



A History of INCOSE

**Presented by JOG System Engineering
For
The San Diego, CA Chapter of INCOSE
2013 Mini Conference**

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Introduction

- **In the Beginning**
- **Creation of the National Council On Systems Engineering**
- **Maturation of the International Council On Systems Engineering**
- **So Who Was the Founding Father of INCOSE?**
- **The Future of our Profession**

Who is Jeff Grady?

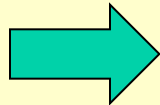


Current Position

1993 – 2013 Owner, JOG System Engineering
System Engineering Consulting and Education Firm

Prior Experience

1954 - 1964 U.S. Marine Corps
1964 - 1965 General Precision, Librascope Div
Customer Training Instructor, SUBROC and ASROC ASW Systems
1965 - 1982 Teledyne Ryan Aeronautical
Field Engineer, AQM-34 Series Special Purpose Aircraft
Project Engineer, System Engineer, Unmanned Aircraft Systems
1982 - 1984 General Dynamics Convair Division
System Engineer, Advanced Cruise Missile Programs
1984 - 1993 General Dynamics Space Systems Division
Functional Engineering Manager, Systems Development Department



Formal Education

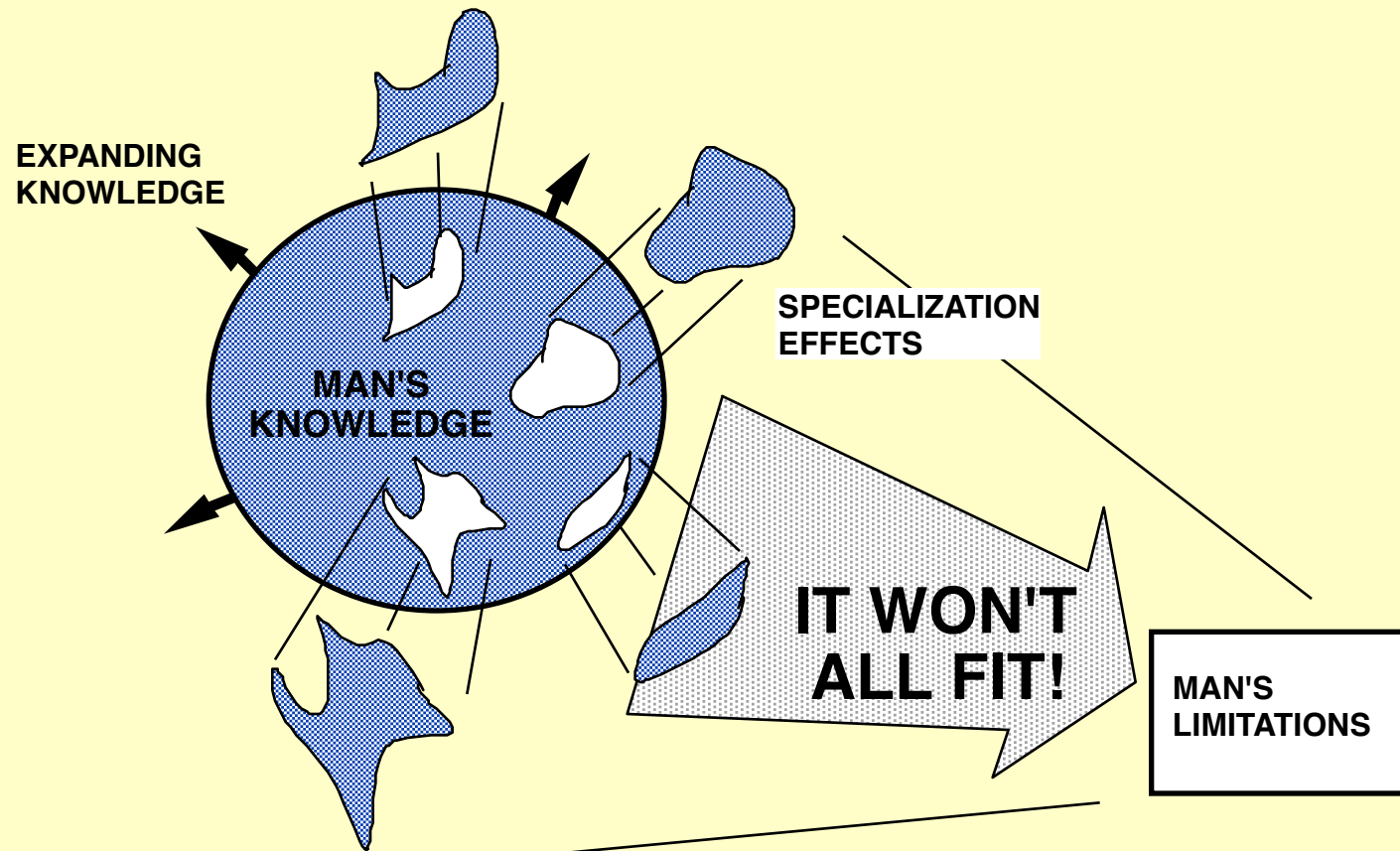
SDSU, BA Math
UCSD San Diego, Systems Engineering Certificate
USC, MS Systems Management, With Information Systems Certificate

INCOSE Charter Member, Fellow, Founder, and ESEP

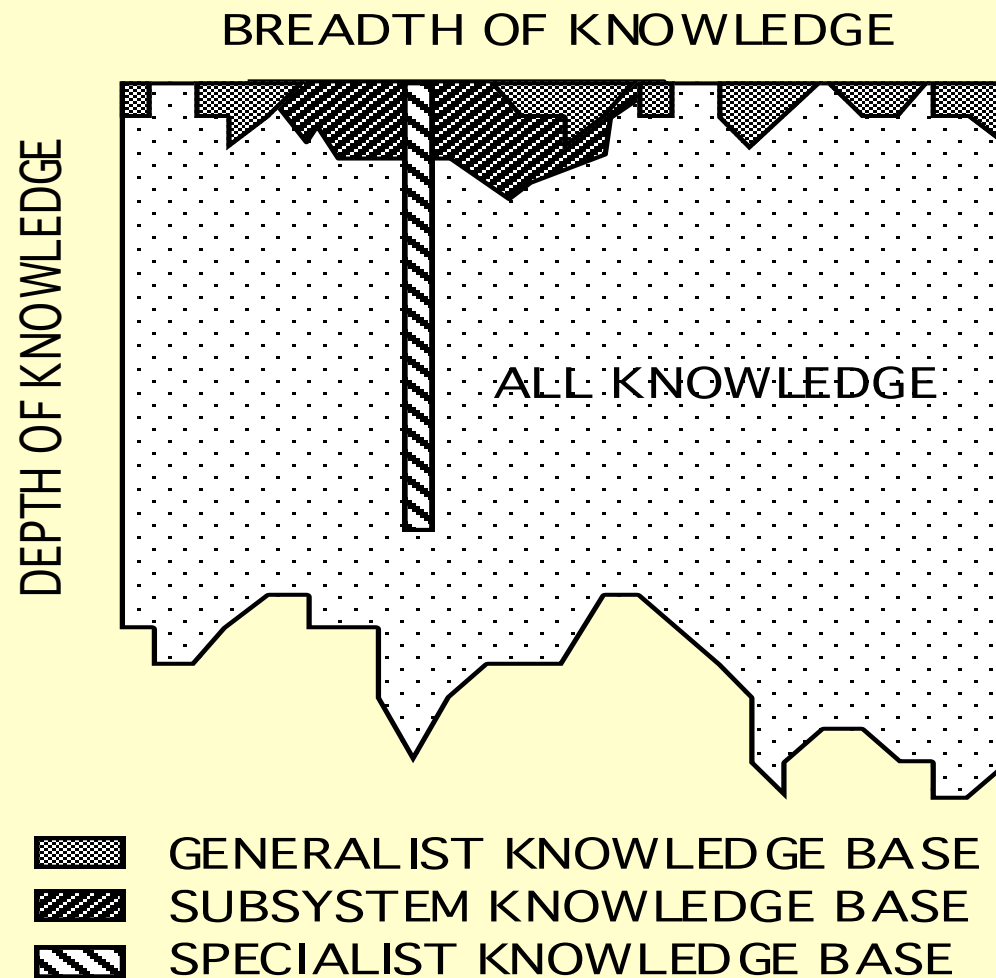
Author System Requirements Analysis (3), System Integration, System Validation and Verification, System Engineering Planning and Enterprise Identity, System Engineering Deployment, System Verification (2), System Synthesis, System Management

In the Beginning

Knowledge Grows and We Have Our Limitations



We Are All Specialists



Managers Seek to Forge Small Crowds of People Into Powerful Teams

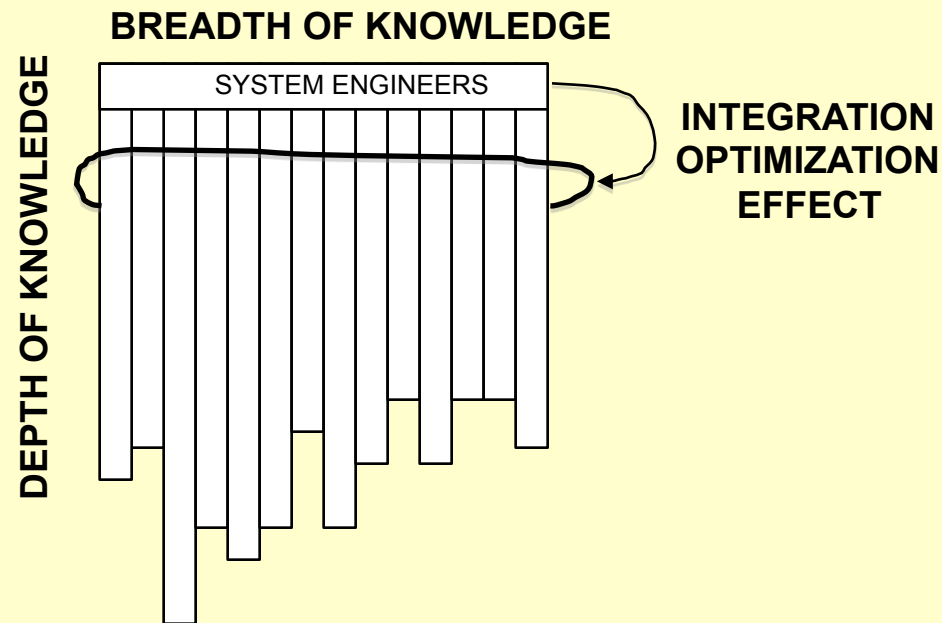
A Powerful
Unifying
Force

Common
Vision



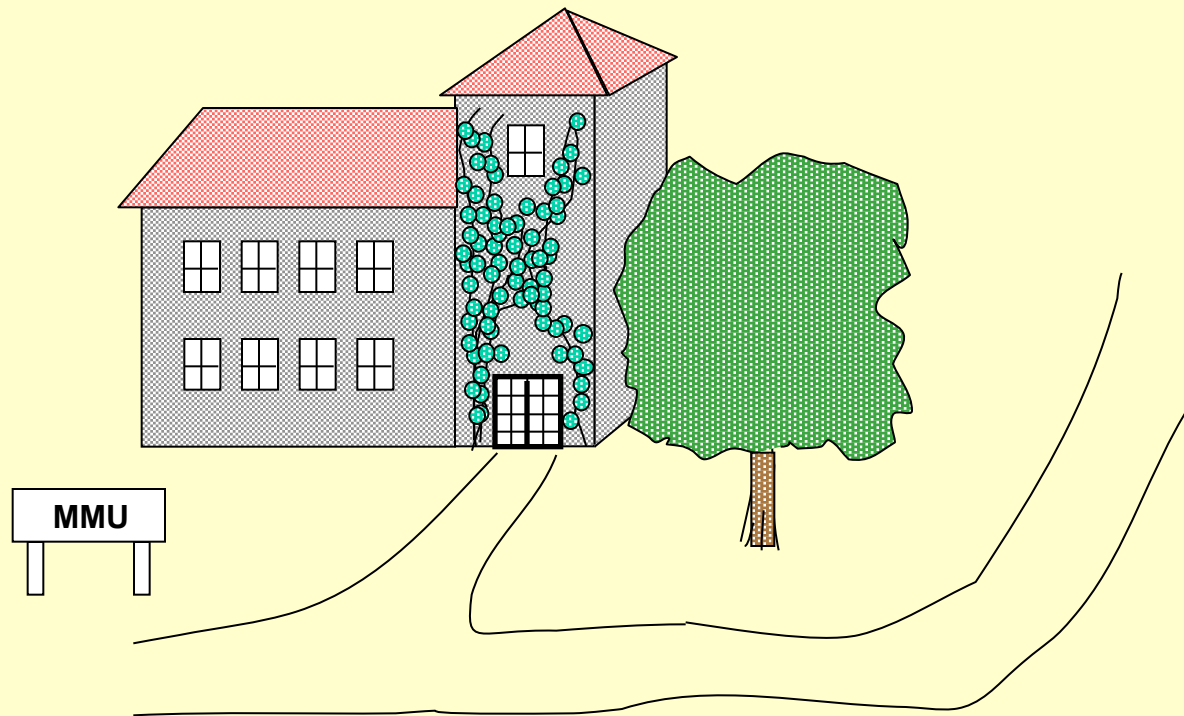
The System Engineer's Challenge

The Equivalent of One Great Mind



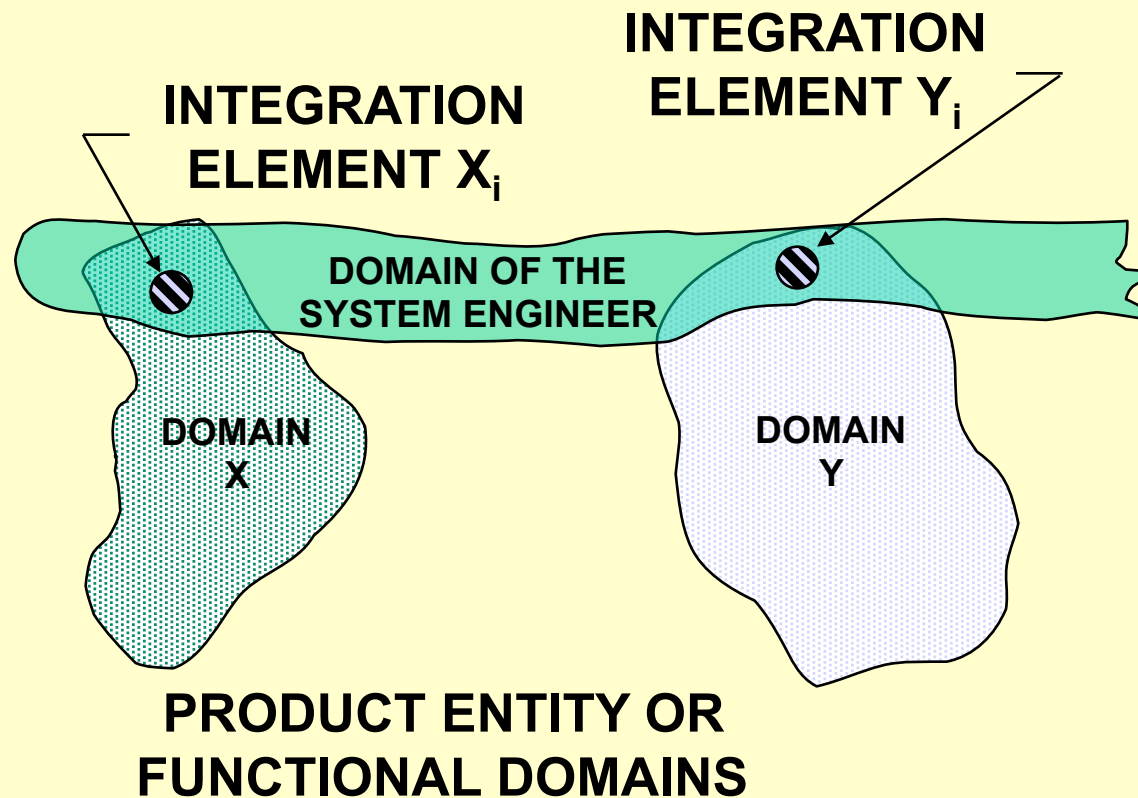
The Multi-Mind University

The Ultimate Systems Engineering Education?



Domain of the System Engineer

But Where Do You Get These People?



NCOSE Formative Preliminaries at GD Space Systems Division

- **Continuing growth of division and need for more system engineers in 1989**
- **GD Corporate requirement for hiring new college graduates**
- **GD Space Systems Systems Engineering Institute**
- **Earl Davis joins staff from Structural Dynamics**
- **Earl Davis departs to complete Masters at University of Washington**
- **Davis coordinates interests of Jeff Grady and Dr. Brian Mar from University of Washington**
- **David Clemons and Jeff Grady set up meeting at UCSD focused on how industry can acquire the system engineers needed**

People Attending the San Diego Meeting in 1989

David Clemons	General Dynamics Space Systems Division, Systems Engineering Director
Jeffrey Grady	General Dynamics Space Systems Division, Systems Development Manager
Dr. David Sworder	University of California San Diego Dean of Engineering and host for the meeting
Dr. Brian Mar	University of Washington Professor
Dr. Terry Bahill	University of Arizona Professor
Dr. Ron Askin	University of Arizona Professor
Gerald Chasko	DSMC Regional Director

NCOSE Meetings In 1990 and 1991

YEAR	SPONSOR	LOCATION
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1990	Boeing	Seattle, WA
1991	Aerospace Corp	Los Angeles, CA
1991	IBM	Rockville, MD
1991	TRW	Alexandria, VA
1991	NCOSE & ASEM	Chattanooga, TN

People Attending Seattle Meeting in 1990

LAKE LIST	ORGANIZATION	ATTEND	MAR MINUTES	ORGANIZATION
Henry Alberts	DSMC	NO		
James Brill	Hughes	YES	James Brill	Hughes
Col. Charles Brown	USAF	YES	Col. Charles Brown	USAF
		YES	John V. Brown	
Curtis Brudos	Martin Marietta	NO		
Harry Carlson	Lockheed	YES	Harry Carlson	Lockheed
Gerry Chasko	DSMC	YES	Gerry Chasko	DSMC
David Clemons	General Dynamics	YES	David Clemons	General Dynamics
		YES	Max Engert	NASA JSC
Erick Flocken	LTV Aerospace	YES	Erick Flocken	LTV Aerospace
Bill Forbes	MacDonnell Douglas	YES	W.E Forbes	
Bob Gaylord	Aerospace Corp	YES	Robert S. Gaylord	
Jeff Grady	General Dynamics	YES	Jeffrey Grady	
Don Gustafson	Texas Tech University	YES	Don Gustafson	
John Howe	TRW	YES	John C. Howe	
Bob Kosakoski	Lockheed	YES	Robert Kosakoski	
Dr. S. Krishnamurthy	Bechtel	YES	Dr. S. Krishnamurthy	
Jerry Kronk, Boeing		YES	Jerry Kronk	
Jim Lacy	Texas Instrument	YES	Jim Lacy	
Dr. Jerry Lake	DSMC	YES	Dr. Jerry Lake	
Ken LaSala	USAF	YES	Ken LaSala	
Dr. Brian Mar	U of Washington	YES	Brian Mar	
		YES	Roy Mengot	Texas Instruments

People Attending Seattle Meeting in 1990 (Continued)

LAKE LIST	ORGANIZATION	ATTEND	MAR MINUTES	ORGANIZATION
Barney Morais	Synergistic Applications	YES	Barney Morais	U. of Washinbgton
Larry Pohlmann	Boeing	YES	Richard Palmer	
Robert Roe	Boeing	YES	Larry Pohlmann	
Richard Schmidt	IIT Research Institute	YES	Robert L. Roe	
Ken Sivier	U of Illinois	YES	Richard Schmidt	
Bob Sorensen	Unisys	YES	Professor Kenneth Sivier	
Carl Spiegelberg	Boeing	YES	R.E. Sorenson	
Dr. M. Swiontek	ESL	YES	Carl Spiegelberg	
Dr. Ed Taylor	TRW	YES	Dr. Michael Swiontek	
Dr. Ernie Unwin	San Jose State	YES	Dr. Edward Taylor	
Dr. Wayne Wymore	SA&DS	YES	Dr. Ernie Unwin	
			Dr. Wayne Wymore	

Founding Father of INCOSE

- **Dr. Brian Mar University of Washington Professor**
- **Attended first meeting in 1989 at which he wondered aloud "I wonder if a systems engineering society could be founded on these principles"**
- **Took a leadership role from that point until his untimely death**

The Future of Our Profession

- **Knowledge will continue to grow**
- **Man's individual capacity for knowledge will not change much therefore individual man's knowledge area (breadth x depth) limit will continue essentially fixed**
- **Specialists will tend to be deeper and narrower meaning there will have to be more of them with more knowledge boundaries**
- **Systems will continue to become more complex with more product boundaries**
- **More knowledge and product boundaries will mean more system engineers**