



Network Centric Operations Industry Consortium

Three Years of Achievement & Growth

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Chairman, Center for Network Innovation
Deloitte & Touche, LLP
Chair Emeritus, NCOIC Executive Council

www.ncoic.org

Modular Systems: A Global View



Dynamic Integration of Subsystems/Modules Drives Operational Capability;
Regardless of COI, Purpose of Endeavor, or Location

General Points to Consider



- NCO & Attendant Cultural Transformation Apply to All Areas of Human Endeavor
 - Government, Industry, Defense
 - Medicine
 - Emergency Response of all kinds
 - Agriculture, Geology, Ecology
 - Household safety and health
 - Individual Activities of all sorts
 - Aviation & other transportation venues
- The NCOIC was established to begin the trek toward quicker employment of emerging IT and advancing interoperability across multiple diverse domains
- The basic needs for supporting all human activities are essentially the same:
 - Continuous advancement in situational awareness
 - Continuous improvements in analytical capability and decision support
 - Viable and evolutionary advancements in tools and optimization media enabling effective , timely, and appropriate response
- Creating “Islands of NC Capability” can produce interoperability and technology “patterns” useful for capability improvements elsewhere

Combined Capabilities of Government Organizations and Industry are Necessary for Creating the Leverage to Achieve These Global Goals

NCOIC Goal: To Facilitate Global Implementation of Network Centric Operations



Members are Global Leaders:

Academic institutions

Air Traffic Management providers

Defense suppliers
All military services
Multinational

Government agencies

Human service agencies

Integrators
Commercial systems
Defense systems

IT firms
Communications
Data management
Human-Machine interface
Information assurance

Service providers
Consulting
Engineering
Logistics

Standards bodies

- **Increase interoperability** within and among systems involved in Interagency, Civil and Multinational operations and COIs of all types
- **Lower development costs** and increase commonality of design in future systems – tailored standards and best practices
- **Improve application readiness** through more rapid fielding of network centric systems – leverage technical “lessons learned”
- **Reduce systems cost and sustainability** through re-use and commonality – facilitate ease of integration, upgrade, and support
- **Reduce Development Risk** by identifying the common components needed for the network centric environment – Develop them where none exist
- **Improve Application Effectiveness** by advocating new, more focused development of domain specific capabilities

NCOIC At A Glance



- Broad Membership
 - Currently 100+ Member Organizations from 19 countries, including
 - Leading IT and Aerospace & Defense companies
 - Government organizations
 - Non-Governmental Organizations
 - Academic Institutions

- Experienced Advisory Council
 - Representing 24 key government and civilian customers
 - Representatives from Australia, France, Germany, Italy, NATO, Sweden, UK, & the U.S.

- Growing Government Relationships
 - ASD(NII), Australia DoD, DHS, DISA, European Defence Agency, FAA, JFCOM, NATO, SPAWAR, Swedish FMV (The Swedish Defence Materiel Administration)

NCOIC Value Proposition



- **Providing an architectural framework which will allow COTS standards** to be used in NCO. Proper influence will guide how standards will be used in future operations. Those who understand and help guide this framework will be better equipped to consult on NCO employments.
- **Creating analysis tools** -- NCAT™ and SCOPE -- to allow customers to make accurate decisions on how to employ NCO capabilities.
- **Analyzing mission threads and requirements** for identifying the standards and patterns – protocol functional collections (PFCs) -- required for mission execution. Members create opportunities to drive these standards and obtain early implementation insights.
- **Engaging key government and civilian customers** in identifying standards. Members interact with customers in a non-procurement setting, shaping requirements.

NCOIC Membership Comes From These Countries



Australia



Canada



Denmark



Finland



France



Ireland



Israel



Italy



Netherlands



Germany



Romania



Spain



South Korea



Poland



Sweden



Switzerland



Turkey



United Kingdom



United States

NCOIC welcomes global membership

Currently 100+ Member Companies & Organizations in NCOIC



BAE SYSTEMS

LOCKHEED MARTIN



**Rockwell
Collins**

Raytheon



Microsoft®



THALES



MITRE

NORTHROP GRUMMAN



ITT Industries
Engineered for life



MOTOROLA



HARRIS

Deloitte.



**GENERAL
DYNAMICS**

Just a few of the names that you might recognize...

NCOIC Members – March 18, 2008

Tier 1 Members

Tier 1 Members

- BAE Systems
- Boeing
- Cisco Systems
- DataPath
- Deloitte & Touche
- Finmeccanica
- General Dynamics
- Harris Corporation
- IBM
- ITT Industries
- Lockheed Martin
- Northrop Grumman
- Raytheon
- Rockwell Collins
- Saab
- Thales

Tier 2 Members

- L-3 Communications

NCOIC Members – March 18, 2008

Tier 3 Members

- ABG SPIN
- The Aerospace Corporation
- American Red Cross
- AMERICOM Government Services
- AMPER
- ANTs Software
- Argon ST
- ASELSAN
- Association for Enterprise Integration
- Australian Department of Defence
- Avetec
- AYESAS
- Ball Solutions Group
- BARCO
- BearingPoint
- Bellcomm Information Systems
- BT Ltd.
- CACI
- CAE
- Carnegie Mellon University SEI
- CB Technologies
- Chandler/May, Inc.
- Ciena Government Solutions
- COMCARE
- Conference ConCEPTS
- Cubic Defense Applications
- DCNS
- Defense Information Systems Agency
- Department of Homeland Security
- EDISOFT
- Emergency Interoperability Consortium
- Ericsson Federal
- Federal Aviation Administration
- HAVELSAN
- Hewlett-Packard
- Huneed Technologies
- INDRA
- Innerwall
- Innovative Concepts
- Insta Group
- Institute for Defense Analyses
- Intelligent Automation
- International Data Links Society
- Interoperability Clearinghouse
- IONA Technologies
- Iridium Satellite
- Israel Aerospace Industries
- Johns Hopkins University APL
- LMI Government Consulting
- Maritime Technology Centre R&D Institute
- Meteksan Defence Industry
- METI
- Microsoft
- Military Communication Institute
- MiISOFT ICT
- MITRE
- Motorola
- National Research Institute of Electronics and Cryptology (Turkey)
- Object Management Group
- Objective Interface Systems
- Objectivity
- Open Geospatial Consortium
- PrismTech
- Real-Time Innovations
- Rheinmetall Defence Electronics
- RUAG Electronics
- Sikorsky Aircraft
- SRA International
- SRI International
- STM
- Sun Microsystems
- Technopôle Defence & Security
- Telindus
- Terma
- TerreStar Networks
- TKC Communications
- Twisted Pair Solutions
- University of Maryland HyNet
- Wakelight Technologies
- Whitney, Bradley & Brown

Advisory Council

AC Chairman

AC Vice Chairman

Joint Staff

UK MoD

Australian Defence Organisation

Department of Homeland Security

American Red Cross/TBD

Defense Information Systems Agency

Italian MoD

German MoD

Allied Commander Transformation

Assistant Sec of Def/NII

NATO Headquarters C3 Staff

AC Chairman Emeritus

National Geospatial-Intelligence Agency

Office of Director of National Intelligence

Swedish MoD

Office of the Secretary of the Air Force

Federal Aviation Administration

French MoD

US Army CIO

Former ASD/NII

NATO C3 Agency

NATO CISSA

US Joint Forces Command

Honorable Keith R. Hall

General (Ret) Harold Kujat, GAF

Vice Admiral Nancy Brown, USN

Air Vice Marshal Stuart D. Butler, RAF

Brigadier General David Welch, ADO

Honorable Jay Cohen

Honorable Steven I. Cooper

Lieutenant General Charles E. Croom Jr., USAF

Major General Pietro Finocchio, ITAF

Mr. Uwe H. Giesecke

Major General Koen Gijssbers, RNLA

Honorable John G. Grimes

Major General Georges D'Hollander, BE AR

Honorable Paul G. Kaminski

Dr. Robert Laurine

Honorable Dale Meyerrose

Major General (Ret) Staffan Näsström, RSAF

Lieutenant General Michael Peterson, USAF

Mr. Mark T. Powell

Brigadier General Blandine Vinson-Rouchon, DGA

Lieutenant General Jeff Sorenson

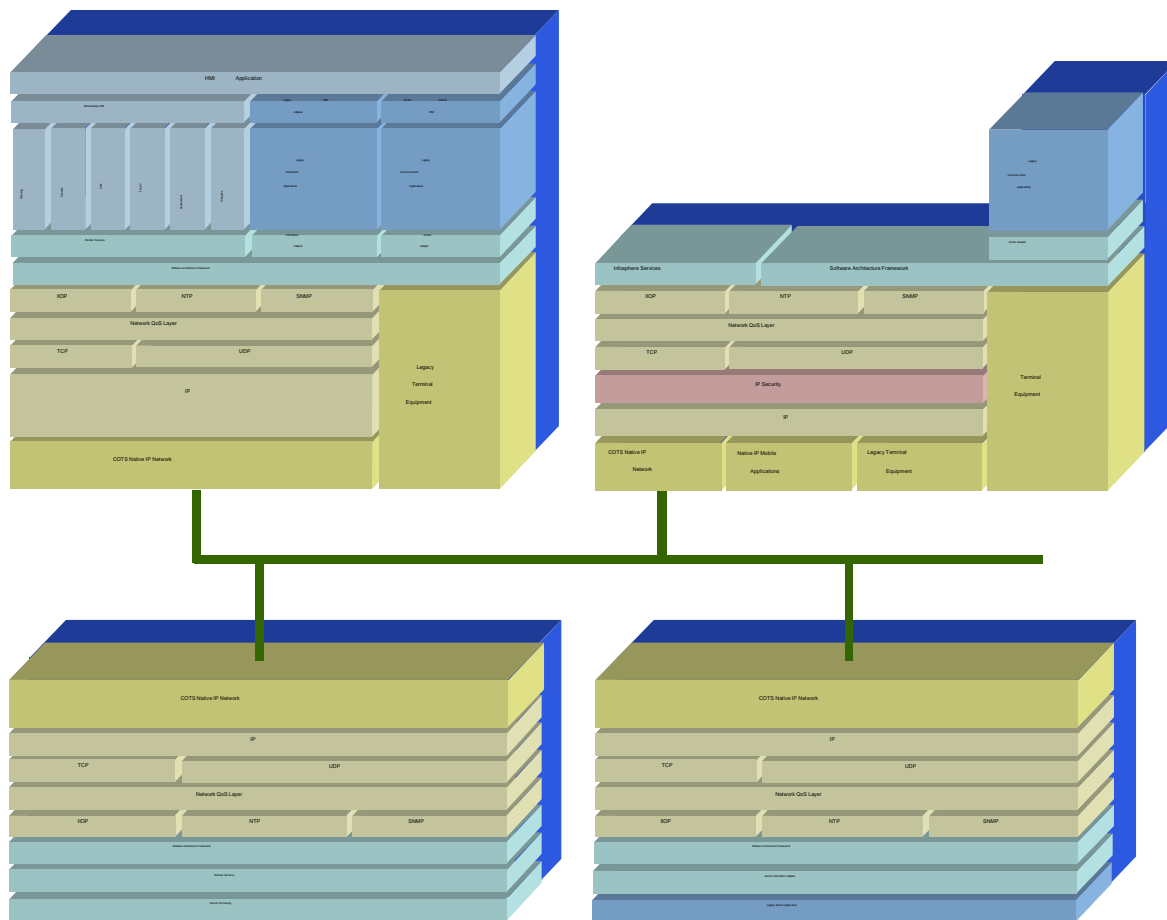
Honorable John P. Stenbit

Mr. Dag Wilhelmsen

Lieutenant General Ulrich Wolf

Lieutenant General John R. Wood, USA

Focus of NCOIC Work



NCOIC™ works to connect the entities beneath the application layer

NCOIC Development & Technology Roadmap

Develop the Strategy, Mission, & Vision
Define our Approach

Deliver Tools, Building Codes, and Building Blocks to Influence Acquisitions

Maturing Relationships and Focusing Deliverables

Candidate Activities

2004-2005

2006

2007

2008

2004 (28 Members)

- Consortium formation
- NCOIC position paper
- Member recruitment

2005 (48 Members)

- Gov't and industry initiatives database
- Lexicon
- SCOPE
- NCAT v1
- NIF v1

Establishing and Organizing

86 Members

- Establish IPTs to produce building codes
 - NATO
 - S&RL
 - MECI
- Government memberships
- NCAT v2
- Mobile Networking Overview
- NIF v1 content & NIF v2 concepts
- Building Blocks database
- SCOPE Model refinement

Analyzing options and creating tools

98 Members

- Net-Enabled Emergency Response
- M&S and Demo interoperability
- NCAT automated
- Interoperability exercises
- Global Aviation
- NIF v2 completion
- Frameworks & patterns (PFCs)
- CRADAs / MOUs
- Swedish Defence Materiel Administration design rules
- IA Framework
- Building Blocks Certification
- Government memberships

Refining tools and producing deliverables

100+ Members ↑

- Domain-specific projects
- Semantic Framework
- Enabling guidance for Military and Civil Scenarios
- Cyber Security
- Situational Awareness
- Further Development of Frameworks & Patterns (PFCs)

Influencing usage and standards adoption

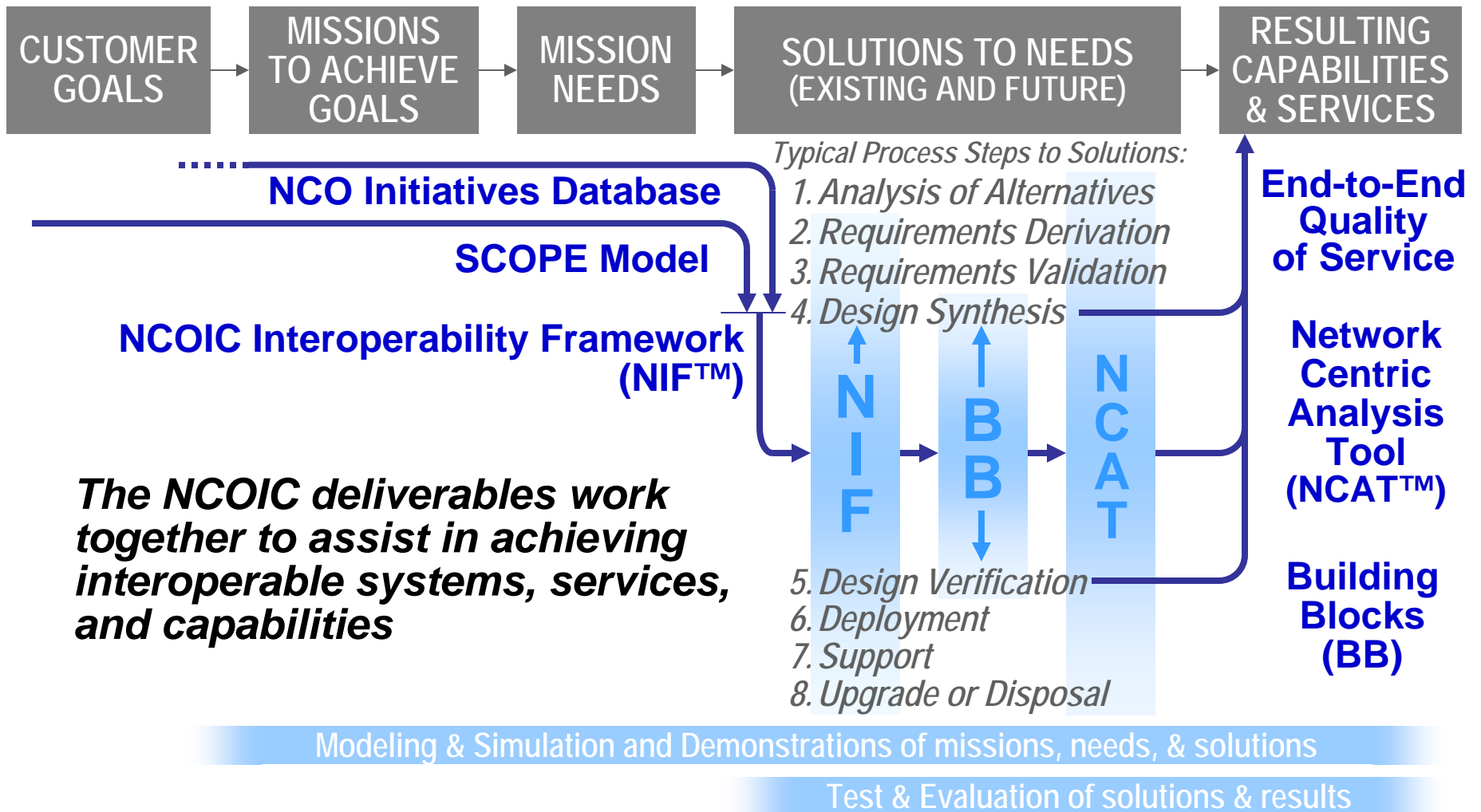
NCOIC Key Deliverables

Addressing Inter-Agency, Cross-Industry NCO Gaps

- Systems, Capabilities, Operations, Programs, & Enterprises (SCOPE)
 - Characterization of commercial, civil, and government requirements for interoperable systems
- NCOIC Interoperability Framework™ (NIF)
 - Recommendations for open standards and their patterns of use to obtain interoperable systems
- Building Blocks
 - Catalog of COTS & GOTS open standards based products compliant with NIF recommendations
- Network Centric Analysis Tool™ (NCAT)
 - Netcentric analysis of system architectures, including System-of-Systems and Federation of Systems architectures
- NCOIC Lexicon
 - A glossary of terms and definitions that lay the foundation for meaningful discussions. Provides a common language for the disparity of ideas concerning key terms, including "NCO."
- Systems Engineering best practices and processes
 - These best practices and processes include tools, process and maturity models, modeling techniques, and collaborative environments for NCOIC integration.

These products and services enable & measure net-centricity capabilities, requirements, gaps

NCOIC Assists Customers in obtaining interoperable solutions: *The Role of NCOIC Deliverables*



NCAT™ Update



- Two versions of the NCAT engine are publicly available and in use
 - Sharepoint and Java versions of engine available at www.NCOIC.org
- NCAT is in use by members and government agencies
- NCAT can be used to measure the amount of net centrality that exists in a system in design, development or currently in existence
 - against a set of requirements
- NCAT can measure the amount of net centrality that will result from the requirements produced for a system

Who is using NCAT?



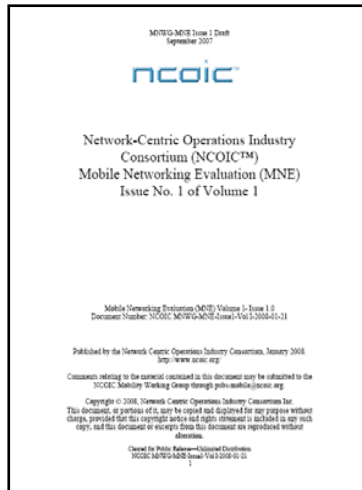
- US NextGen JPDO Net-Enabled Operations Demos, coordinated through Aviation IPT
 - Dynamic Special Use Airspace Experiment
 - Surveillance Data Network Experiment
 - Currently modifying content of more than 50 questions

- Evaluating the EoIP model for the numerous emergency responder COIs, coordinated through the NEER IPT

- NATO Response Force 11 Assessment, coordinated through NATO IPT
 - C2COE has announced decision, following demonstration during NRF 10
 - Will modify content

- DISA – NECC
 - May be included on their Federated Development & Certification Environment (FDCE) as a tool for developers

2008 Has Had a Robust Start



Position Paper: Mobile Networking Evaluation, Issue 1 published

Conferences/Symposia

- NCW Summit 2008
- NC3A Industry Conference
- NATO NNEC Conference
- Battlespace Information 2008
- Ground Systems Architecture Workshop



Press Activity

- Aviation Week Cover Article-Jan 21
- The Grid-Open Grid Forum
- IBM webcasts
- Australia DoD joins NCOIC



2008 IDGA Award:
Outstanding Contribution to the Advancement of Network Centric Warfare

Systems, Capabilities, Operations, Programs, and Enterprises (SCOPE) Model for Interoperability Assessment (Abridged Version) Version 1.0

July 24, 2007

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Tool Suite Enhanced:

Publication of SCOPE Model for Interoperability

Future Opportunities



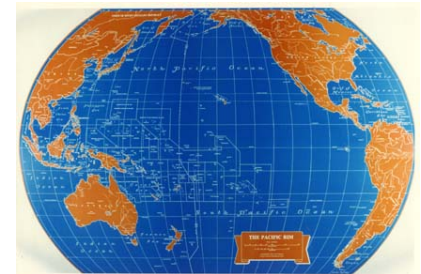
**Modeling & Simulation
Interoperability**



**Developing Government
Relationships**



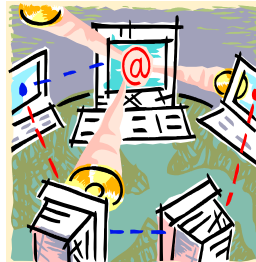
Cyber Security



**Increasing Asia
Pacific footprint**



**International Friendly
Force Tracking**



Training Systems

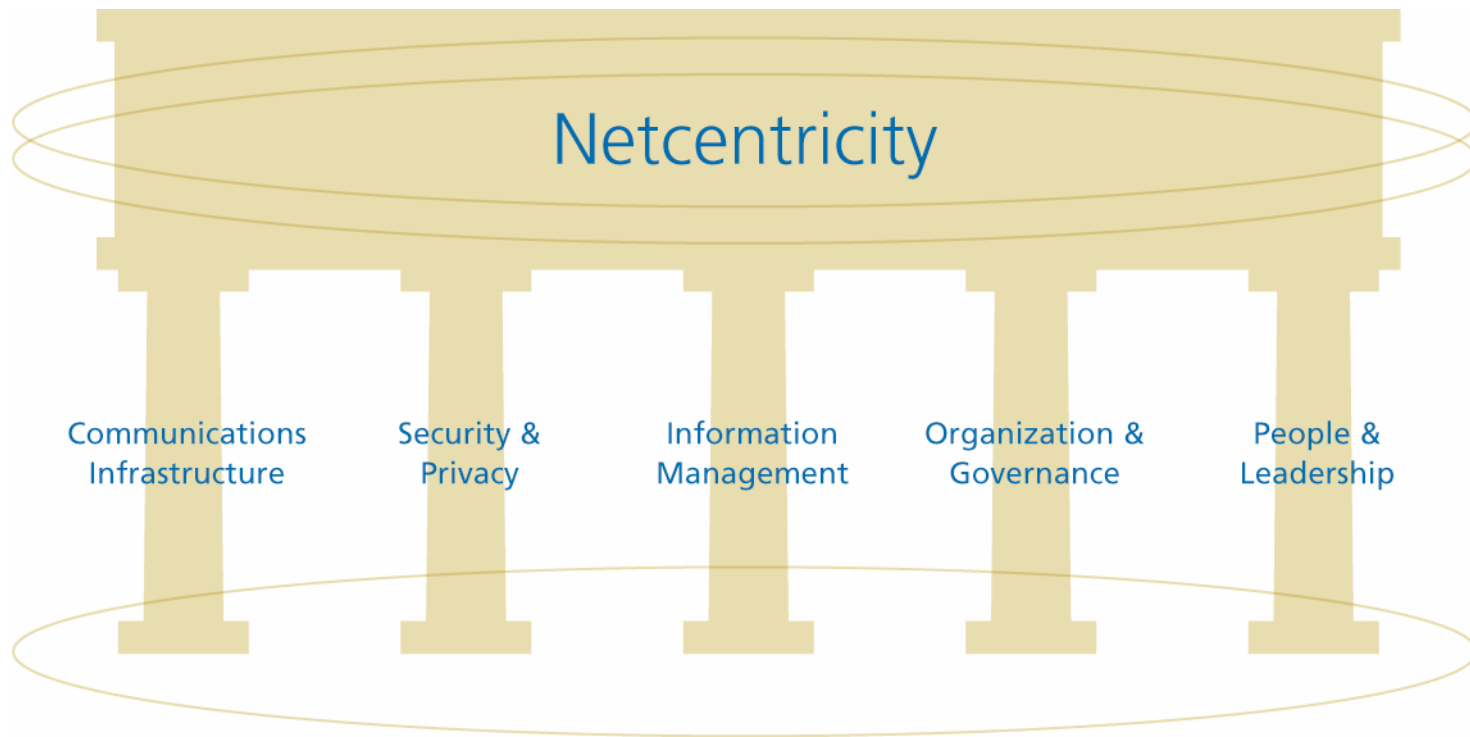


**Technical Presentations
And Workshops**



**S&RL New
Initiatives**

Center for Network Innovation





Deloitte.