



SSC

Systems Management Office

Active Risk Manager
Pilot to Implementation Process at
Stennis Space Center

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Why SSC SMO...

- What is Unique about SSC SMO...
 - Integration of System Sciences
 - Understanding who the Client is
 - Listening to the “voice” of the Client
 - Commitment to making a difference
- We provide a Service...
 - Management of Services Principles employed
 - Value Stream Delivery
 - Proactive
- ARM is one of many systems we are fielding at SSC

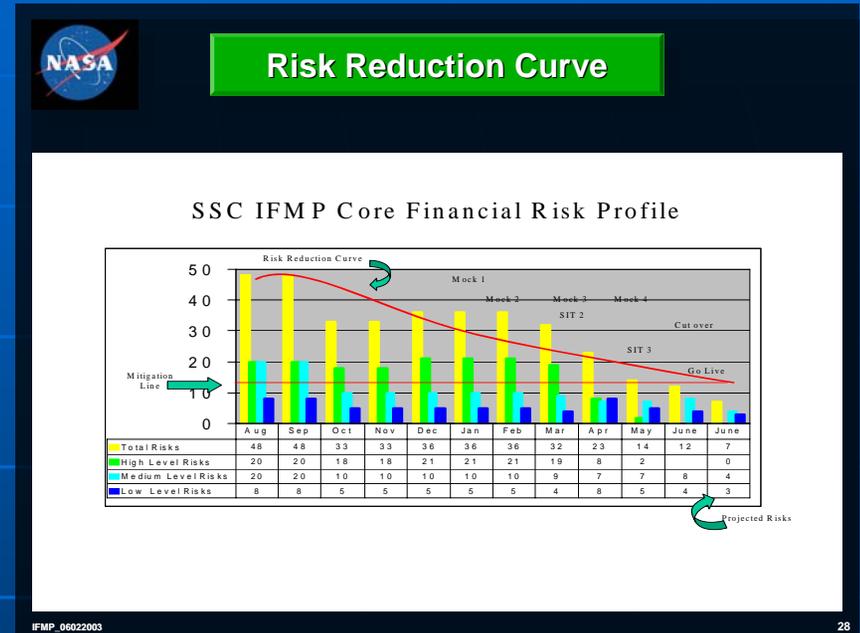
To act as an agent of the Center Director and NASA Chief Engineer (Code AE) to assure that efforts/initiatives and Programs/Projects are executed using sound engineering and management practices with the appropriate insight and controls.

ARM Pilot at SSC

- Integrated Financial Management Program- Integrated Asset Management module
- Stennis Space Center Risks for quarterly Space Operations Mission Directorate Program Management Council
- Institutional Technical Services (CSC) contract work order system
- Integrated Power head Demonstrator
- Exploration Systems Mission Directorate Architectural Studies & Simulation Based Acquisition Support

SSC IFMP

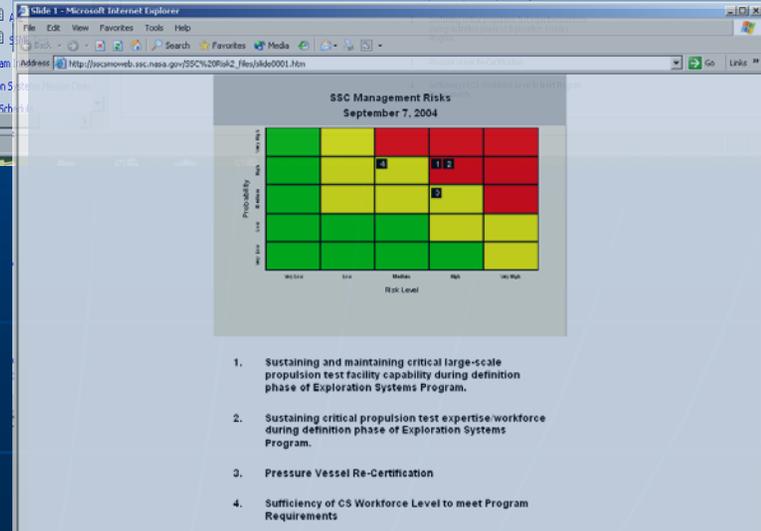
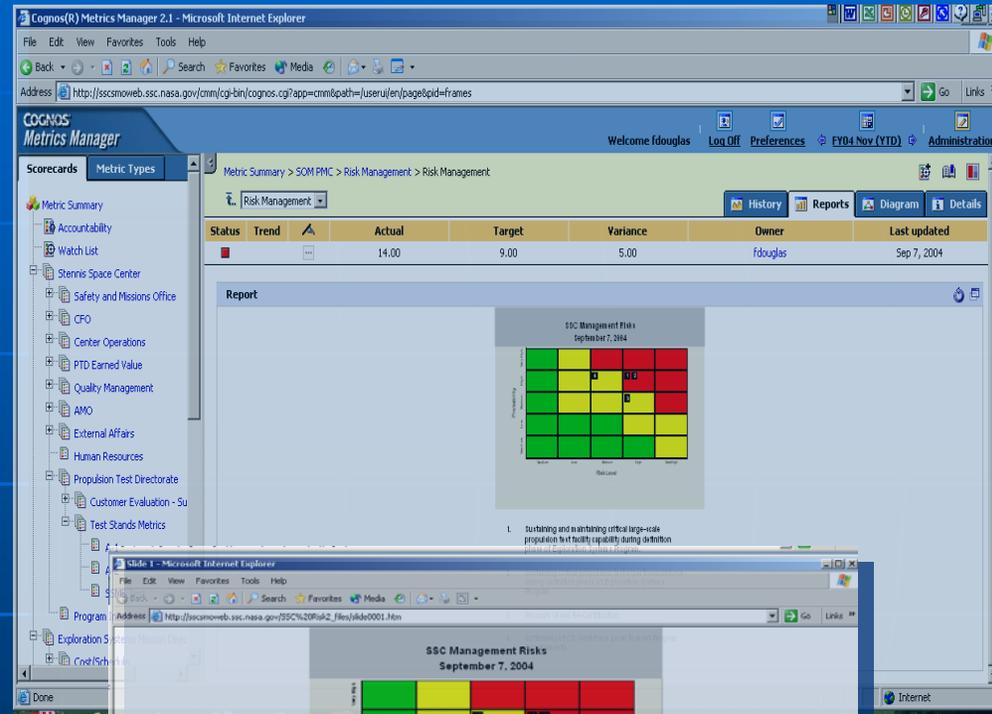
- Core Financial implementation identified 10 legacy systems and 78 risks
- SSC has identified 60 separate legacy systems as part of IAM implementation
- SSC expects to identify and track an estimated 250 - 300 risks during the IAM implementation
- A Knowledge-based tool such as ARM is essential to our ability to implement effective risk management within a program of this magnitude
- ARM forces (drives) detail into risk mgmt program. Requires specific mitigation steps, does not let take short cuts like in subjective environment. Holds risk owners accountable



Core Financial Risk Reduction Curve

SSC SOMD Performance Reporting

- All SOMD Centers are required to report on key performance measures
- SSC maintains a 5x5 risk matrix for Center level issue management
- ARM is an element within a smart end data mining/warehousing system for gathering and reporting performance metrics



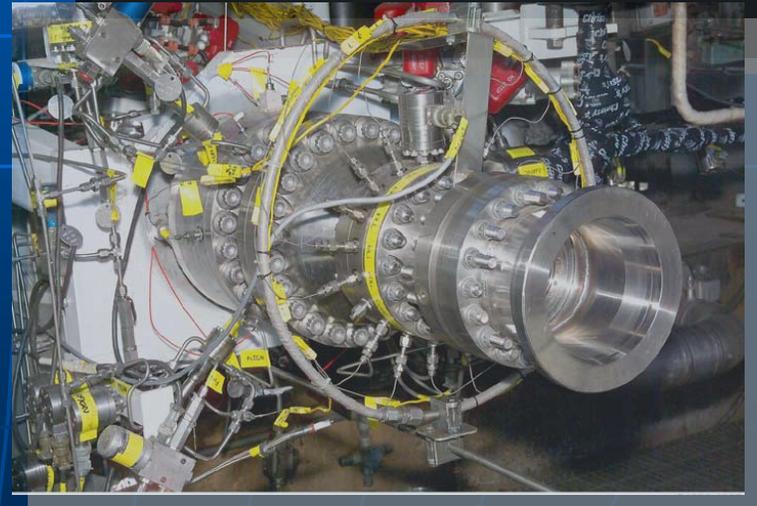
SSC Technical Services Contract

- The technical services contract provides support for the entire SSC Federal City
- COTR requires risk identification, management and mitigation strategies for all work requests
- Contractor implementation plans include risk management and approval by customer
- Contractor management training complete



Integrated Powerhead Demonstrator

- IPD was the initial project for ARM piloting at SSC
- Major take-aways:
 - Facilitation of the risk management process is critical
 - Electronic notification to risk and mitigation task owners is key to timely implementation
 - Opportunity for standard processes in implementing CRM



IPD Gas Generator

Exploration Systems Mission Directorate

- 300 Risks import and sample report in ARM
 - Data clean up, organization and “translation” to ARM recognizable fields
 - Visual Basic Macro Programming
 - MS Excel import
- Requirements
 - Secure handling of sensitive information
 - PKI data transfer
 - Authorized users

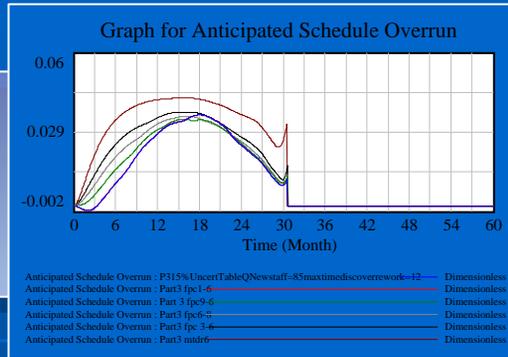
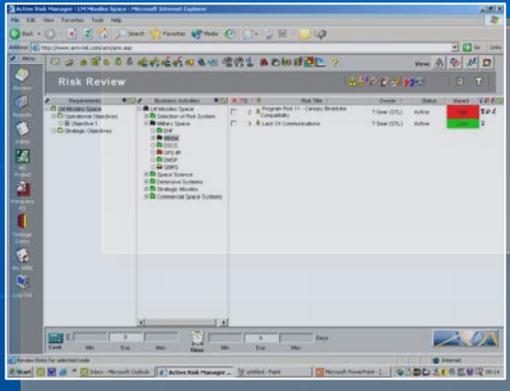


ESMD

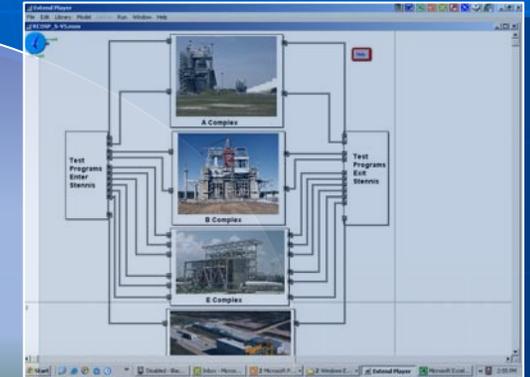
Knowledge-Based Risk Management

M&S Vensim©

Active Risk Manager©

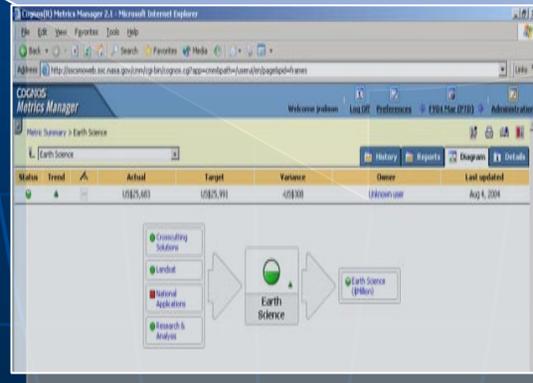


M&S – Extend©



*Decision-Making
In an
Uncertain
Environment*

Cognos – CMM©



KBRM – Virtual Reality



SSC ARM Pilot Take-Aways

- Risk Management process is transparent to the project management process
- Time domain integration of requirements, schedule and technical risks
- Ownership and accountability for risks and mitigation strategies
- Utilization of risk management resources for project sheparding
- Facilitation of process is critical to project adaptation
- ARM is viewed as the “front door” to a more dynamic and life cycle synchronized



ACTIVE RISK MANAGER

Can you communicate
tomorrow's risks today?

Active Risk Manager
Total Enterprise Risk
Management

Version 2.05

*"ARM is a fully integrated
enterprise risk management
solution designed to track both
business and project risk across
the organisation."*

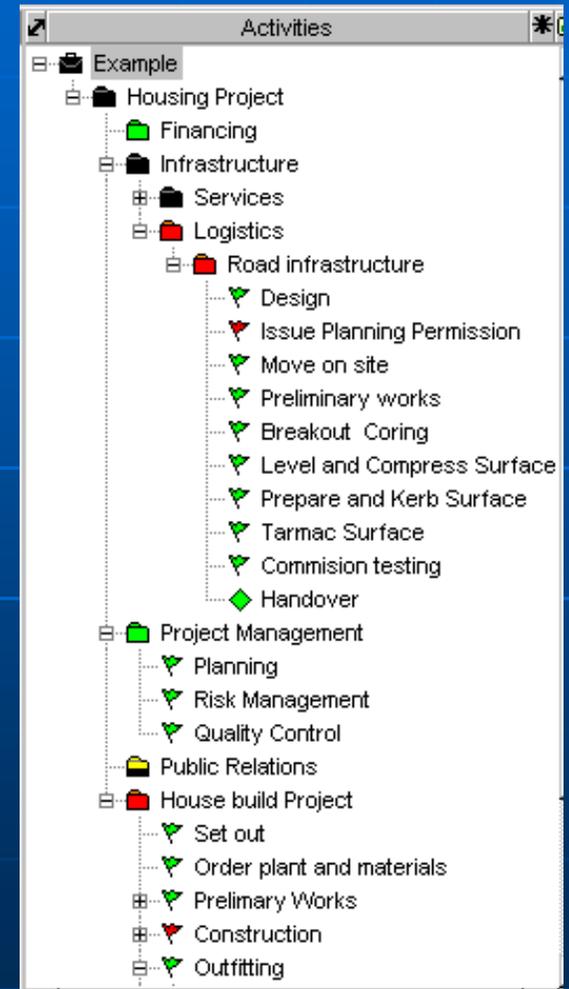
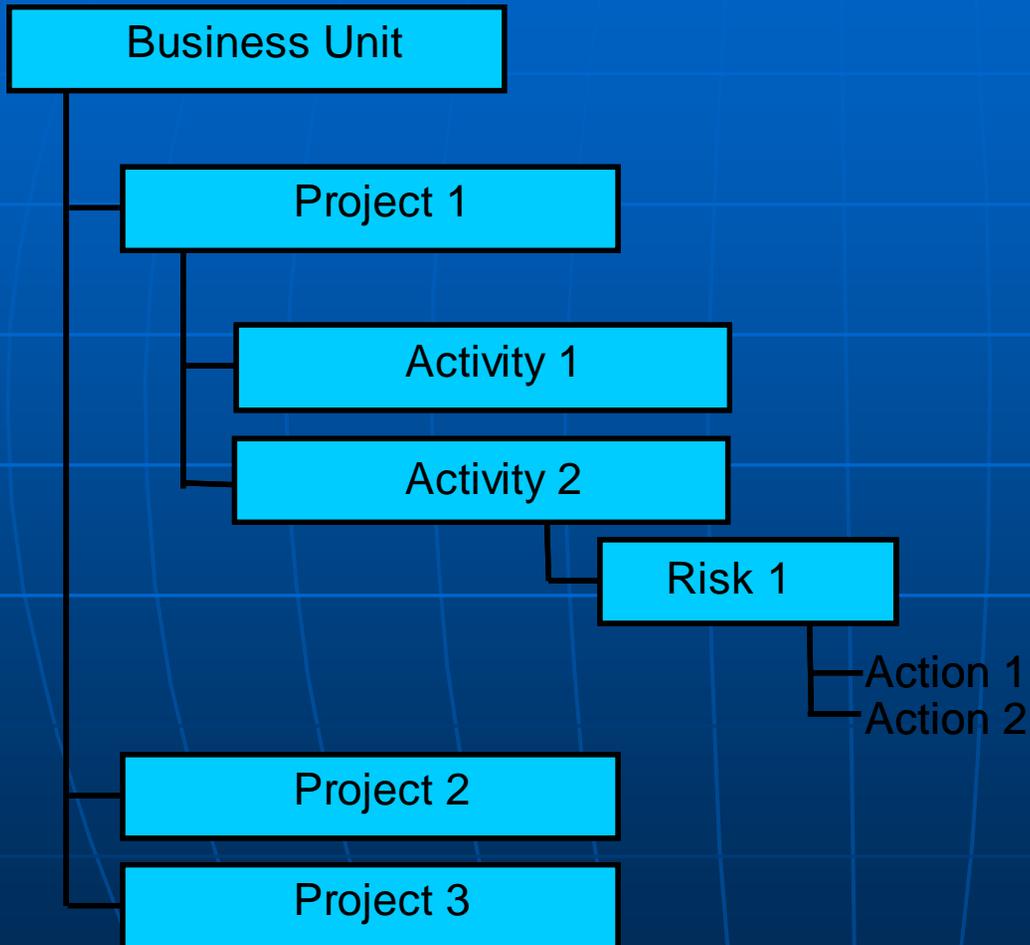
STRATEGIC THOUGHT

An e-Engineering Company.

Elements that can be used to demonstrate the distribution of risk within an organization

- Work Breakdown Structures (WBS)
- High level project structure's
- Requirement breakdown
- Cost (CBS)
- Risk (RBS)
- Organizational (OBS)
- Product (PBS)
- Business (BBS)

Risk Breakdown



Risk Assessment

Qualitative assessment uses a narrative or ordinal scale, for example

Low = 'Unlikely to occur, Not known of in this industry'

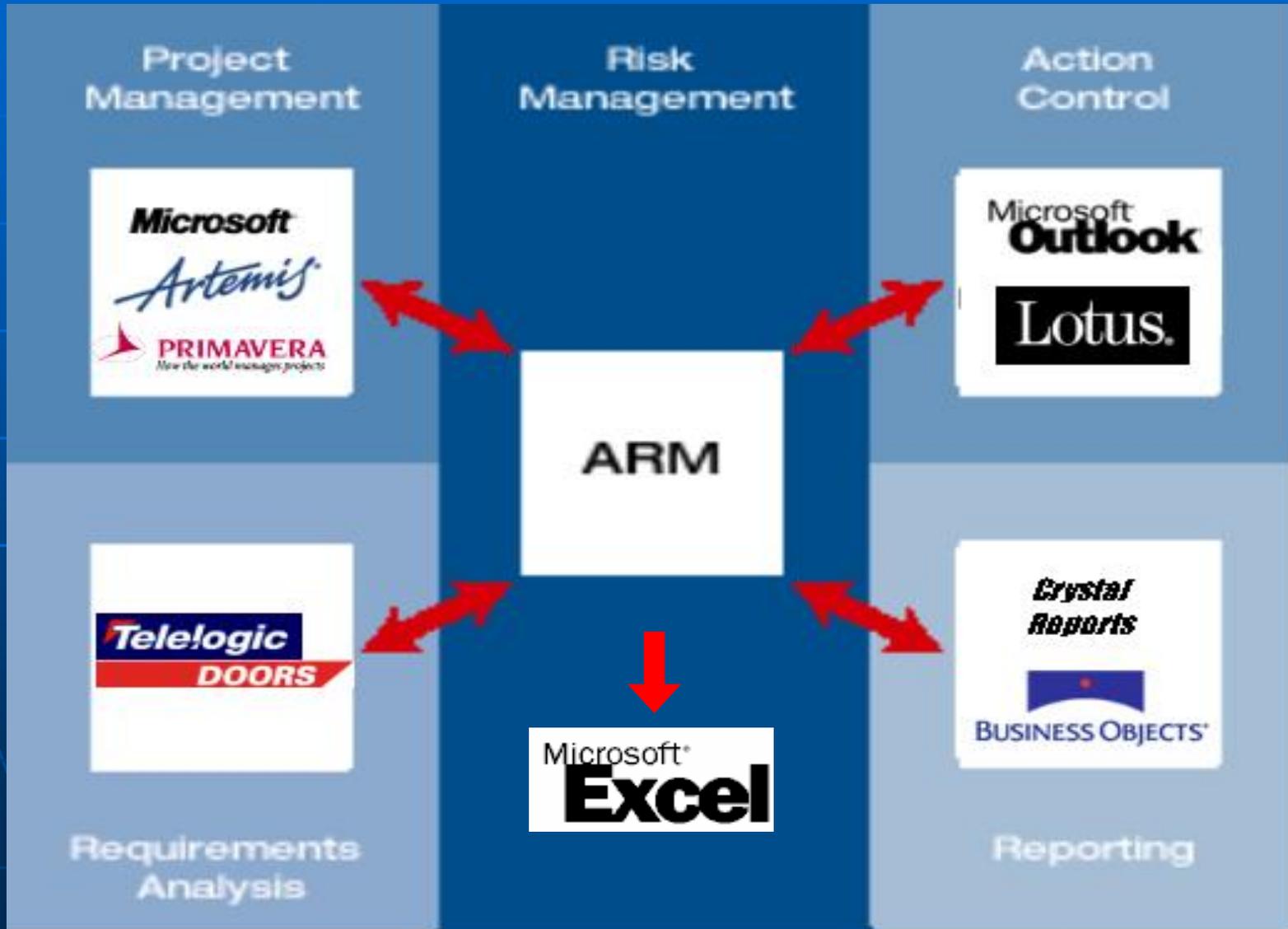
Low = 'Minor Cost overrun 2% of project budget, would require team leader to authorise additional spend'

Quantitative assessment uses scientific empirical data, for example

Low = 50% chance risk would occur

Low = \$560,000 Increase in Cost

Integration



ACTIVE RISK MANAGER

RISK REVIEW

File Edit New Review View Link Analysis Reports Tools Help -- Filters OFF --

Requirements	Business Activities	ID	Risk Title	Owner	Status	Risk Level
<ul style="list-style-type: none"> [-] NASA SSC <ul style="list-style-type: none"> [+] Propulsion Test [+] Earth Science Application [+] Center Operations [+] External Affairs [+] RPT Program [+] IFM Program 	<ul style="list-style-type: none"> [-] NASA SSC <ul style="list-style-type: none"> [+] Propulsion Test [+] Earth Sciences Application [+] Center Operations [+] External Affairs [+] RPT Program [+] IFM Program [+] SSC 					
		11	Components Lacking LOX Service Certification	Brian Vieages	Unapproved	High
		34	Lack Of Alarm Standardization Across The Test Stands	Dave Epperson	Active	Medium

ACTIVE RISK MANAGER

DETAIL VIEW

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Risk | Impact | Plan | Response Add Another Save X

Overall Risk Status

ID	Title*	Owner*	Status
43	E-Complex Lightning Protection	Brian Vieages	Unapproved <input type="button" value="v"/>
Risk / Issue	Interested Parties	Risk Raised By	Category
Risk <input type="button" value="v"/>		Brian Vieages	Safety
Approved?	Risk Relationship	Risk Classification	Risk Source
<input type="button" value="Approve"/>		Secondary <input type="button" value="v"/>	Weather <input type="button" value="v"/>
	Risk Cost		
	\$K 90		

Cause
 Studies done by MSS and safety walk-downs found a number of areas across all the stands where some needed lightning protection was missing.

Risk Description
 E complex stands currently have known deficiencies in their lightning protection.

Effects
 Lightning protection deficiencies could result in equipment damage or personnel injury

Impacts from Related BBS Structure

ID	Name	Trigger Date	Score Scheme	Risk Level
43	E Complex		SSC	Low

Dates Initiation : 06 Nov 2003 Approval : -- Assessment : --

ACTIVE RISK MANAGER

DETAIL VIEW

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Risk **Impact** Plan Response Save X

General Details

ID: Activity: Impact Group:

Risk: Black Flag Impact:

Scoring Scheme:

Impact Description

E complex stands currently have known deficiencies in their lightning protection; this could result in equipment damage or personnel injury

Exposures	Current Exposure	Threat	Opportunity	Target Exposure	Threat	Opportunity
	Probability: <input type="text" value="7.5"/> %	<input type="text" value="2:Low"/>	Status: <input type="text" value="2:Low"/>	Probability: <input type="text" value="2.5"/> %	<input type="text" value="1:Very Low"/>	Status: <input type="text" value="1:Very Low"/>

Impacts	Current Exposure				Target Exposure			
	Min	Most Likely	Max/SD	Status	Min	Most Likely	Max/SD	Status
Cost (\$K)	<input type="text"/>	<input type="text" value="90"/>	<input type="text"/>	<input type="text" value="2:Low"/>	<input type="text"/>	<input type="text" value="15"/>	<input type="text"/>	<input type="text" value="1:Very Low"/>
Time (Days)	<input type="text"/>	<input type="text" value="6.5"/>	<input type="text"/>	<input type="text" value="2:Low"/>	<input type="text"/>	<input type="text" value="1.5"/>	<input type="text"/>	<input type="text" value="1:Very Low"/>
Safety (#)	<input type="text"/>	<input type="text" value="1.5"/>	<input type="text"/>	<input type="text" value="2:Low"/>	<input type="text"/>	<input type="text" value="0.5"/>	<input type="text"/>	<input type="text" value="1:Very Low"/>
Unused	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="0:Nil"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="0:Nil"/>
Unused	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="0:Nil"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="0:Nil"/>

Current ROI: Risk Level: Low Risk Level: Low

Dates Risk Initiation: Trigger: Expiry: Target Resolution:

ACTIVE RISK MANAGER

DETAIL VIEW

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Risk

Impact

Plan

Response

Add Another

Save

**Overall Plan Status**

ID	Title*	Plan Executive*	Plan Strategy	Plan Cost (\$K)
26	E-Complex Lightning Protection Plan Upgrade	Brian Vieages	Mitigate	20

 High Level Description

Implement fixes per MSS studies done in FY03.

 Fallback Plan Description
Related Risks

Responses

ID	Title
43	E-Complex Lightning Protection

Plan Dates

Start : 06 Nov 2003

Completion : --

ACTIVE RISK MANAGER

DETAIL VIEW

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Risk Impact Plan **Response** Add Another Save X

Overall Response Status

ID	Title*	Owner*	Status	Response Type *
15	E-Complex Lightning Protection Plan Upgrade	Brian Vieages	Proposed	Action
Linked Activity ID	Target Risk Level	Priority	% Complete	Response Cost (\$K)
		Medium	0	20

Response Description

Implement fixes per MSS studies done in FY03

Response Comments

Response Dates

Start*: 06 Nov 2003 Due Date*: 06 Mar 2004 Back on Track: --

Completion: -- Baseline Due Date: 06 Mar 2004

Related Response Details

ID	Title	Target	Due Date	Owner	Status
15	E-Complex Lightning Protection Plan Upgrade	--	6 Mar 2004	Brian Vieages	Proposed

Plan ID: 26 Plan Title: E-Complex Lightning Protection Plan Upgrade Start: 06 Nov 2003 Completion: --



Report Selection

? Standard	? Custom	? Admin
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- Breakdown of Impacts by Ownership
- Business Analysis
- Detailed Risk Register
- Impact Category Summary
- Performance Against Individual Response Owners
- Qualitative Impact Record
- Qualitative Risk Register
- Qualitative Risk Summary
- Quantitative Risk Register
- Response Register
- Risk Data Sheet
- Risk Index
- Risk Severity By Status
- Risks Against Projects, Activities
- Scoring Schemes

- None Selected -

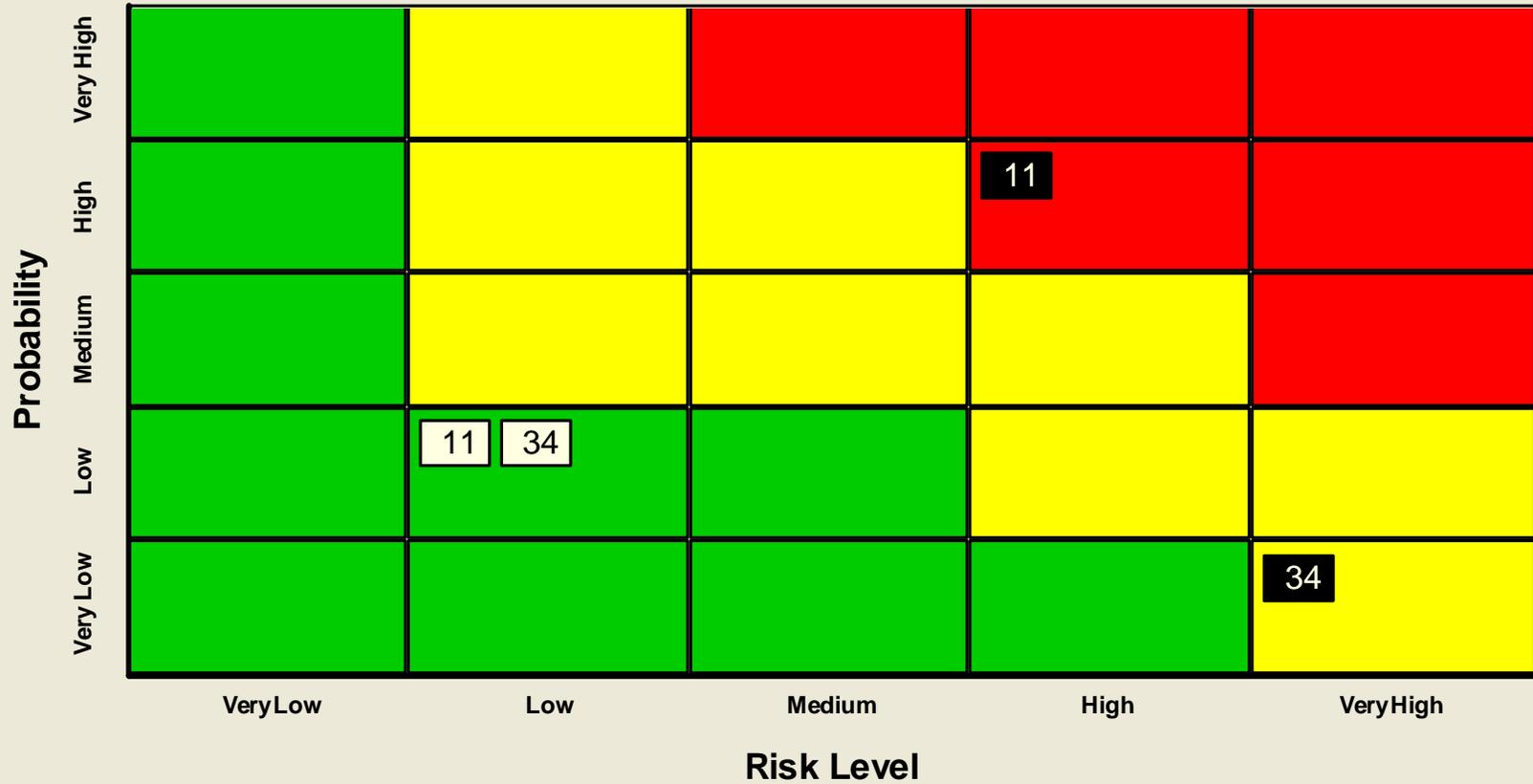
- Database Schema
- Folder Access List
- Risk Access List
- User Groups and their Users
- User Register
- Users and their User Groups

Description:

Risk Probability / Impact for 'Propulsion Test' on: 15 Jul 2004

Filters: Risk Owner: All;

Risk Status: All; Impact Groups: All.



Qualitative Risk Summary

RISK	RISK / OWNERSHIP	IMPACT	PLAN / FALLBACK	DETAILS
<p>Risk ID 1</p> <p>Source Process</p>	<p>Consequence: Lack of experienced designers leads to design approval delays</p> <p>Owner: Curiel, Pedro H.</p>	<p>Prob: Medium</p> <p>Cost: Medium</p> <p>Time: High</p>	<p><u>Seek additional design capability PHC</u></p> <p>High Level Description: Undertake detailed review of designer requirements and seek to increase team size</p> <p>Fallback Plan Description: 1. Seek concession from client 2. Implement overtime working</p>	<p>Risk Status: Unapproved</p> <p>Initiation Date: 01-Apr-2004</p> <p>Approval Date:</p> <p>Assess't Date:</p> <p>Trigger Date: 20-Jul-2005</p> <hr/> <p>Risk Level Medium</p>
<p>Risk ID 2</p> <p>Source Programmatic</p>	<p>Consequence: Lack of defined interface documentation may lead to interface problems during system integration</p> <p>Owner: Curiel, Pedro H.</p>	<p>Prob: Medium</p> <p>Cost: High</p> <p>Time: Very High</p>	<p><u>Development integration requirements</u></p> <p>High Level Description:</p> <p>Fallback Plan Description:</p>	<p>Risk Status: Active</p> <p>Initiation Date: 07-Apr-2004</p> <p>Approval Date: 07-Apr-2004</p> <p>Assess't Date:</p> <p>Trigger Date:</p> <hr/> <p>Risk Level High</p>

Prelim Design Risk Focus Charts

Rank	Risk ID	Risk Statement	Approach & Plan	Status
	1	Lack of Design Team Resources PHC	Undefined	Unapproved
<u>Criticality</u>	<u>Planned Closure</u>	Lack of experienced designers leads to design approval delays		
Medium				
	1	Lack of Design Team Resources PHC	Mitigate	Unapproved
<u>Criticality</u>	<u>Planned Closure</u>	Lack of experienced designers leads to design approval delays	Undertake detailed review of designer requirements and seek to increase team size	
Medium	27-Oct-05			
	2	System Integration more complex than expected	Undefined	Active
<u>Criticality</u>	<u>Planned Closure</u>	Lack of defined interface documentation may lead to interface problems during system integration		
High				
	3	Lack of Design Team Resources PHC	Mitigate	Active
<u>Criticality</u>	<u>Planned Closure</u>	Lack of experienced designers leads to design approval delays	Undertake detailed review of designer requirements and seek to increase team size	
Medium	27-Oct-05			
	8	risk temp	Undefined	Unapproved
<u>Criticality</u>	<u>Planned Closure</u>			
NIL				

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 Close Full Screen

Unapproved

Contact Information

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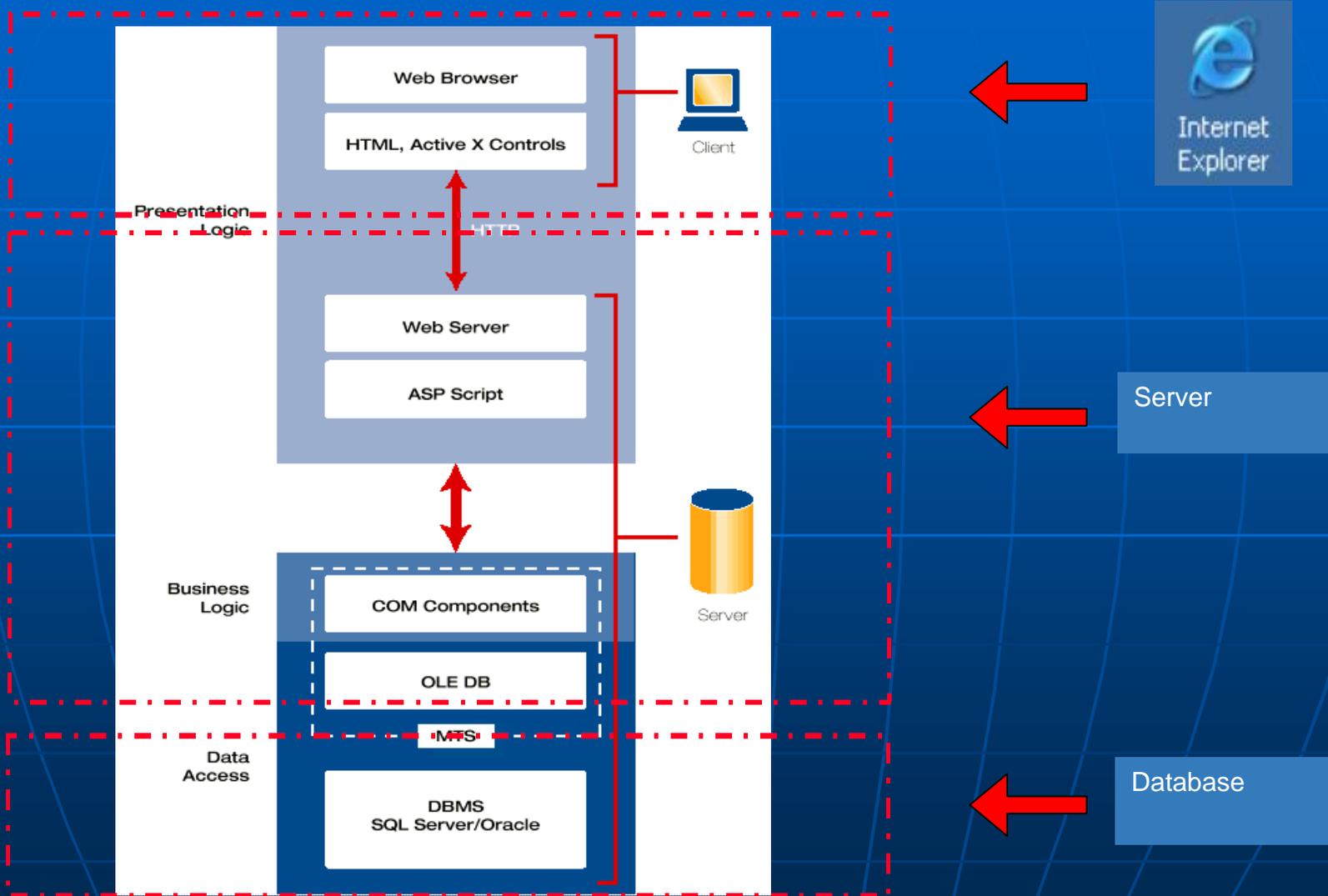
Freddie Douglas, III
Stennis Space Center
HA10
228-688-3538
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Questions

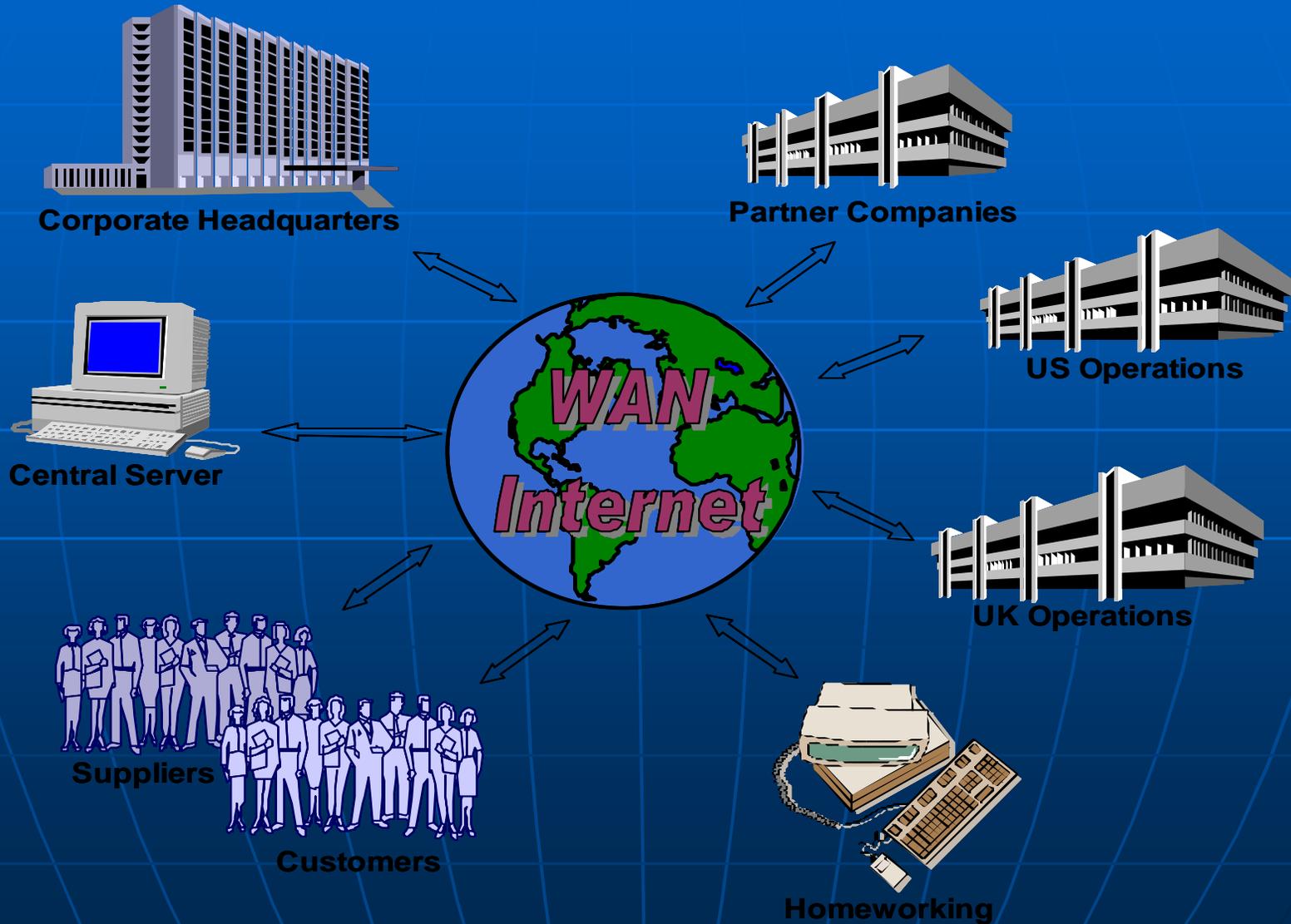
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Backup

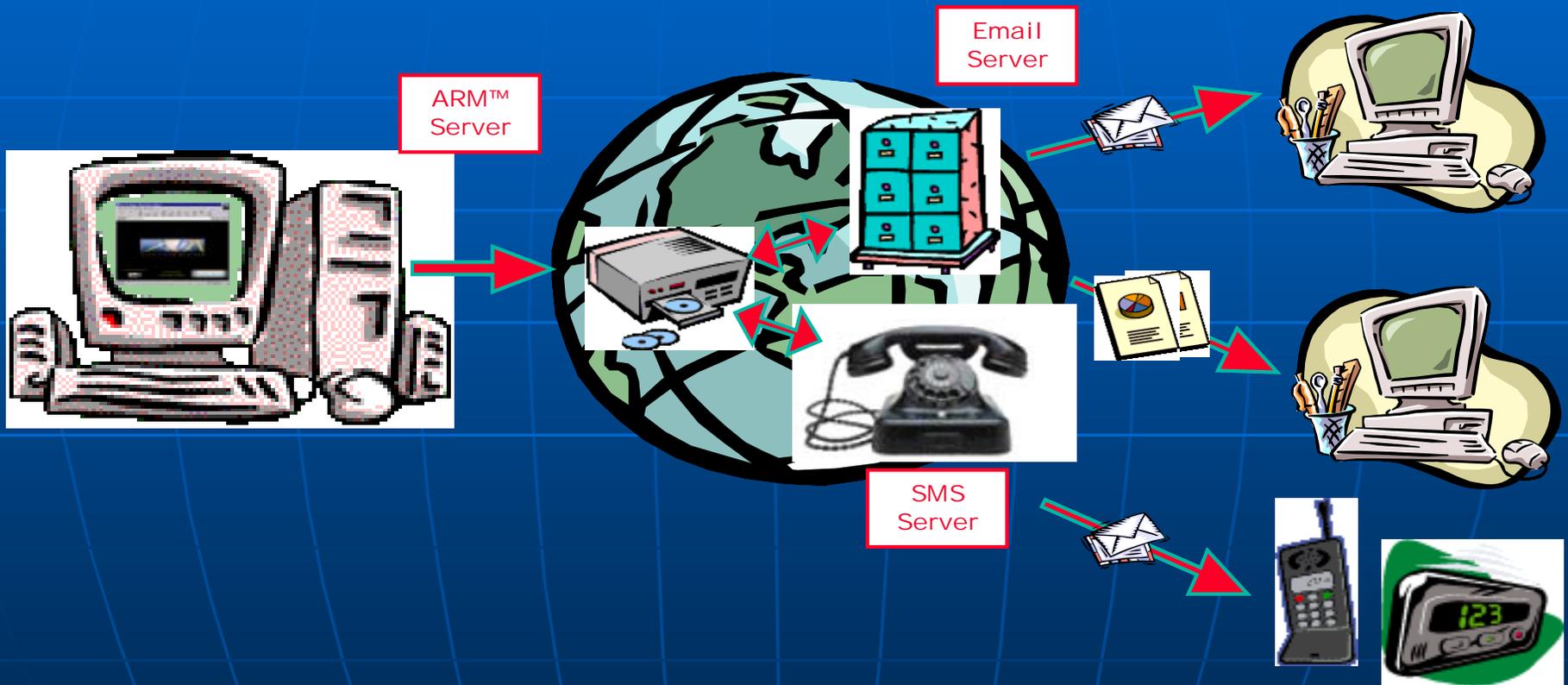
Architecture – Performance



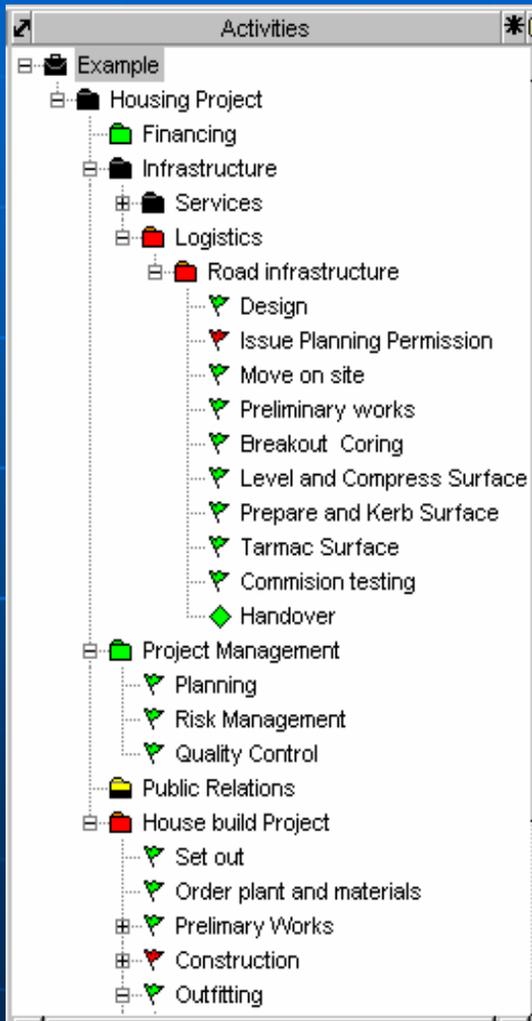
Architecture – Communication



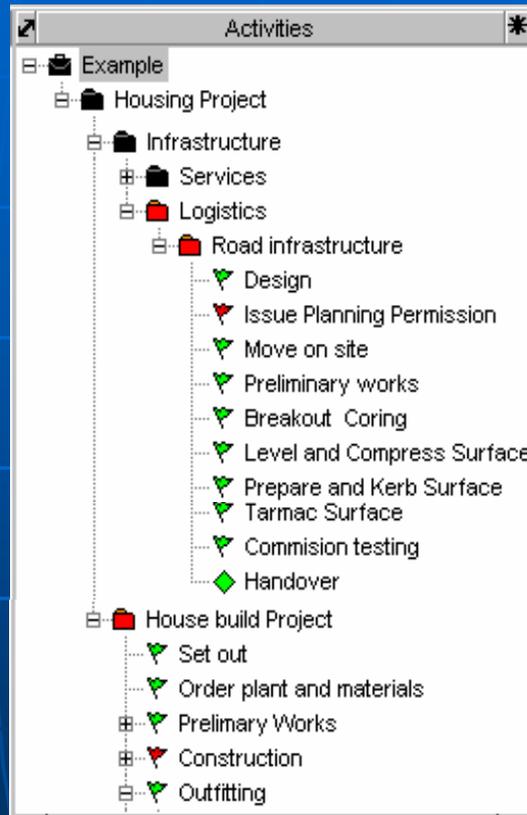
Architecture – Communication



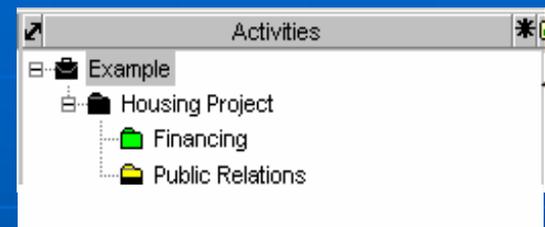
Architecture – Security



Corporate Users



Engineering Users



Finance Users

