

**COSYSMO-IP**  
**CO**nstructive **SY**Stems Engineering Cost  
Model – Information Processing  
*“Headed in a new direction...”*  
*Workshop Outbrief*

October 25, 2002

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17th International Forum on COCOMO and Software Cost Modeling








## Outline

- **Workshop Objectives**
- **Issues and Answers**
- **Calendar of activities/milestones**
- **8 Action items**

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## Objectives of the Workshop

- 
 • Reach consensus on resolving the issues
- 
 • Converge on scope of COSYSMO-IP model
- 
 • Address INCOSE issues
- 
 • Address definitions of model parameters
- 
 • Discuss data collection process
- 
 • Promote involvement by Affiliates
- 
 • Define next steps for CSI and INCOSE conferences

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## Issues and Answers

Issue	Answer
Application scope	⇒ COSYSMO-IP first
Life Cycle scope	⇒ Currently front-end; negotiable
Too many size drivers	⇒ Reduced from 7 to 4
Conflicting cost drivers	⇒ Reduced from 17 to 12
Too software-oriented	⇒ IP systems include HW
Overlap between COSYSMO and CII	⇒ Candidate starting point identified

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## COSYSMO-IP: What is it?

The purpose of the COSYSMO project is to develop a parametric model to estimate the cost of system engineering activities during system lifecycle.

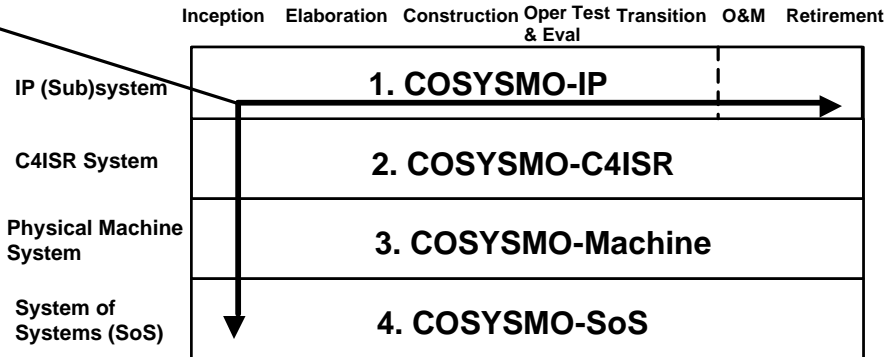
The focus of the initial increment, COSYSMO-IP, is on the cost of systems engineering for information processing systems or subsystems.

## Candidate COSYSMO Evolution Path (before)

	Inception	Elaboration	Construction	Oper Test & Eval	Transition
IP (Sub)system	1. COSYSMO-IP				
C4ISR System	2. COSYSMO-C4ISR				
Physical Machine System	3. COSYSMO-Machine				
System of Systems (SoS)	4. COSYSMO-SoS				

## INCOSE view of COSYSMO Evolution Path

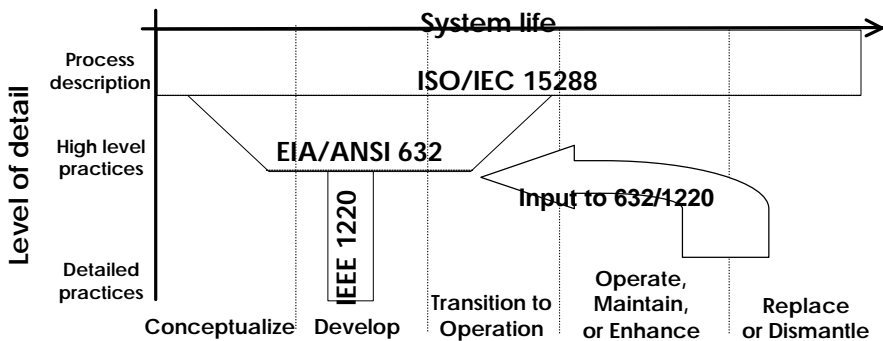
How much of the lifecycle and how many of the domains?  
 Initiate data collection for all and let the amount of data received determine what is included.



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## Breadth and Depth of Key SE Standards



### Purpose of the Standards:

**ISO/IEC 15288** - Establish a common framework for describing the life cycle of systems

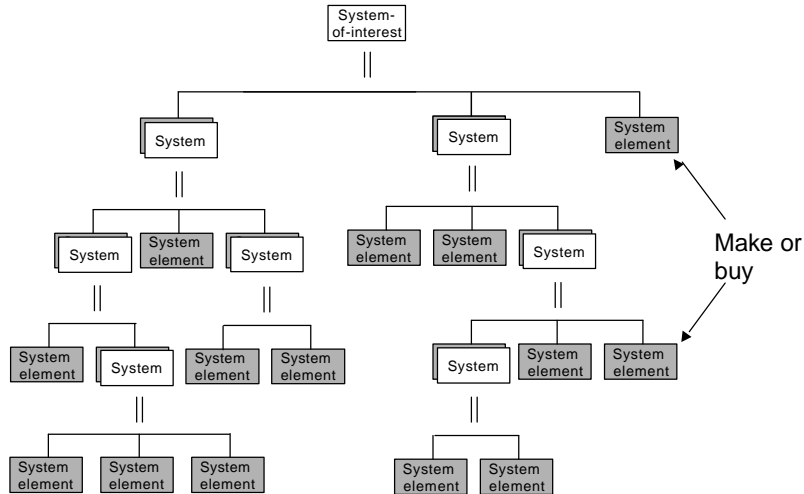
**EIA/ANSI 632** - Provide an integrated set of fundamental processes to aid a developer in the engineering or re-engineering of a system

**IEEE 1220** - Provide a standard for managing systems engineering

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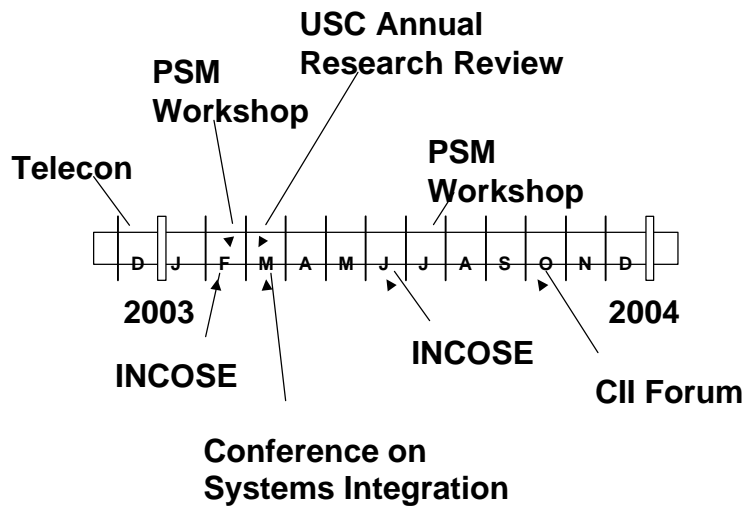
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# ISO/IEC 15288 System of Interest Structure



Make or buy

# Calendar of Activities: 2003



## Action Item #1: Project Plan

- **Prepare a COSYSMO Project Plan and Schedule.**
  - Include monthly telecoms
  - Include quarterly face-to-face meetings
  - Account for opportunities to communicate with larger community audience at: PSM (Feb 19-20 – Herndon, VA, Jul 14-18 – Keystone, CO), INCOSE (Feb 3-7 – Tampa, FL, June 28-Jul 3 – Washington, DC), STC (Apr-May – Salt Lake City, UT), USC ARR (March), CSI (March), COCOMO (October)
    - INCOSE – preparation and work
    - PSM – cleanup and data dissemination
- **Send Plan to COSYSMO WG for review and approval**
- **RI: Ricardo, Chris, Barry, Roger Shepherd**
- **Due Date: November 15, 2002**

## Action Item #2: Technology Maturity/Obsolescence

- **Integrate concept of technology obsolescence as part of the technology maturity cost driver and change the cost driver title to Technology Risk**
- **RI: Ricardo, Ron Kohl, Don Reifer**
- **Due Date: November 15, 2002**

## **Action Item #3: Driver Definitions**

- **Complete definition of new COSYSMO Drivers. Refine definitions based on 10/24/02 Workshop and forward to WG for assessment.**
- **RI: Ricardo, Marilee**
- **Due Date: November 8, 2002**

## **Action Item #4: System and People**

- **Research how to involve the composition of a system – Hardware, Software, People, and Procedures. How do we account for the different types of systems as it relates to these components as related to the Drivers?**
- **RI: Ricardo, Garry**
- **Due Date: December 3, 2002**

## **Action Item #5: Drivers Applicability Matrix**

- **Expand Applicability Matrix to include the entire SE Lifecycle and identify the applicability of all Drivers against the expanded matrix. Baseline lifecycle is EIA 632 using ISO/IEC 15288 for the late stages.**
- **RI: Gary<sup>2</sup>, Garry**
- **Due Date: December 3, 2002**

## **Action Item #6: Data Collection**

- **Research whether or not the currently collected data for the COCOMO II:2003 calibration contains data that can be mapped to the Systems Engineering Drivers.**
- **RI: Gary Thomas, Brad Clark, Chris Miller, Barry Boehm**
- **Due Date: December 15, 2002**

## **Action Item #7: Data Collection Form**

- **Generate template(s) for COSYSMO DELPHI and Project data collections.**
- **RI: Ricardo**
- **Due Date: December 15, 2002**

## **Action Item #8: Stakeholder Cohesion**

- **Modify definition to include more diversity, identification and trust. Reference: Table A-6 in COCOMO II Text (page 309).**
- **RI: Ricardo, Steven, George**
- **Due Date: December 15, 2002**

## Conclusion

**Great effort and participation on everyone's part!**

**Special thanks to  
LaDonna, Paul,  
Maggie, Sarah  
Christal, and the rest  
of the CSE Staff for  
coordinating the  
logistics and the  
FOOD.**



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