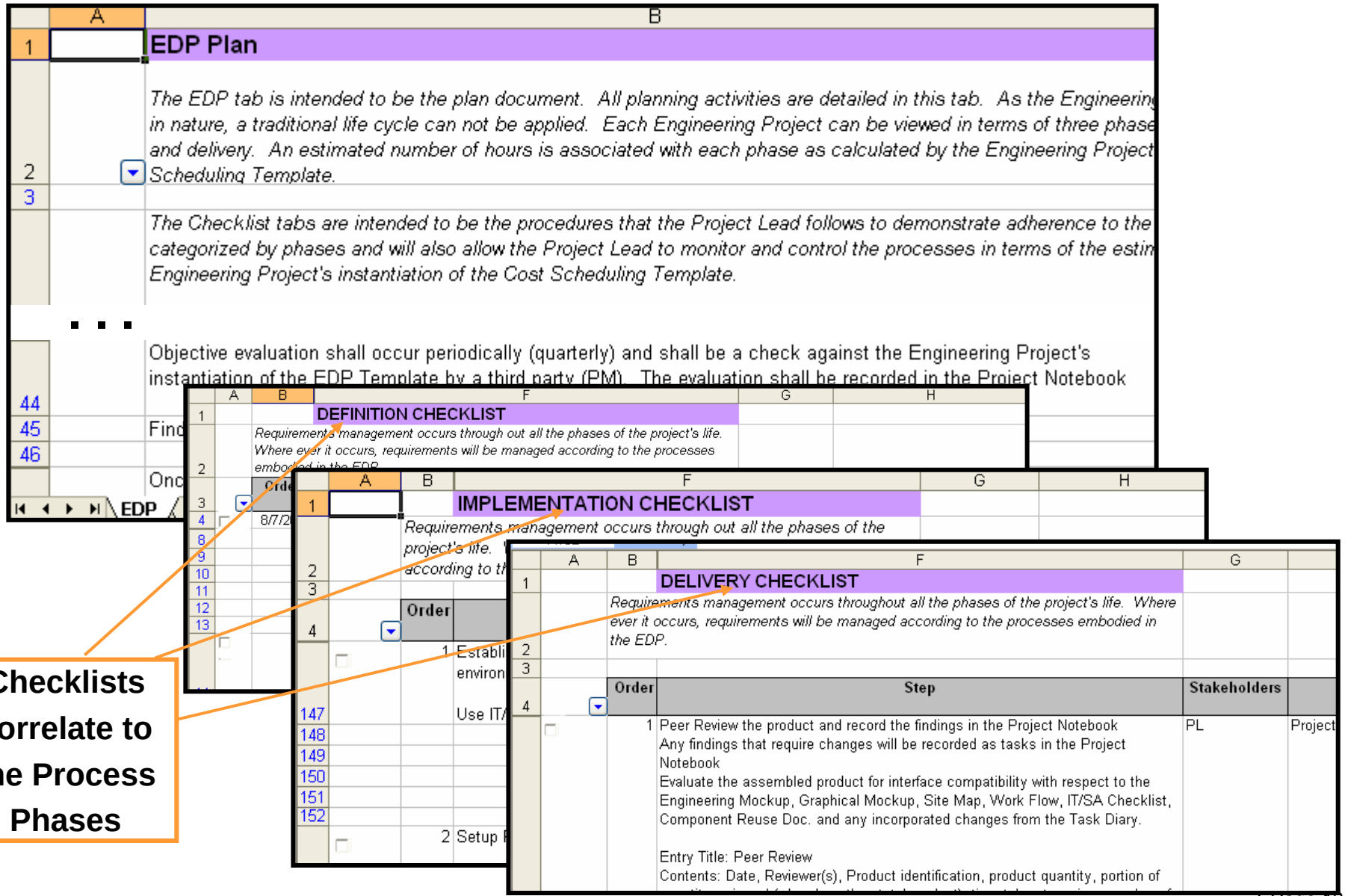

Checklists correlate to the Process Phases

EDP Checklist Attributes

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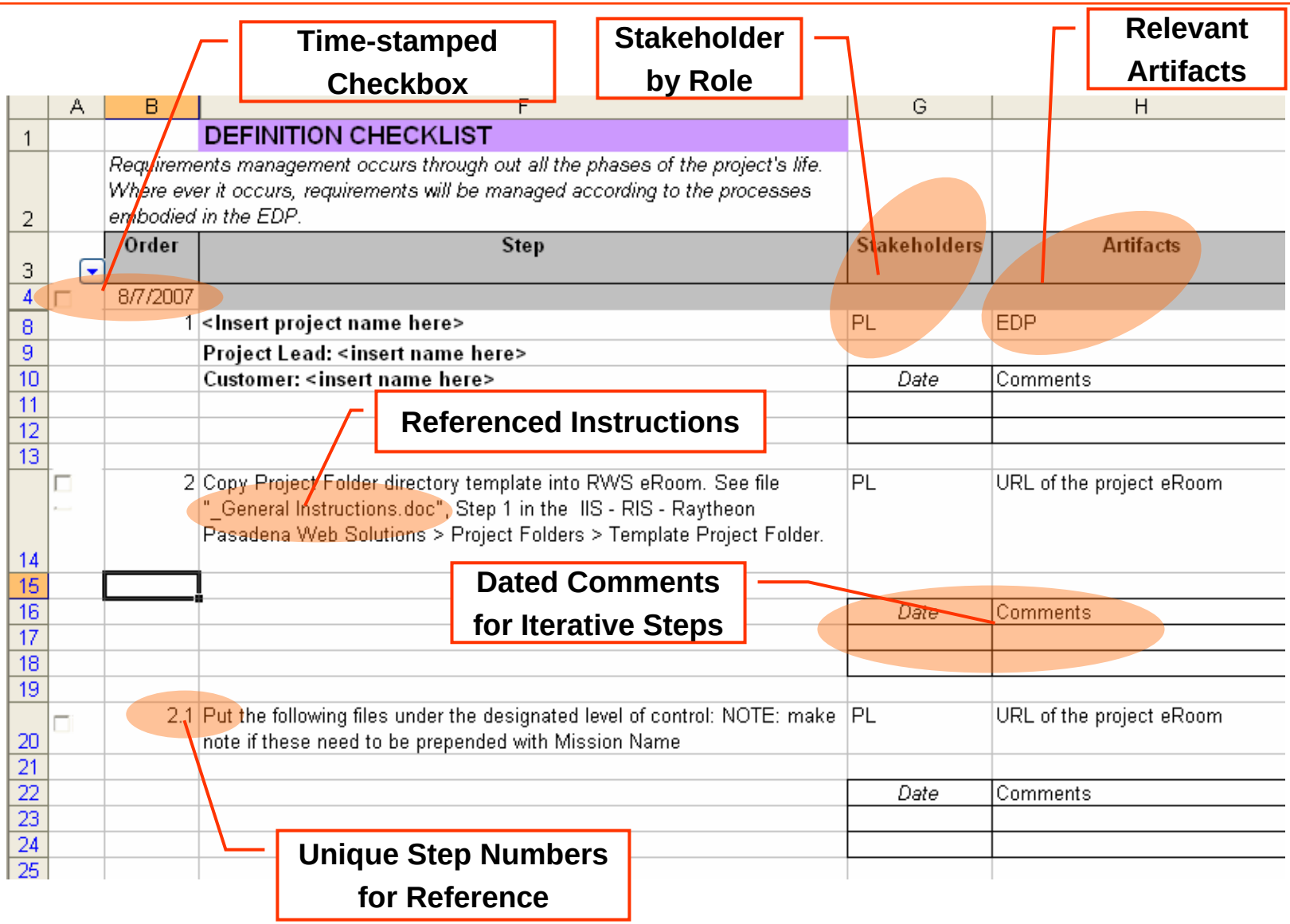

	A	B	F	G	H
1			DEFINITION CHECKLIST		
2			*Requirements management occurs through out all the phases of the project's life. Where ever it occurs, requirements will be managed according to the processes embodied in the EDP.*		
3		Order	Step	Stakeholders	Artifacts
4		8/7/2007			
8		1	**<Insert project name here>**	PL	EDP
9			**Project Lead: <insert name here>**		
10			**Customer: <insert name here>**	*Date*	Comments
11					
12					
13					
14		2	Copy Project Folder directory template into RWS eRoom. See file "_General Instructions.doc", Step 1 in the IIS - RIS - Raytheon Pasadena Web Solutions > Project Folders > Template Project Folder.	PL	URL of the project eRoom
15					
16				*Date*	Comments
17					
18					
19					
20		2.1	Put the following files under the designated level of control: NOTE: make note if these need to be prepended with Mission Name	PL	URL of the project eRoom
21					
22				*Date*	Comments
23					
24					
25					

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Model vs. Lifecycle: Scenario Perspective: Three Phases of Activity

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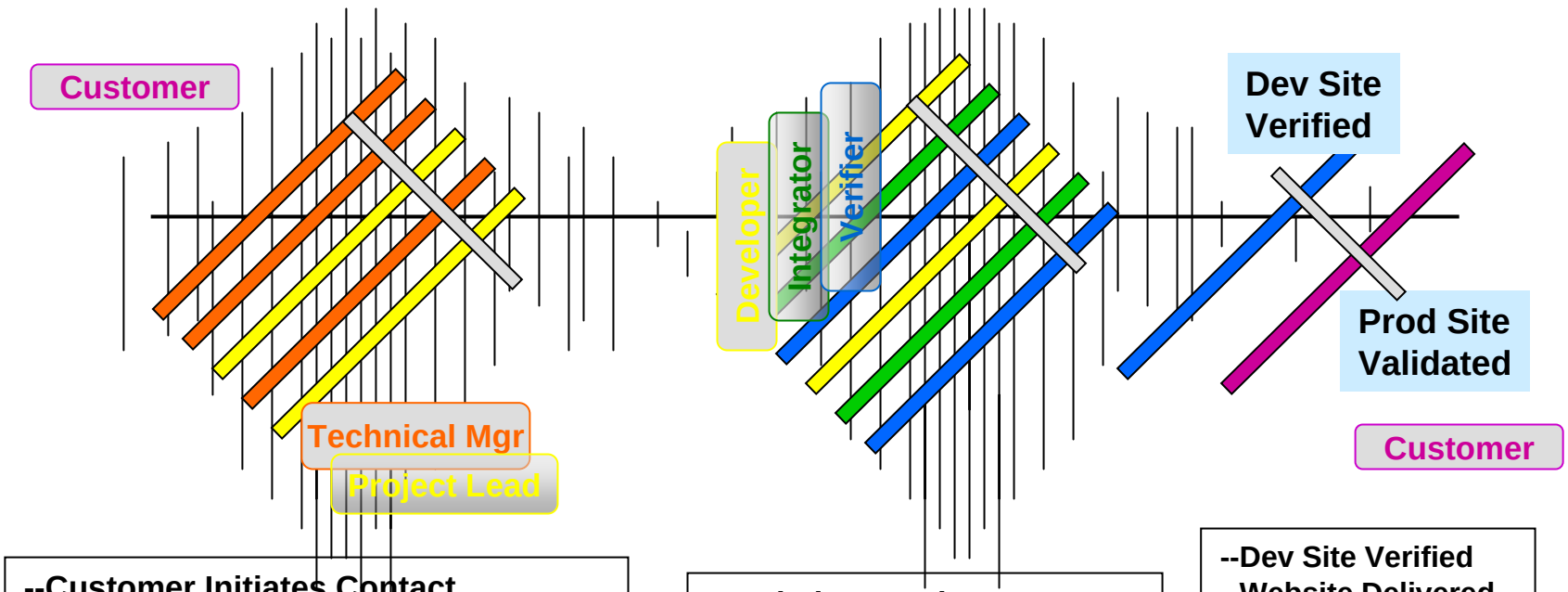

--Customer Initiates Contact
--RWS Gathers Requirements
--Customer/RWS Iteratively Analyze Requirements and Technical Solution

--Website Developers Iteratively implement, Integrate and Verify

--Dev Site Verified
--Website Delivered
--Customer Validates

Legend:

RD	TS	PI	VER	VAL	REQM

Model vs. Lifecycle: Practice Area Perspective

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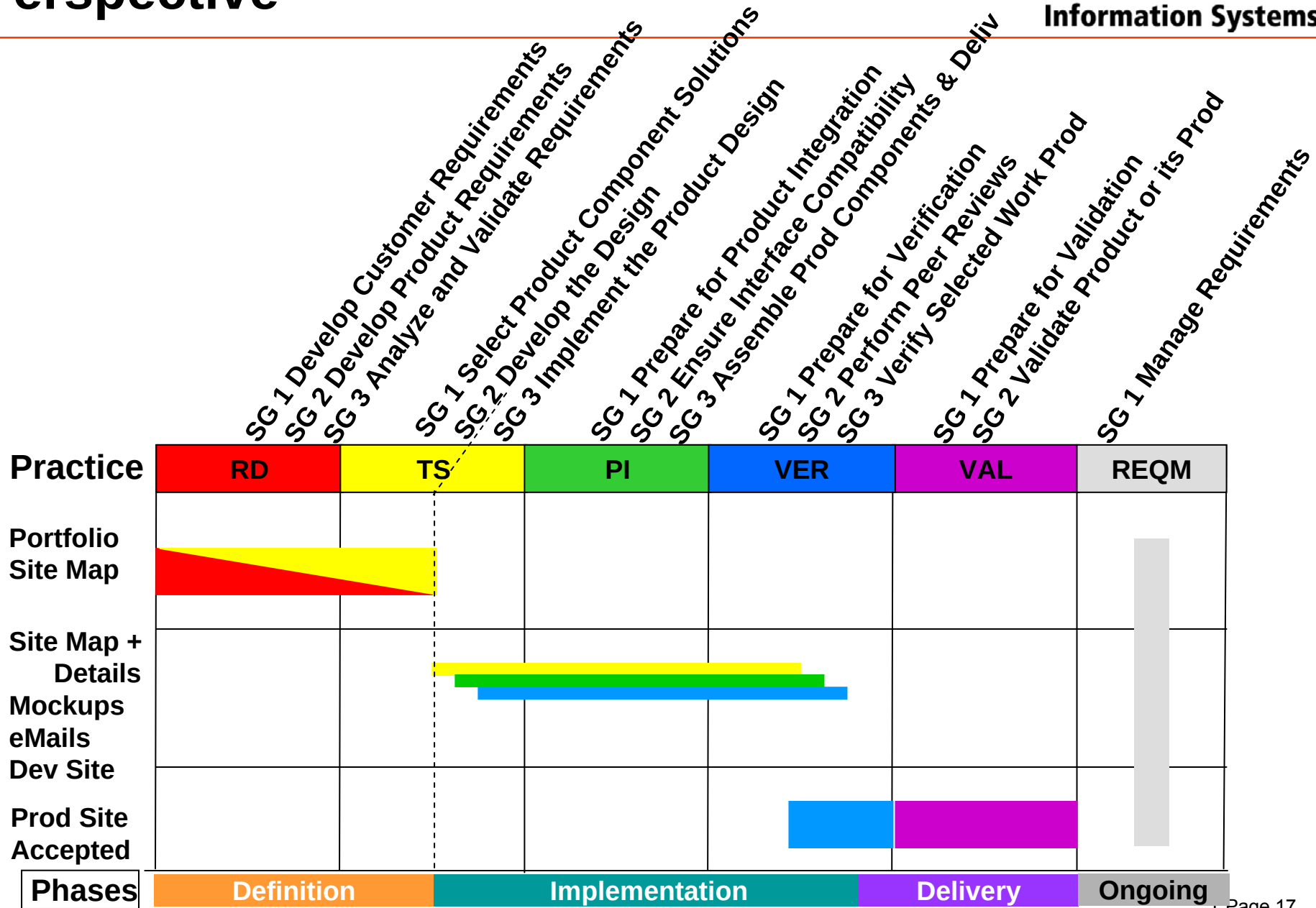

RD & TS (SG 1, SG 2) Happen Concurrently

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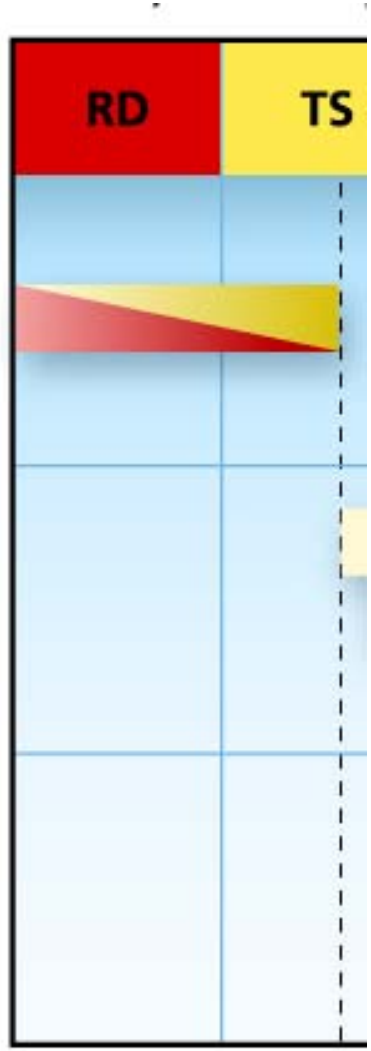
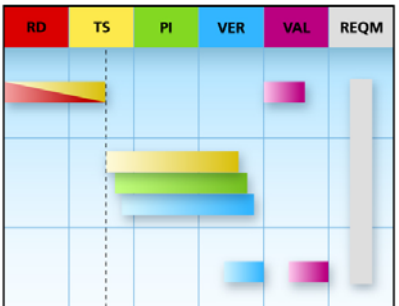
- RD
  - SG 1 Develop Customer Requirements
  - SG 2 Develop Product Requirements
  - SG 3 Analyze and Validate Requirements
- TS
  - SG 1 Select Component Solutions
  - SG 2 Develop the Design





TS (SG 3), PI & VER Happen Simultaneously on a Web Application

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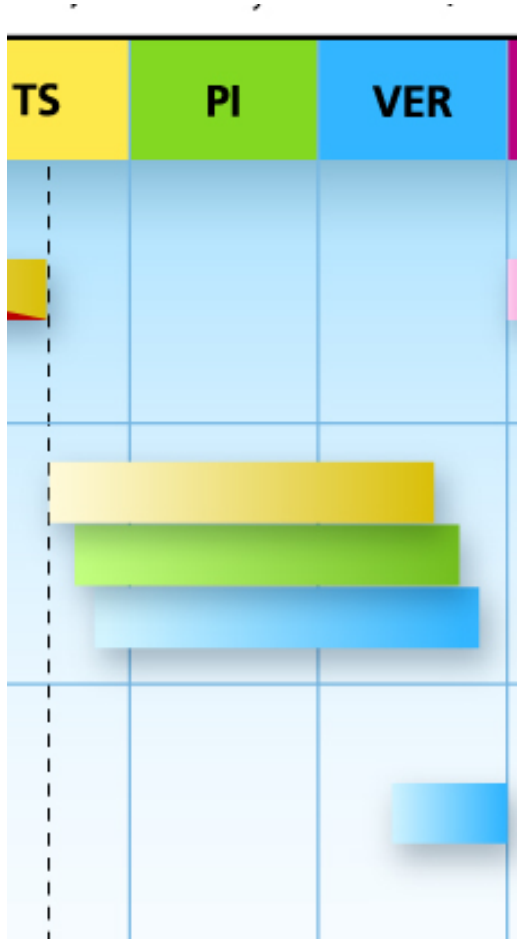
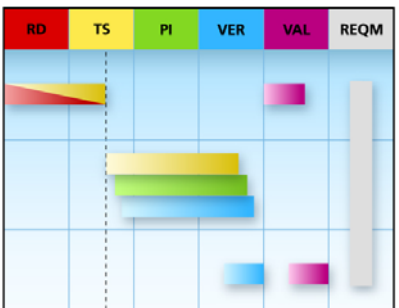
- TS (SG 3)
  - SG 3 Implement the Product Design
- PI
  - SG 1 Prepare for Product Integration
  - SG 2 Ensure Interface Capability
  - SG 3 Assemble Product Components and Deliver the Product
- VER
  - SG 1 Prepare for Verification
  - SG 2 Perform Peer Reviews
  - SG 3 Verify Selected Work Products





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Other Disciplines

- The overall philosophy of a simple compact template-based approach can include disciplines, typically ignored, into the CMMI® world
  - Other fast-turn around component-reuse-driven applications
  - Fast Prototyping
  - Algorithm development

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Conclusions

- We have presented R6σ™ as great framework to carry out process improvement initiatives
- We have presented our compact (fast food) approach to architect and implementing web solutions in a short-turn-around environment
- We have shared some interesting aspects when mapping to the CMMI® model
- We submit that this approach can be used on applications typically excluded from CMMI®