

ribs Space Consultancy & Insurance

RISK MANAGEMENT IN SPACE ACTIVITIES

Implementation, Execution and Evaluation of Risk Management

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The 9th Iranian Aerospace Society Conference Feb. 8-10/2010, Islamic Azad University, Science and Research Branch

2 February 2009: Iran launches home made satellite with indigenous developed launch vehicle from its Semnan launch site.



Risk Management in Space Activities

ISA

<u>Conclusion 1</u> Iran conducts space activities; it builds satellites and launch vehicles



Conclusion 2

Iran has to implement *Risk Management* in its space activities



Implementation, Execution and Evaluation of Risk Management

Introduction

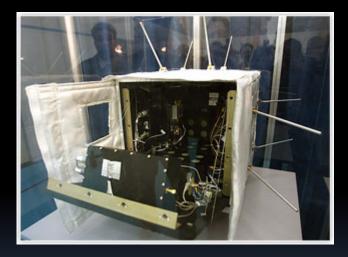
Risk Management & Risk Control Measures

Risk Control Measures

Implementation Execution Evaluation

Concluding remarks

Questions & Answers



Omid Satellite

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TT&C Vehicle



Risk is a measure of the inability to achieve overall programme objectives within defined cost, schedule, and technical constraints and has two components:

(1) the probability of failing to achieve a particular outcome and

(2) the consequences of failing to achieve that outcome.





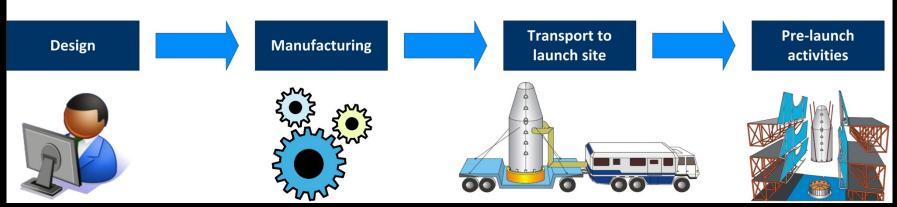
Risk Management is the act or practice of controlling risk.

It includes:

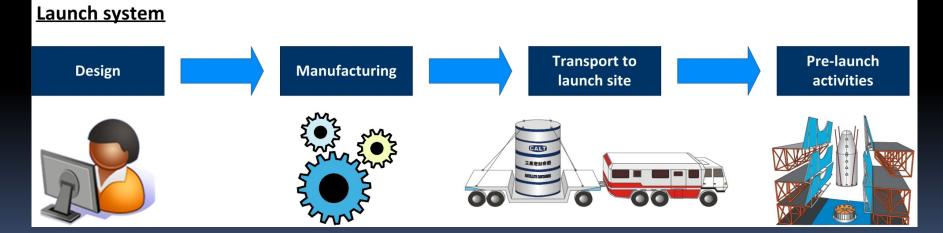
risk planning, assessing risk areas, developing risk-handling options, monitoring risks to determine how risks have changed, documenting the overall risk management programme.

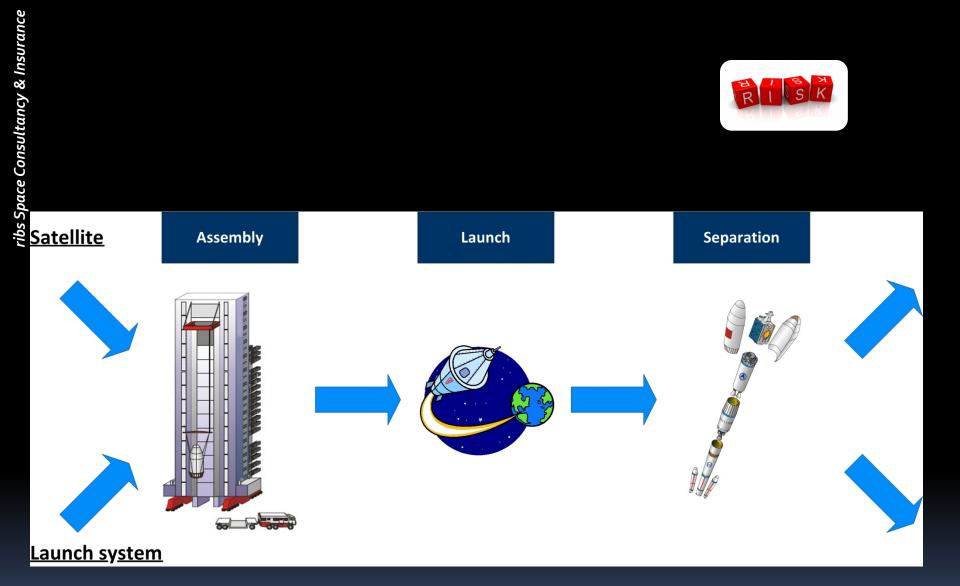


<u>Satellite</u>



The process of launching and maintaining a satellite in orbit



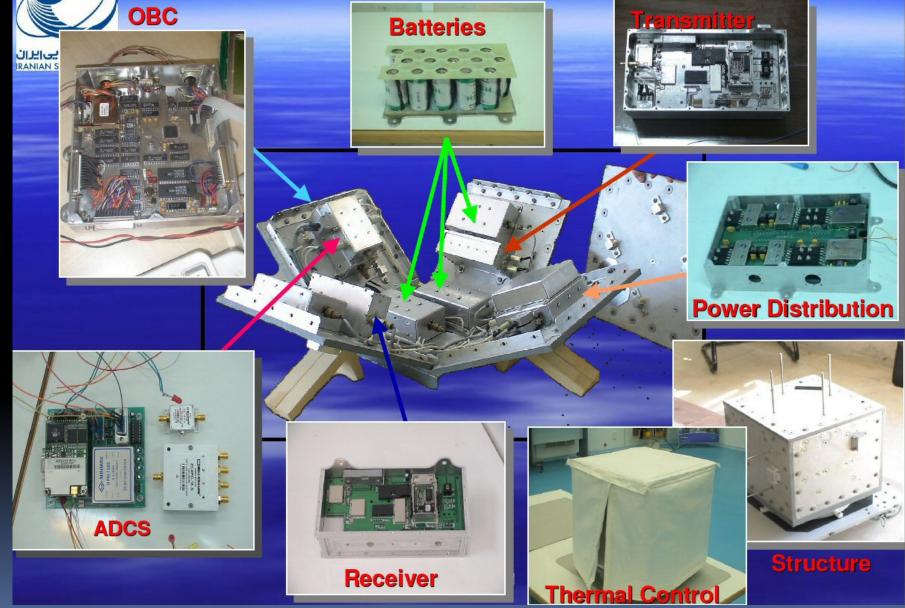


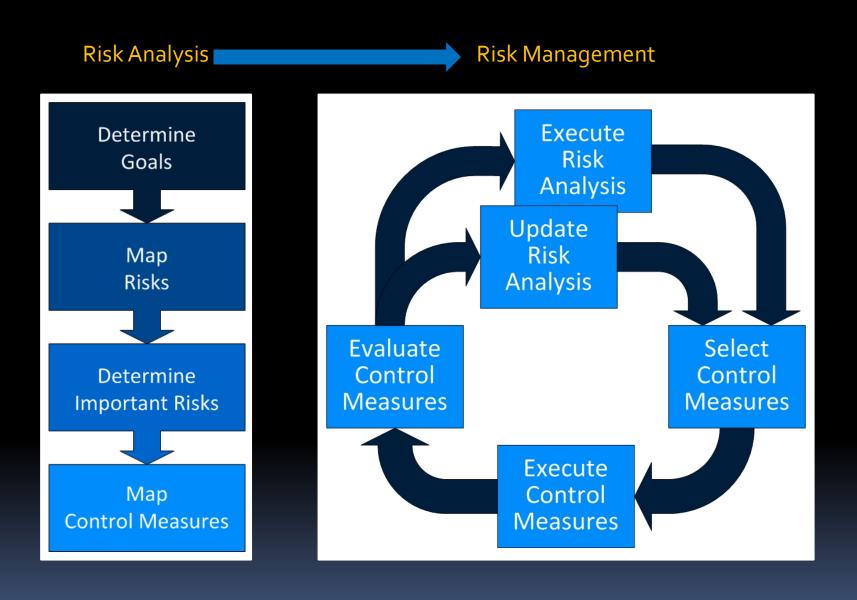
Satellite In-orbit commissioning In-orbit life In-orbit life Decay / re-entry











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Ground-based communication antennae

The implementation of Risk Control Measures Success Factors:

- Clear goals
- Harmonization of management style and organization
- Recognition of the culture of the project organisation
- The place of the risk management in the project organization
- Adequate capacity, knowledge and experience
- External motives



Phase	Description
Initiation	Determine goals (necessary/useful)
	Determine results (when/what)
	Set project boundaries





Phase	Description
Definition	Determine requirements the risk management must meet
	Determine whether these demands are achievable and non- conflicting



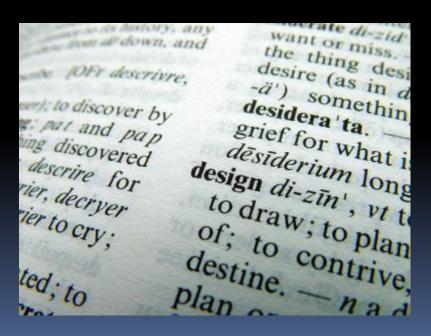
Risk Management in Space Activities

Dhace

The implementation of Risk Control Measures

THASE	Description
Design	Risk Management versus Project Management
	Design the necessary tools

Description





Phase	Description
Preparation	Scenario of implementation
	Train risk management assistants





Phase	Description
Realization	Implement/bring into use the Risk Management
	Put the tools into use
	Create aftercare plan





Phase	Description
Aftercare	Use/execute risk management
	Adapt risk management when necessary
	Record and report 'lessons learnt'





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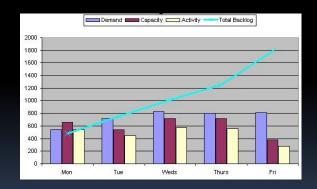


Mesbah Satellite

The execution of risk management deals with a number of factors that need to be clear to everyone involved.

These factors are:

- time/capacity



The execution of risk management deals with a number of factors that need to be clear to everyone involved.

- time/capacity
- money



The execution of risk management deals with a number of factors that need to be clear to everyone involved.

- time/capacity
- money
- quality



The execution of risk management deals with a number of factors that need to be clear to everyone involved.

- time/capacity
- money
- quality
- information



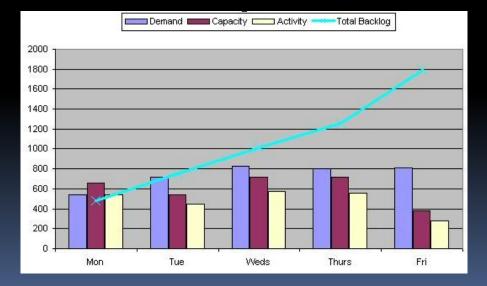
The execution of risk management deals with a number of factors that need to be clear to everyone involved.

- time/capacity
- money
- quality
- information
- organization

		Shareholder's Me Board of Directo Chairman General Manag	Supervisor Audting Off		1
Technology Unit Information Technology Display Product RBD Dropsony Electronics Dropsony Electronics Dropsony RBD Unplay Technology RBD	Union Technology Opticity Business Corup Desktop Display Business Uni Netebook PC Display Business Uni Oriental Display Business Div.	So Unit Consumer Bectronics Display Business Urrag Television Cragby Business Unit Audio-Vrideo Display Business Unit Maib Davice Display Business Unit	Operation Obcal SCM Procurement Div. Logistics Div.	Okba MFO Okba MFO CO Operation Cetter Conter Management Cetter	Administration Finance Information Technology Dw, Technology Office
Precision Machinery R&D		Global Marketing & Sales Branch Companies	Supplier Quality Management Div.	Environment, Safety and Heath Dept.	

Factors	Explanation
Time/capacity	Determine the necessary/available capacity to execute RM
	Decide at what moment risks and control measures are discussed





Factors	Explanation
Money	Determine costs and revenues of RM
	Do the balanced costs/revenues fit into the budget?





Factors	Explanation
Quality	Lay down the mandatory quality of RM
	Ascertain how this quality can be guaranteed





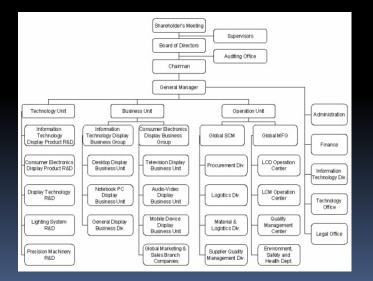
Factors	Explanation
Information	Prescribe the way how risks are recorded/reported
	Stipulate who gets what kind of information





Factors	Explanation
Organization	Define the necessary organization to execute RM





Reporting

Issue	Applicable (Yes/No)	Comments
Identify any existing requirements in the baseline that conflict with the proposed change.		
Identify any other pending requirement changes that conflict with the proposed change.		
What are the consequences of not making the change?		
What are possible adverse side effects or other risks of making the proposed change?		
Will the proposed change adversely affect performance requirements or other quality attributes?		
Will the change affect any system component that affects critical properties such as safety and security, or involve a product change that triggers recertification of any kind?		
Is the proposed change feasible within known technical constraints and current staff skills?		
Will the proposed change place unacceptable demands on any computer resources required for the development, test, or operating environments?		
Must any tools be acquired to implement and test the change?		
How will the proposed change affect the sequence, dependencies, effort, or duration of any tasks currently in the project plan?		
Will prototyping or other user input be required to verify the proposed change?		
How much effort that has already been invested in the project will be lost if this change is accepted?		
Will the proposed change cause an increase in product unit cost, such as by increasing third-party product licensing fees?		
Will the change affect any marketing, manufacturing, training, or customer support plans?		9 VI
Identify any existing requirements in the baseline that conflict with the proposed change.		

Risk Report: Untitled	Close
Use Banner 🗖	Define Banner
REPORT FILTERS	
No Report Filter	
C Filter by Rank C Filter by Risk Level (High, Medium, Low)	
 Filter by Risks By Exposure (0 to 4.5) 	
No report filter selected	
Range:	
Filter by Identification Date 🗖	
Select Risk	
DETAILED REPORTS	SUMMARY REPORTS
One Risk per Page	One Risk per Line
Risks by Rank	Risks by Rank
Risks by Risk ID	Risks by Risk ID
Retired Risks	Risks by Title
Risk Summary by ID	Retired Risks
SPECIAL REPORTS	
Risk Register	ITML Format
Mitigation Plan Summary	Detailed Events
Mitigation Steps Detailed	Risk State History
Mitigation Archive Detailed	Mitigation Archive Summary
VIEW GRAPHS	
Risks by Rank	Risk State
METRIC REPORTS	
Risk Level Change History	Acceptable Transitions
New Risks Identified	Risk Transitions

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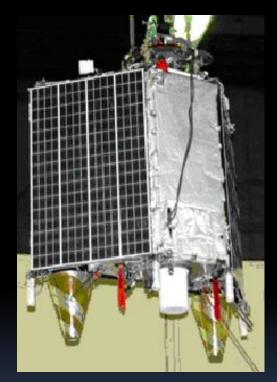
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Sina-1 Satellite

Evaluation of Risk Control Measures

In an evaluation process the following questions should be asked:

What is the probable cause if desired effects have not been achieved?

Is the frequency of consultation to satisfaction?

Is it necessary to adapt the current information and reporting facilities?

Has the information needed been communicated?

Have the responsibilities and authorities been assigned correctly?



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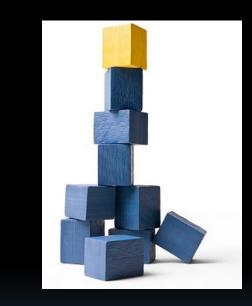
Safir Omid IRSLV

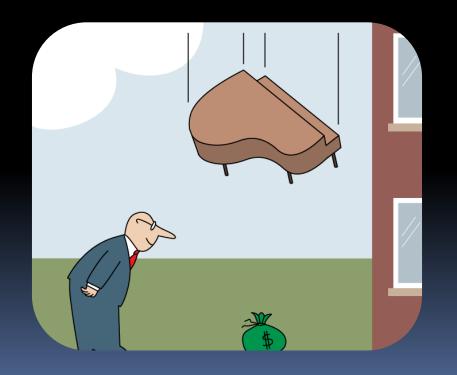
Risk Control Measures – Conclusions

Conclusions

- Risk management is more than just the execution of a risk analysis.
- Risk management needs follow-up by implementing it into the regular project planning.

By correct implementation, execution and evaluation of risk management and its accompanying control measures, the total cycle of good risk management in the project guarantees better results.







Practical Risk Analysis of Project Planning – Questions & Answers