

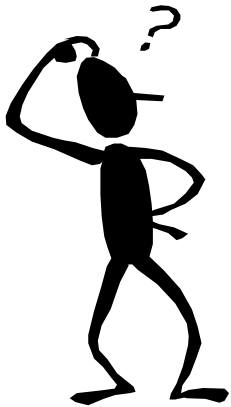
Draft IEEE P1540
Risk Management Standard
Process & Implications



Dr. Robert N. Charette
ITABHI Corporation

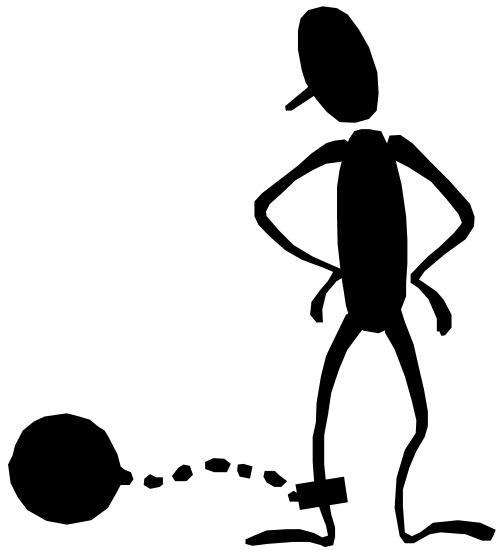
Dr. Patrick O'Brien
Rockwell Collins

Motivation



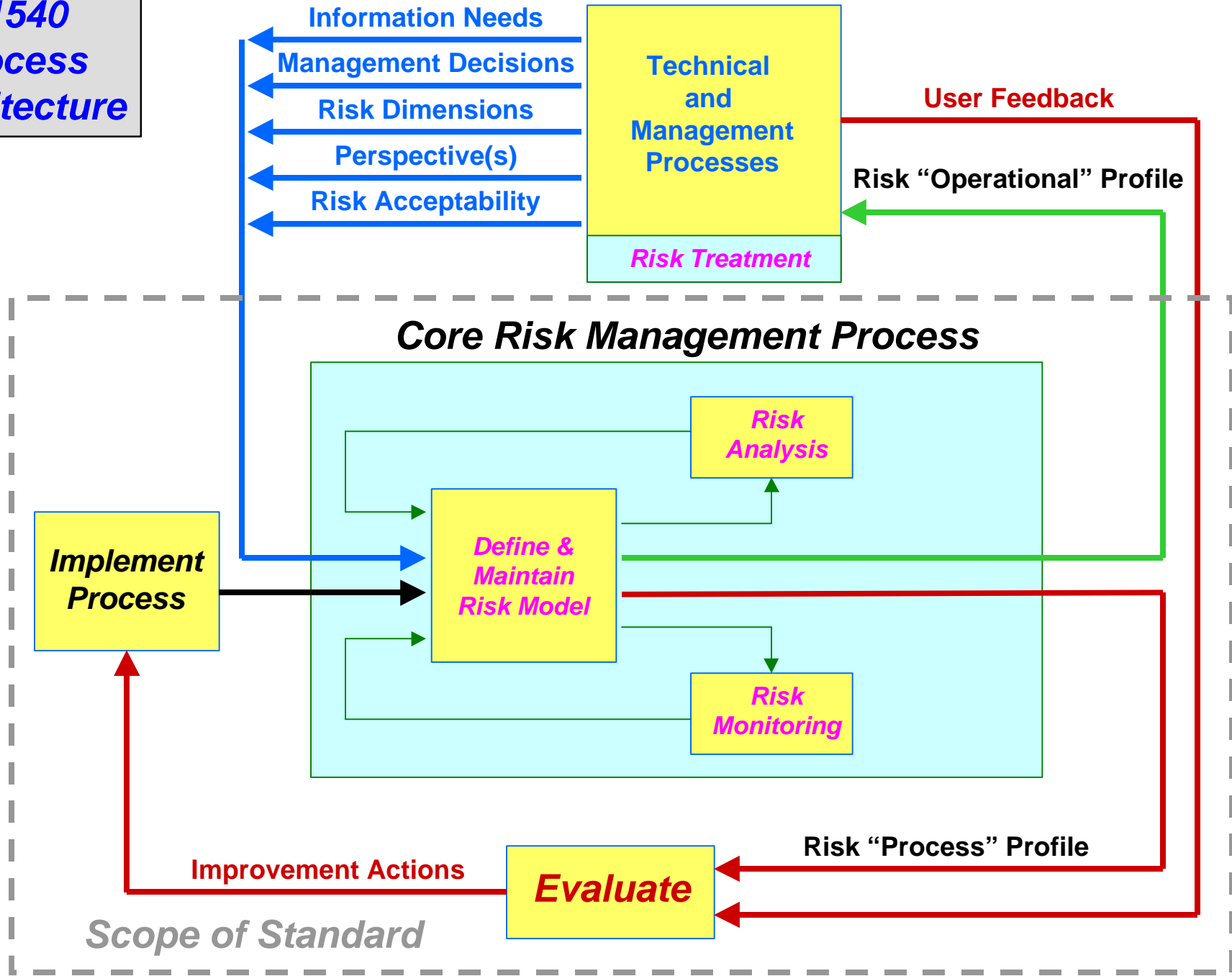
- *RM described inconsistently or minimally in existing engineering standards*
- *Several disjoint RM approaches*
- *Increasing need for common terminology and framework to communicate risk information as RM use increases*

Constraints



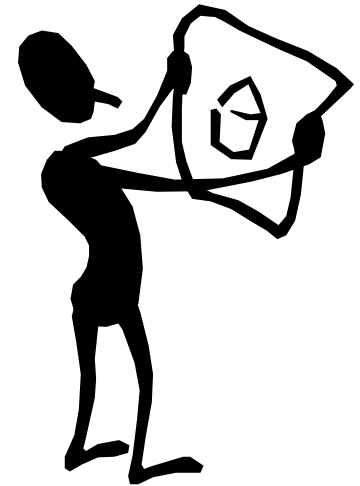
- ***“Minimalist” standard***
- ***Group risk management standard***
- ***In line with IEEE 12207 & others***
- ***ISO risk terminology***
- ***Reduced redundancy***
- ***Don’t take forever***

**P1540
Process
Architecture**



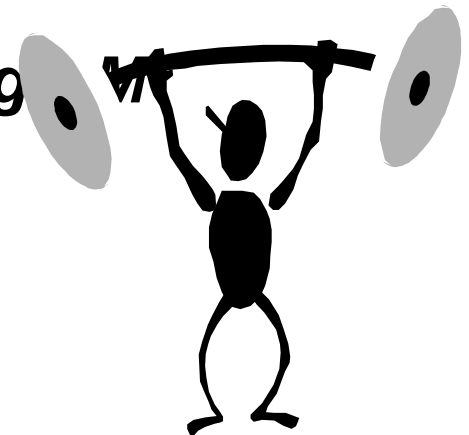
Technical & Managerial Processes

- ***Determine RM information needed & priority***
- ***Define the risk dimensions of concern***
- ***Define the perspectives to be supported***
- ***Define the level(s) of risk acceptability***
- ***Make decisions regarding risk and its management***
 - ***risk treatment required or not?***
 - ***allocate resources to treatment***
 - ***change treatment?***
- ***Make recommendations for improving process***



Implement Process

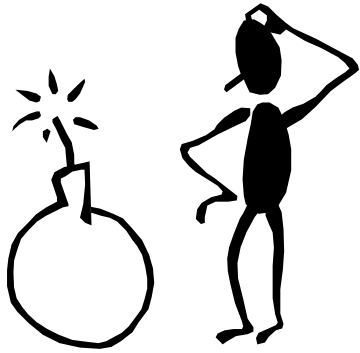
- ***Establish RM policies***
 - ***define how RM is to be performed & what tools or techniques will be used***
 - ***develop RM coordination activities***
 - ***define how risk is to be communicated***
- ***Establish the RM process***
- ***Establish responsibility for performing***
- ***Assign competent resources***
- ***Establish RM evaluation process***



Define & Maintain Risk Model

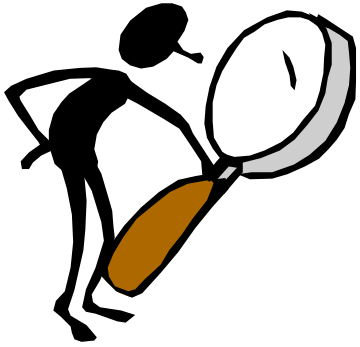
- **Define the risk management context**
 - **define the risk context**
 - ✧ **what's the stakeholder(s) perspective(s)?**
 - ✧ **what's the dimension(s) of concern?**
 - ✧ **what are the objectives, assumptions & constraints?**
- **Establish risk acceptability**
- **Establish & maintain the risk profile**
- **Perform risk analysis**
- **Perform risk monitoring**





Perform Risk Analysis

- ***Identify risks***
- ***Estimate risk likelihood and consequences***
- ***Evaluate the risks & their interactions***
- ***Recommend risk treatment***
 - ***define an action plan if required***
 - ***define trigger conditions for changing treatments***
 - ***define contingency efforts***

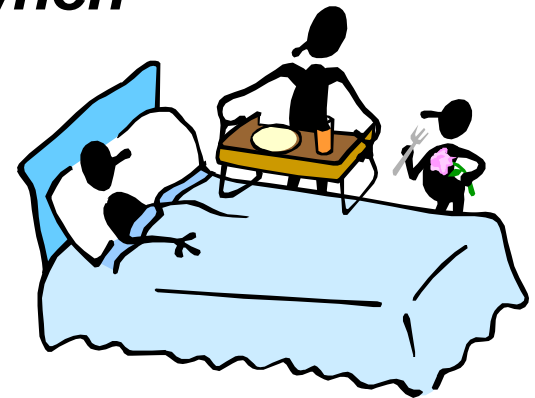


Perform Risk Monitoring

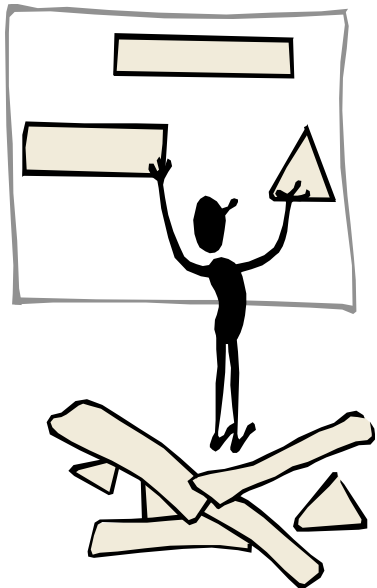
- *Monitor for deviations from risk acceptability*
- *Communicate risk status to stakeholders*
- *Keep eye out for new risks*

Perform Risk Treatment

- ***Risk treatment process part of 12207 management processes***
- ***Determining whether any treatment of risk is required is management prerogative, i.e., to accept risk or not***
- ***Management decides:***
 - ***what treatment will be applied and when***
 - ***what resources are required***
 - ***who is responsible for treatment***



Evaluate Risk Management



- ***Capture RM Information***
- ***Assess effectiveness of RM process***
 - ***identify useful risk management techniques***
 - ***identify useful risk management information***
 - ***identify opportunities for improvement***
- ***Generate lessons learned***

Other Relevant Standards & Information

- ***Software Life Cycle Processes - IEEE 12207***
- ***Software Process Assessment - IEEE 15504***
- ***Software Safety Plans - IEEE 1228***
- ***Risk Analysis of Technology Systems - IEC 300-3-9***
- ***Software Integrity - ISO/IEC 15306***
- ***Risk Management Terminology - ISO/TC 176 N414***
- ***Software Measurement - ISO/IEC 15939***
- ***PMI Project Management Book of Knowledge (PMBOK)***



Key Concerns

- ***Consistency of Terminology & Processes***
- ***Minimizing Redundancy***
- ***Minimizing Standard Size - Not a RM Tutorial***
- ***Achieving Consensus Among Multiple Interests***
- ***Supporting Current & Future RM Practice***

Does the Process Fit Reality?

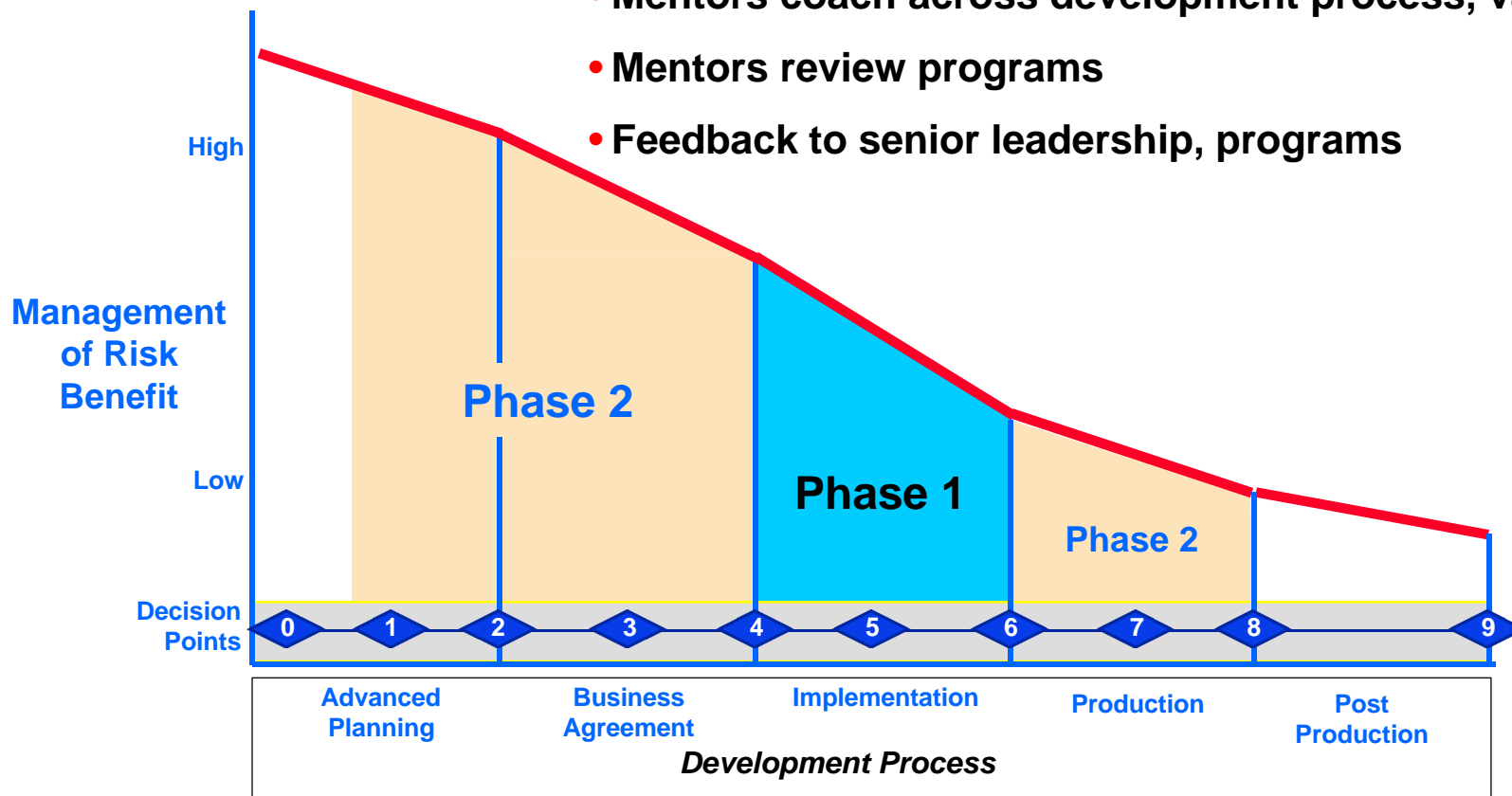
A Case Study



“Effective risk management
is a critical corporate objective
of Rockwell.”

Risk Management at Rockwell

- 100+ programs (from \$2M to \$90M)
- Evaluation criteria for risk management practices
- Mentors coach across development process, value chain
- Mentors review programs
- Feedback to senior leadership, programs



“Whats” not “Hows”

- ***Do the right thing; Do the thing right***
 - ***“Whats, not hows”***
 - ***Specific context: Rockwell markets, processes, constraints call out specific hows***
- ***360 degree risk management***
 - ***Qualifying suppliers***
 - ***Customer process requirements***
 - ***Regulatory process expectations***

Business strategy requires “owning the hows”

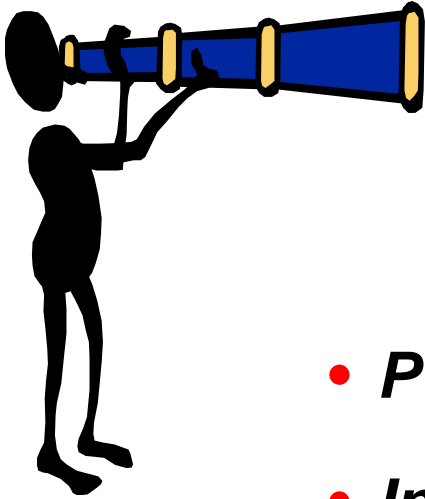
Success Factors

- *Promotes separation of powers*
- *Requires objectivity*
- *Fosters open communication*



Concerns

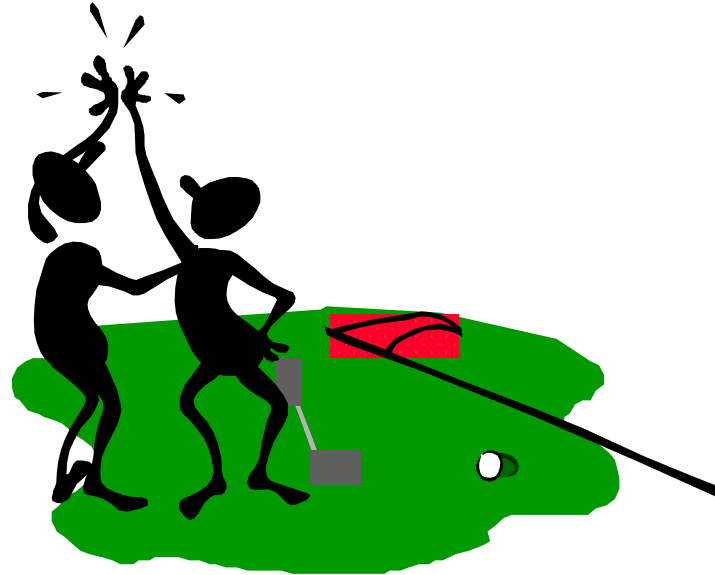




What's Ahead

- *Public review draft standard, July 1999*
- *Incorporate comments, Autumn 1999*
- *Review state of draft*
- *Ballot as soon as feasible*
- *Achieve status as standard in 2000*

Contact Information



Robert Charette, Ph.D.

President, ITABHI Corporation

charette@erols.com

540/972-8150

Pat O'Brien, Ph.D.

Senior Risk Analyst

pobrien@collins.rockwell.com

319/ 295-5539