Mobility Systems: Land, Sea, Air and Space

INCOSE 14th Annual GLNC Regional Conference

Detroit, MI, USA

October 4-7, 2022

Hybrid Edition

The International Council On Systems Engineering (INCOSE)

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded (in 1990) to develop and disseminate the trans-disciplinary principles and practices that enable the realization of successful systems. INCOSE is designed to connect systems engineering professionals with educational, networking, and career-advancement opportunities in the interest of developing the global community of systems engineers and systems approaches to problems. We are also focused on producing state-of-the-art work products that support and enhance this discipline's visibility in the world.

The International Council On Systems Engineering (INCOSE)

18000+ MEMBERS

74 CHAPTERS

55 WORKING GROUPS

3489 CERTIFIED

VISION

A better world through a systems approach.

MISSION

To address complex societal and technical challenges by enabling, promoting, and advancing systems engineering and systems approaches.

The International Council On Systems Engineering (INCOSE)

119 INCOSE Corporate Advisory Board (CAB) Member Organizations (June 2021)

321 Gang, Inc
Aerospace Corporation, The
Airbus
AM General LLC
Analog Devices, Inc.
ARAS Corp
Australian National University
Aviation Industry Corporation of China
BAE Systems
Ball Aerospace
Bechtel
Becton Dickinson
Blue Origin
Boeing Company, The
Bombardier Transportation
Booz Allen Hamilton Inc.
C.S. Draper Laboratory, Inc.
California State University
Carnegie Mellon University SEI
Change Vision, Inc.
Colorado State University SE Programs
Cornell University
Cranfield University
Cubic
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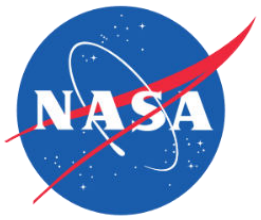
Defense Acquisition University
Deloitte Consulting, LLC
Denso Create Inc
Drexel University
Eindhoven University of Technology
EMBRAER
ENAC
Federal Aviation Administration (FAA)
Ford Motor Company
Fundacao Ezute
General Dynamics
General Electric Aviation
General Motors
George Mason University
Georgia Institute of Technology
IBM
Idaho National Laboratory
ISAE - Supaero
ISDEFE
ITID, Ltd
Jacobs
Jama Software
Jet Propulsion Laboratory
John Deere
Johns Hopkins University
KBR
KEIO University
L3Harris Technologies
Leidos
Lockheed Martin Corporation
Los Alamos National Laboratory
ManTech International Corporation
Maplesoft
Massachusetts Institute of Technology (MIT)
MBDA (UK) Ltd
Missouri University of Science & Technology
MITRE Corporation, The
Mitsubishi Heavy Industries, Ltd
NASA
National Reconnaissance Office (NRO)
National Security Agency Enterprise Systems
Naval Postgraduate School
Nissan Motor Co, Ltd
No Magic Inc. (Dassault Systemes)
Northrop Grumman Corporation
Pacific Northwest National Laboratory
Pennsylvania State University
Peraton
Petronas Nasional Berhad
Prime Solutions Group, Inc
Project Performance International (PPI)
QRA Corp
Raytheon Corporation
Roche Diagnostics
Rolls-Royce
Saab AB
SAIC
Sandia National Laboratories
Siemens
Sierra Nevada Corporation
Singapore Institute of Technology
Skoltech
SPEC Innovations
Stellar Solutions
Stevens Institute of Technology
Strategic Technical Services LLC
Swedish Defense Materiel Administration
Systems Planning and Analysis
Thales
Torch Technologies
Trane Technologies
Tsinghua University
TUS Solution LLC
UC San Diego
UK Ministry of Defense (MoD)
University of Alabama in Huntsville
University of Arkansas
University of Connecticut
University of Maryland
University of Maryland, Baltimore County
University of Michigan, Ann Arbor
University of New South Wales
University of Southern California
University of Texas at El Paso (UTEP)
University of Washington ISE
US Department of Defense (DoD)
Veoneer
VG2PLAY
Vitech
Volvo Construction Equipment
Woodward Inc
Worcester Polytechnic Institute- WPI
Zuken Inc

The International Council On Systems Engineering (INCOSE)

Alliances and Collaborations – by Memorandum of Understanding (MoU) *

CLICK ON THE LOGOS BELOW TO LEARN MORE

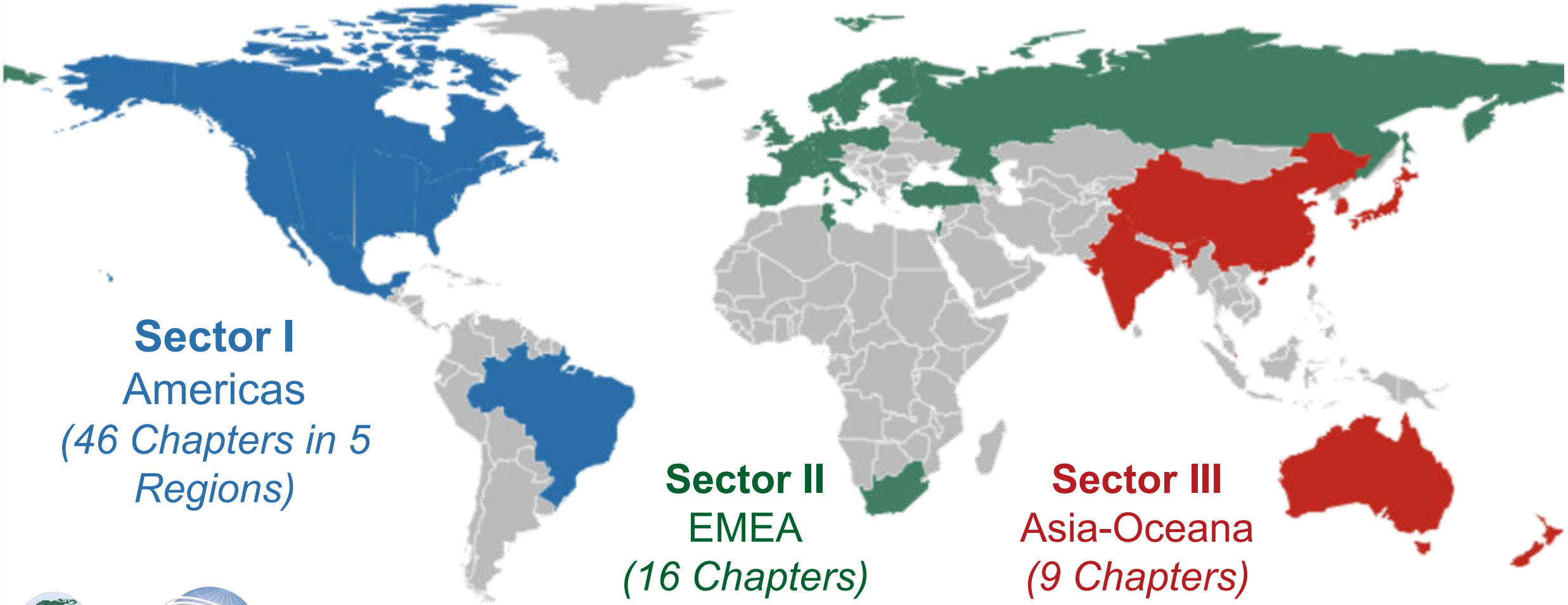


* Not all INCOSE inter-organizational Alliances and Collaborations are shown. This is a sampling of example MoUs in June of 2021.

The International Council On Systems Engineering (INCOSE)

Three Sectors with 74* Chapters in 35 Countries

* Some emerging (new) chapters not shown below.



Sector I
Americas
(46 Chapters in 5 Regions)

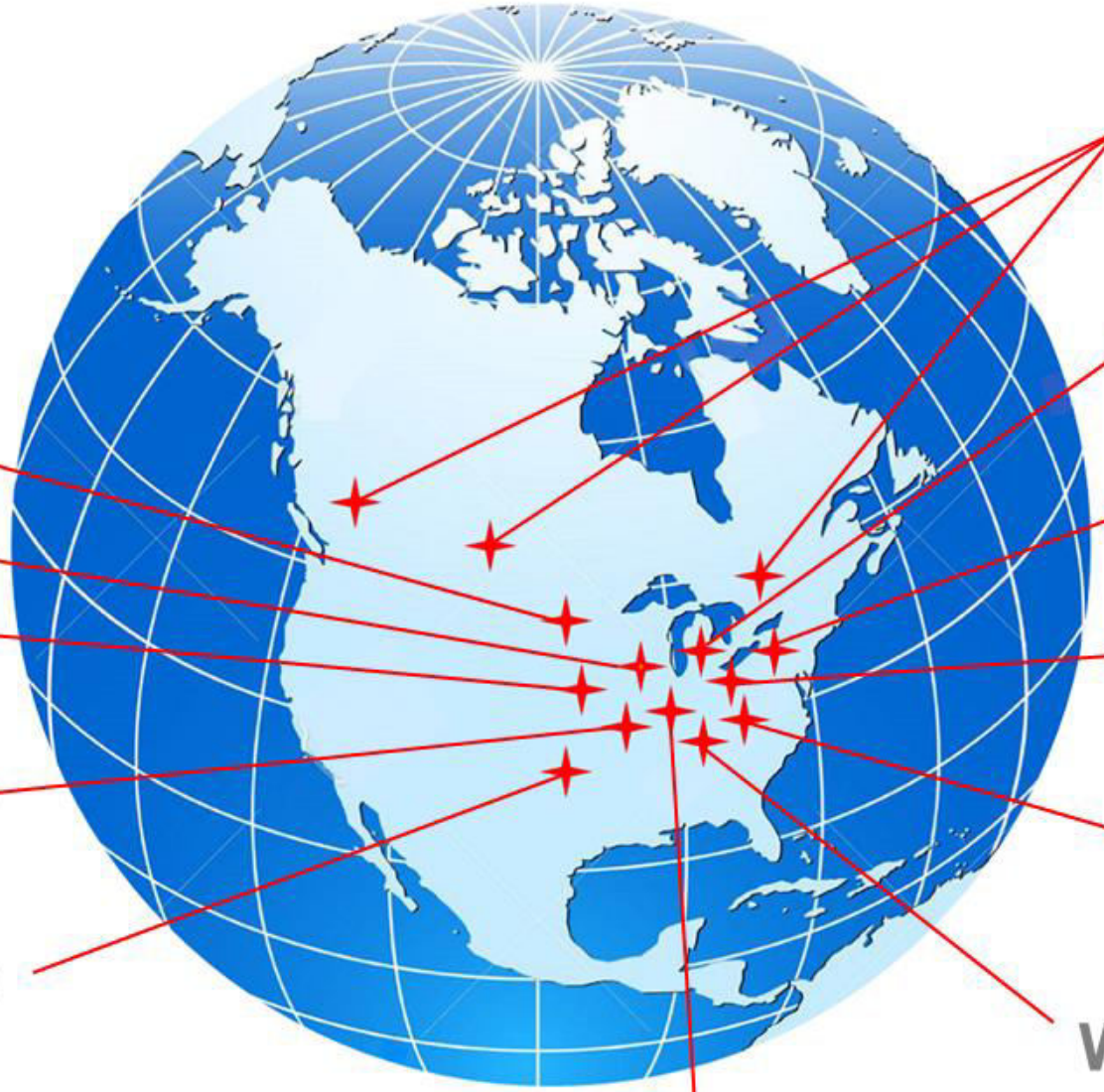
Sector II
EMEA
(16 Chapters)

Sector III
Asia-Oceana
(9 Chapters)

AMERICAS

INCOSE

The 12 Chapters of the INCOSE Americas Great Lakes / North-Central (GLNC) Region



North Star

Canada (now consolidated)

Chicagoland

Michigan

Finger Lakes

Heartland

Cleveland – Northern Ohio

Midwest Gateway

Three Rivers

Great Plains

Wright Brothers

Crossroads of America

INCOSE 14th Annual GLNC Regional Conference

Detroit, MI, USA

Hybrid Edition

Oct 4-7, 2022

Sponsors and Partners to Date

Systems & Mission Engineering Conference

(Complimentary Viirtual Event Connections)

The Westin Book Cadillac*

Historic† Luxury Hotel and Conference Center

Note: The GLNC14 planners are currently working with stakeholders and the Marriott/Book Cadillac to select new dates for the postponed Nov 30-Dec 3, 2021 event.

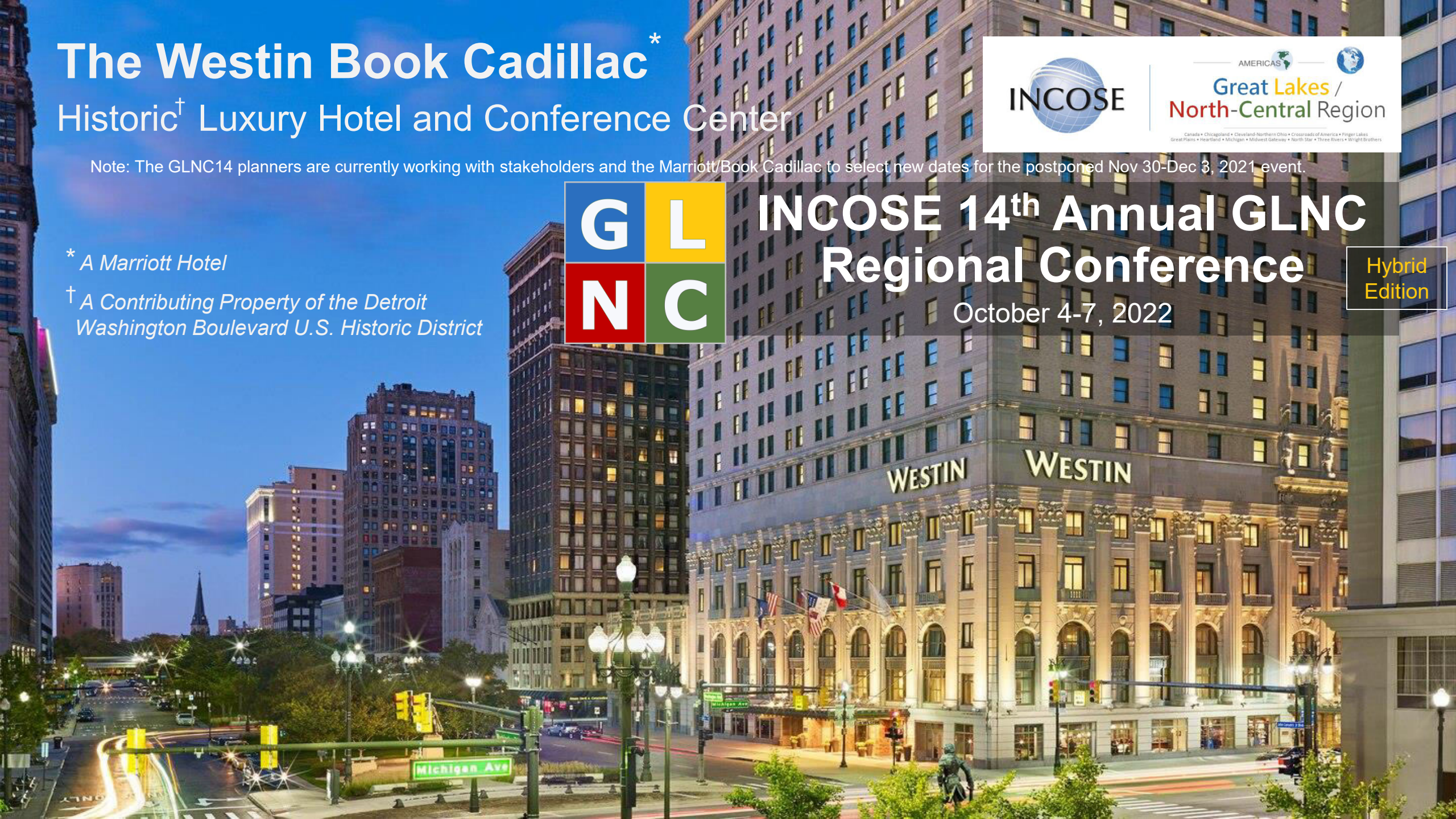
* *A Marriott Hotel*

† *A Contributing Property of the Detroit Washington Boulevard U.S. Historic District*

INCOSE 14th Annual GLNC Regional Conference

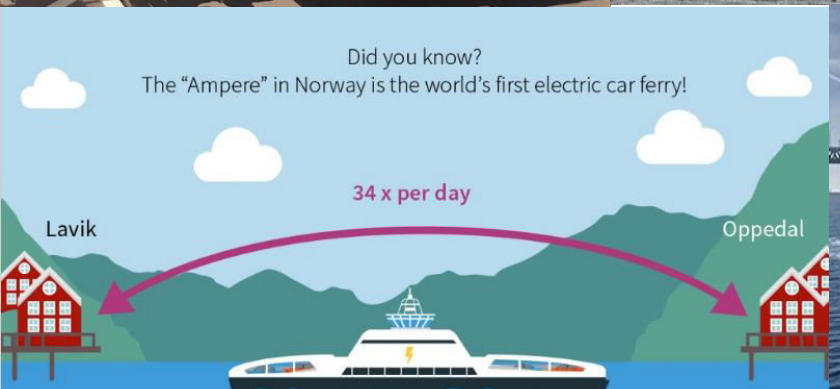
Hybrid Edition

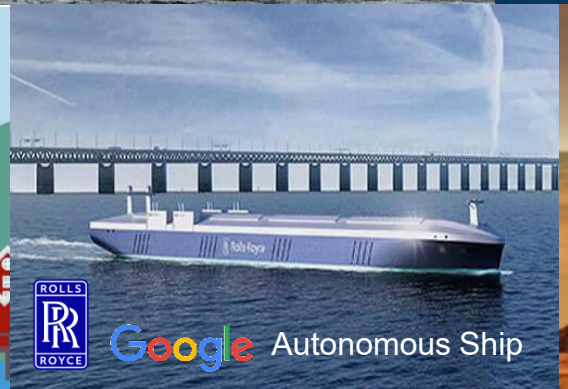
October 4-7, 2022

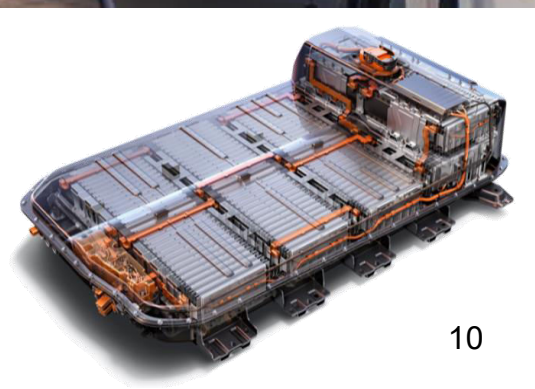


Vehicle Systems and Technologies

Electric Propulsion ● Autonomous Control ● Communication (V2X) ● Batteries & Charging

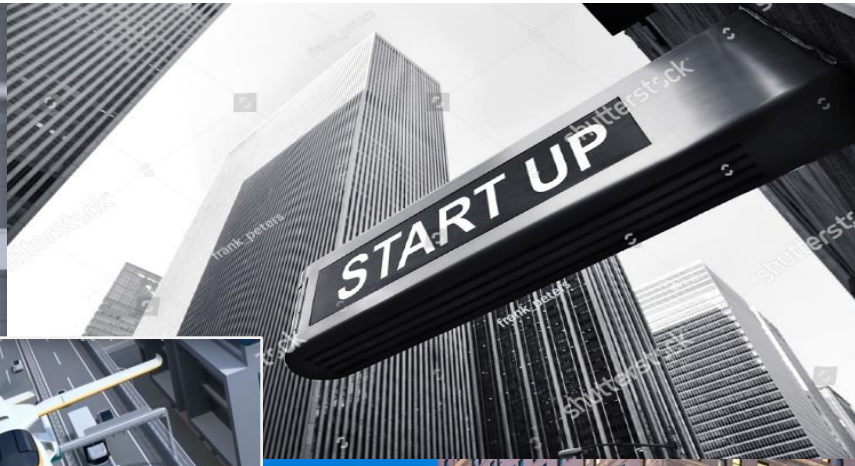






Urban Planning / Smart Cities

Future Vehicles ● EV Charging ● Connectivity ● Innovation & Economic Development



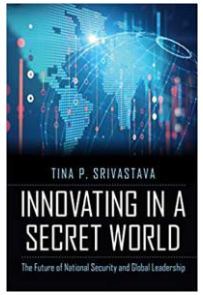
Critical Infrastructure

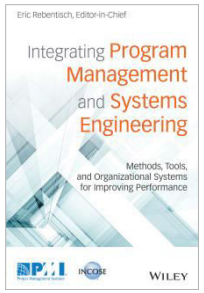
Electric Power Grid ● Telecommunications ● IoT ● Transportation Systems

Keynote Speakers (with notable books)

Dr. Tina P. Srivastava

MIT Aeronautics and Astronomics Engineering Fellow, MIT System Design & Management Co-Chair, INCOSE PM-SE Integration WG

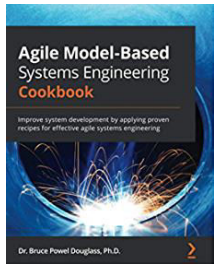


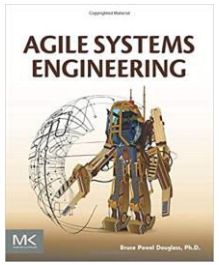


(1) Innovating in a Secret World: The Future of National Security and Global Leadership. (2) Integrating Program Management and Systems Engineering: Methods, Tools and Organizational Systems for Improving Performance (contributing author).

Dr. Bruce Powel Douglass

Senior Principal Systems Engineer, MITRE Chief Evangelist (SysML/UML), IBM (1995-2019)



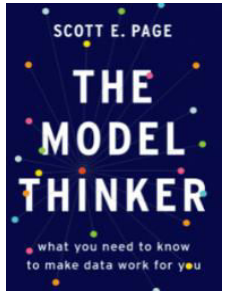


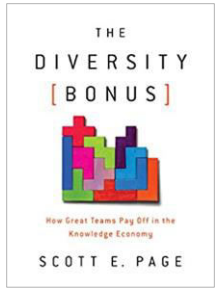
(1) Agile Model-Based Systems Engineering Cookbook. (2) Agile Systems Engineering *

** Bruce has authored twenty books.*

Dr. Scott Page

Professor of Complexity, Social Science, and Management; Center for the Study of Complex Systems, University of Michigan

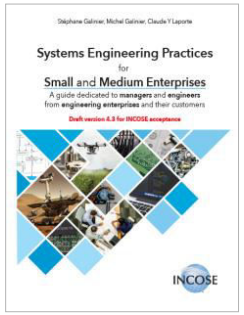


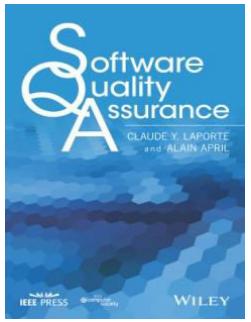


(1) The Model Thinker: What You Need to Know to Make Data Work for You. (2) The Diversity Bonus: How Great Teams Pay Off in the Knowledge Economy

Keynote Speakers (with notable books)

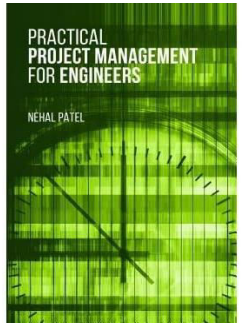
Claude Laporte, Ph.D.
Co-Chair, INCOSE Small Business Systems Engineering Working Group
Professor, École de Technologie Supérieure (ÉTS), Montreal, Quebec, Canada





(1) Systems Engineering Practices for Small and Medium Enterprises (co-author). (2) Software Quality Assurance (co-author)

Nehal Patel
Senior Global Program Manager,
Amazon Robotics



Practical Project Management for Engineers

Keynote and Featured Speakers

Dr. Rick Hefner
Program Director,
Center for Technology and Management Education, Caltech

Rick Hefner is the Program Director for Caltech's Center for Technology and Management Education, which designs and delivers customized professional training to technology-driven organizations. He has over 40 years of experience in systems development, research, and management, and has served in industrial, academic, and government positions. Dr. Hefner has worked with numerous companies including AeroVironment, Applied Physics Laboratory, Applied Materials, Ares Management, Boeing, DRS Technologies, Halliburton, Herbalife, Honeywell, Jet Propulsion Laboratory, John Deere, L-3 WESCAM, Maytag, Motorola, Northrop Grumman, Pacific Bell, Raytheon, Schlumberger, Southern California Edison, St. Jude Medical, Toshiba, TRW, U.S. Navy, and Xerox. Dr. Hefner is credited with over 200 publications and presentations and is a certified Lean Six Sigma Black Belt. He earned his PhD from UCLA and his MS and BS from Purdue University. He is Past-President, INCOSE Los Angeles Chapter.

Keynote and Featured Speakers (not all shown)

Trevor Pawl

Chief Mobility Officer, State of Michigan
Michigan Economic Development Corporation
Office of Future Mobility and Electrification

Trevor Pawl is the Chief Mobility Officer for the State of Michigan, and leads the Michigan's Office of Future Mobility and Electrification. In this position, Pawl is responsible for working across state government, academia and private industry to grow Michigan's mobility ecosystem through strategic policy recommendations and new support services for companies focused on the future of transportation.

Visit: https://www.michiganbusiness.org/ofme/

Thomas M. Doehne

Office of Technology Incubation and Innovation, Technology Transfer
NASA Glenn Research Center

The Technology Transfer Office at NASA Glenn Research Center (GRC) ensures that innovations developed for aeronautics and space exploration are made broadly available to the public – boosting the U.S. economy and maximizing the return on the nation's investment in NASA. The GRC has unique expertise in many areas, including materials and coatings, sensors, satellite and deep space communications, electrical/electronics, and power generation and storage. In addition, the office has a diverse portfolio of inventions available for licensing, especially in the categories of sensors, aeronautics, and information technology and software.

Visit https://technology.grc.nasa.gov/ and https://www.youtube.com/watch?v=QIjEHEADX1k

Kerry Lunney

President, International Council on Systems Engineering (INCOSE)
Engineering Director and Chief Engineer, Thales Australia

Kerry Lunney is Engineering Director and Chief Engineer of Thales Australia. In this role she provides technical leadership and governance, and participates on a number of technical boards and communities of Thales. Kerry has extensive experience developing and delivering large system solutions, including design, software development, infrastructure implementation, hardware deployments, integration, sell-off, training and on-going support. She has worked in various industries including ICT, gaming, financial services, transport, and aerospace and defense. She has worked in Australia, Asia and the USA. Her experience includes combat systems, mission systems, communication systems, road and rail ITS's, flight simulators, security systems, vehicle electronic systems, gaming systems and ICT foundation systems. Kerry is currently serving a two-year term (2020-2021) as President, International Council on Systems Engineering (INCOSE). Prior to this she served as a member of the INCOSE Board of Directors representing INCOSE's Asia-Oceania Sector, and as national president of the Systems Engineering Society of Australia (SESA). Kerry is also a member of IEEE, a Fellow of Engineers Australia with the status of Engineering Executive and Chartered Professional Engineer, and a certified INCOSE Expert Systems Engineering Professional (ESEP).

Keynote and Featured Speakers (not all shown)

Brett Hillhouse

Global Automotive Leader
IBM AI Applications

As Global Automotive Leader for IBM AI Applications, Brett Hillhouse's responsibilities include industry and technology strategy, as well customer success for automotive companies around the world. His 25+ years of industry experience includes transformation engagements at global automotive and aerospace OEM's and Tier 1 suppliers. The scope of these engagements include transformation of product development, reuse strategy and implementation, manufacturing 4.0, supply chain management and compliance consulting. Previously, Mr. Hillhouse has held several industry and leadership positions at IBM and Siemens (formerly SDRC). Brett holds a BS in Mechanical and Aerospace Engineering from Cornell University.

Gavin Brown

Chair, North American Space Summit (NASS)
Executive Director, Michigan Aerospace Manufactures Association (MAMA)

Gavin Brown heads up the Michigan Launch Initiative (MLI) which is focused on establishing vertical and horizontal launch space ports in the State of Michigan. He is the executive director of the Michigan Aerospace Manufactures Association and chairs the North American Space Summit (NASS), held annually in Traverse City, MI.
(Overview - Press Story)

Jon Mooney, PE

Co-Chair, Smart Cities Initiative, International Council on Systems Engineering (INCOSE)
Principal, Acoustics by JW Mooney, LLC

Jon Mooney, PE, is Co-chair of the INCOSE Smart Cities Initiative, He has an extensive career as a consultant specializing in acoustics, vibration and systems engineering, and holds an MBA from St. Ambrose University, and a B.S. in Aerospace Engineering from the University of Cincinnati. Jon is a contributing editor to Walls & Ceilings magazine, an associate editor to Noise Control Engineering Journal, and author of Inventor's Guide to Identifying Profitable Ideas, JW Mooney's Practical Architectural Acoustics Notebook, and How to Be a Good Inventor. Recent Acoustics by JW Mooney, LLC projects include Willis Tower, Old Armory Concert Hall, Nationwide Children's Hospital Data Center, Northrop Grumman Conference Center, Genesis Hospital MRI suite, Ohio Health Neuroscience Wellness Center, and ISU Sports Performance Center. As Lead Acoustics Engineer with KJWW Engineering Consultants, 2007-2017, Mr. Mooney's 400+ projects included Bettendorf Event Center, Cedar River Fine Arts, Iowa Central Bio-Science, Renaissance Chicago, University of Chicago, Argonne National Laboratory, and Chicago Athletic Association. Between 1993-2007 Jon was Acoustics Consultant for 100+ projects including Oak Ridge National Laboratory, Cincinnati Art Museum, Carnegie Theater, Curtis Studios, Ray & Joan Kroc Corps Community Center. Jon's early career with L3 KDI Precision Products and Martin Marietta, as Aerospace R&D and Co-op Engineer, included work on the Patriot Missile, Skylab and Space Shuttle.

INCOSE GLNC14 Conference Program Schedule:

Event Day 1 (Arrival / Private Tour)

Arrival – Tour – Check-in – Set-up – Reception

American Center for Mobility
CONNECTED. AUTOMATED. VALIDATED.

ACM Tour Time: 1pm – 4pm

The American Center for Mobility (ACM) is a collaborative effort comprised of government, industry and academic organizations focused on accelerating the mobility industry through research, testing, standards development and educational programming. Located in Southeast Michigan on over 500-acres at the historic Willow Run site in Ypsilanti, MI.

Hosted by: MICHIGAN ECONOMIC DEVELOPMENT CORPORATION

MICHIGAN

INCOSE GLNC14 Conference Program Schedule:

Event Day 2 (Main Program)

Plenary Track (Live-Streamed) – Breakout Track (Zoom Hybrid) – Virtual/Live Exhibit Hall / Student Career Fair

Morning Plenary Track: 9:00am–12:30pm EST

Future Mobility

- Complex Systems of Systems
- Land, Sea, Air and Space
- Electrification, Autonomy, Connected
- IoT / AI / Telecommunications / GPS
- Infrastructure (local and global)
- Charging Stations / Infrastructure
- Smart Cities / Urban Planning
- Smart Mobility / Smart Intersections

Afternoon Plenary Track: 1:30pm – 5pm EST

Accelerating Innovation

- Start-up, Tech-Transfer, Small Business Programs (NASA, MEDC, other)
- Resources for Research, Development, Testing & Education/Training (Federal, State, Local, Private)
- Systems Engineering for rapid innovation, Start-ups, Small Business, Incubators, Lean/Agile projects in large organizations.

Breakout Track: (1) PM-SE Integration Workshop. (2) Bruce Douglass Agile MBSE Workshop.

INCOSE GLNC14 Conference Program Schedule:

Event Day 3 (Main Program)

Plenary Track (Live-Streamed) – Breakout Track (Zoom Hybrid) – Virtual/Live Exhibit Hall / Student Career Fair

Morning Plenary Track: 9:00am–12:30pm EST

Engineering Systems

- Understanding, Designing and Managing Complex Systems
- Integrating Project/Program Management & Systems Engineering
- Infrastructure Systems Engineering
- SE Fundamentals and Competency
- System Thinking & Modeling
- Building Organizational SE Capability

Afternoon Plenary Track: 1:30pm – 5pm EST

MBSE / Digital Engineering

- Model-Based Systems Engineering (MBSE) / Agile MBSE
- Modeling Languages (UML, SysML, etc.)
- Systems for System Modeling
- MBSE and Modeling System of Systems
- Diversity in Applications of MBSE
- Accelerating Innovation Using MBSE

Breakout Track: (1) No Magic MBSE Tutorial. (2) Smart Cities Workshop – Part 1. (3) NASA Tech-Transfer Program Workshop .

INCOSE GLNC14 Conference Program Schedule:

Event Day 4 (Workshops & Tour)

Tours – Breakout Tracks (Zoom Hybrid & Virtual) – Student Career Fair

Workshops (Hybrid/Virtual): 8:30am–5pm EST

Smart Cities Workshop

- Part 2 of 21. Hosted by INCOSE Smart Cities Initiative with in-person and virtual participation from Urban Planning schools and cities worldwide.

Other Workshops/Tutorials

- Smart/Micro Grid Systems Modeling
- Additional MBSE-related material
- Overflow Sessions: NASA / MEDC Small Business & Start-up Programs

Tours: 9am – 5pm EST

Detroit Smart Parking Lab

- https://www.acmwillowrun.org/detroitsmartparkinglab/

Motown Museum

- Original Hitsville USA recording studio and offices. Amazing!
- https://www.motownmuseum.org/

Museum Group Discount Tickets Provided with Conference Registration

INCOSE GLNC14 Conference Program Schedule:

Date Selection Background Information

The GLNC14 event scheduled for Nov 30-Dec 3, 2021 was postponed due to number of factors related to the COVID-19 pandemic, including a sudden unexpected surge in cases and hospitalizations in Michigan and the Detroit area just prior to the event. The following date options are currently available for rescheduling at the Book Cadillac venue. All 4 options support the event program and floor plan layout "as designed" for the postponed Nov 30 – Dec 3, 2021 event.

Tuesday (Day 1) – Friday (Day 4) Date Options *

October 4-7, 2022:	Option #1 / Most preferred / Selected in May 2022
November 1-4, 2022:	Option #2 / Alternate to Option #1 (if necessary).
November 15-18, 2022:	Option #3 / Not preferred due to closeness to holidays.
December 13-16, 2022:	Option #4 / Not preferred due to closeness to holidays.

** Mon-Thur dates (in the same week) were also available for all 4 of the above options.*

INCOSE 14th Annual GLNC Regional Conference

INCOSE GLNC Quartely Virtual Student Systems Engineering (SE) Career Fairs

INCOSE Chapter Sponsorship Opportunity

Virtual Student Systems Engineering Career Fair*

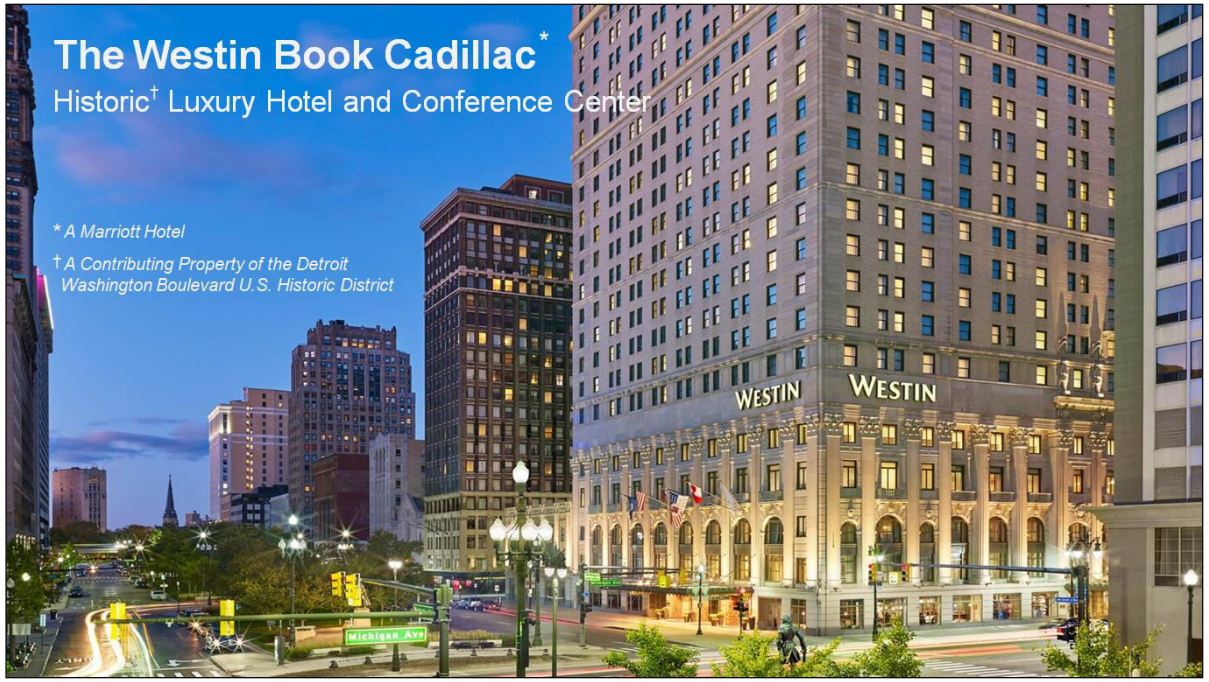
Employer Virtual Booth Opportunities

Employer Virtual Booth Set-up is continual and now in process.

https://secareerfair.xor.ai/incose

* There are 4 Fairs each year. The Fall/Winter 2021-22 Fair is setting up at this time. The Fall 2022 Fair will coincide with GLNC14. Booth purchases are on an annual basis.

The Conference Venue * – A Landmark Hotel Rich in History



The Westin Book Cadillac

Historic Luxury Hotel and Conference Center

1114 Washington Boulevard, Detroit, MI 48226

Antoine de la Mothe Cadillac (1658–1730) was a French explorer and adventurer in New France, which stretched from Eastern Canada to Louisiana on the Gulf of Mexico. In 1701, he founded Fort Pontchartrain du Détroit, which became the city of Detroit. He was commandant of the fort until 1710. Between 1710 and 1716, he was the governor of Louisiana,

Cadillac was born Antoine Laumet on March 5, 1658, in the small town of Saint-Nicolas-de-la-Grave in the province of Gascony (today in the Tarn-et-Garonne, Occitanie). His father, Jean Laumet, was born in the village of Caumont-sur-Garonne, and was a lawyer in the Parliament of Toulouse. Jean was appointed lieutenant to the judge of Saint-Nicolas-de-la-Grave in 1652 and judge in 1664. Antoine's mother, Jeanne Péchagut, was the daughter of a merchant and landowner. La Mothe's youth included rigorous study at a Jesuit institution where he learned theology, the law, agriculture, botany and zoology. He enlisted in the military as a cadet at the age of 17 and within a few years became an officer in the Clérambault regiment. In 1683, at the age of 25, he departed from France to the New World.

Hotel Cadillac – 1888

Book-Cadillac – 1924

Westin Book Cadillac – 2008

$200 Million Reconstruction

On the “Fifth Avenue of the Midwest” – 1924

Announcing the MAGNIFICENT, NEW

Book-Cadillac

in DETROIT

Opening the week of December 1, 1924, the new Book-Cadillac Hotel, Detroit, immediately takes rank with the finest hostelries of Europe and America.

The Book-Cadillac rises on the site of the former Hotel Cadillac at the intersection of Washington Boulevard and Michigan Avenue. Towering twenty-nine stories above the street, with twelve hundred rooms and bath, it is the tallest hotel structure in the world.

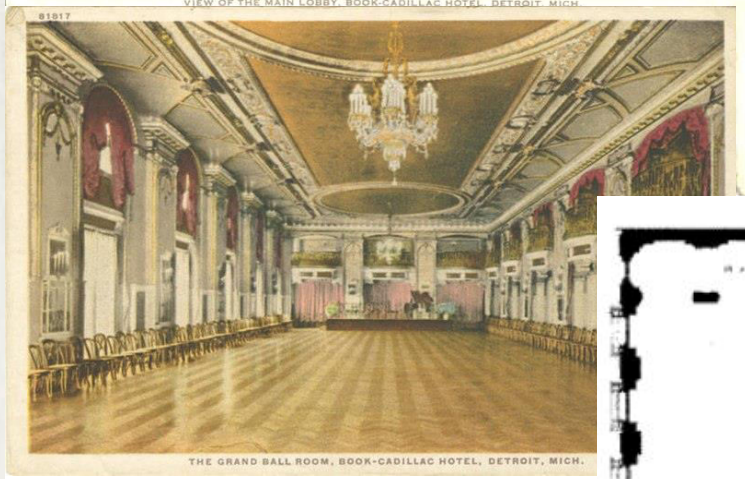
Under the personal direction of Mr. Roy Carruthers, nationally recognized authority in hotel management, every facility is provided for extending maximum courtesy and comfort to guests.

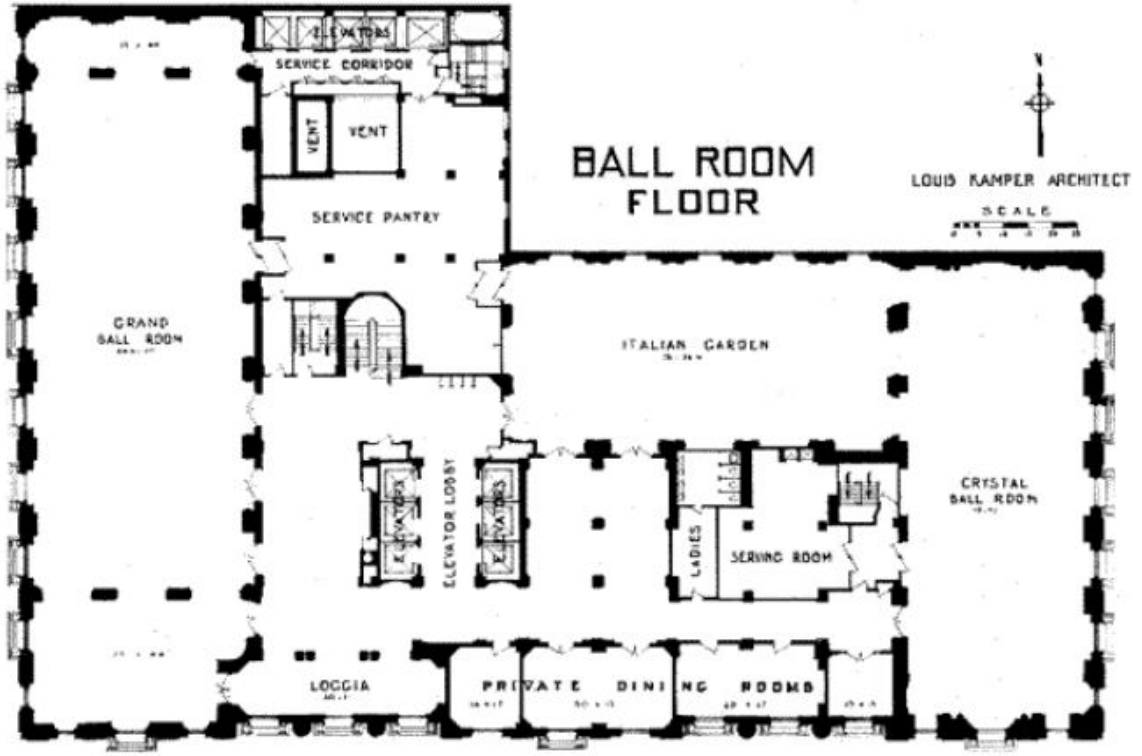
BOOK-CADILLAC HOTEL COMPANY, DETROIT

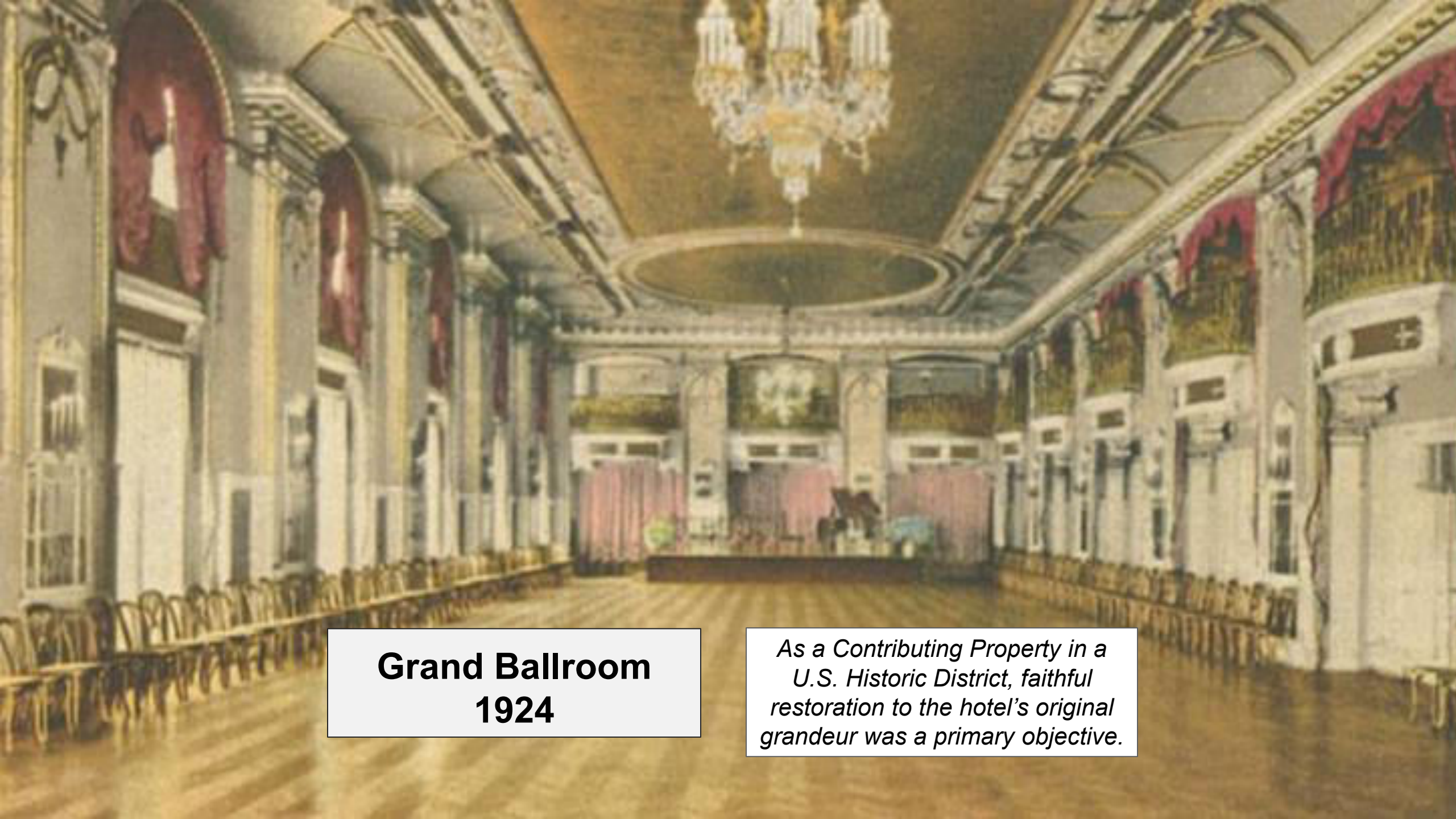
ROY CARRUTHERS, *President*

R. J. TOMPKINS, *Resident Manager*

The Book-Cadillac Hotel 1924

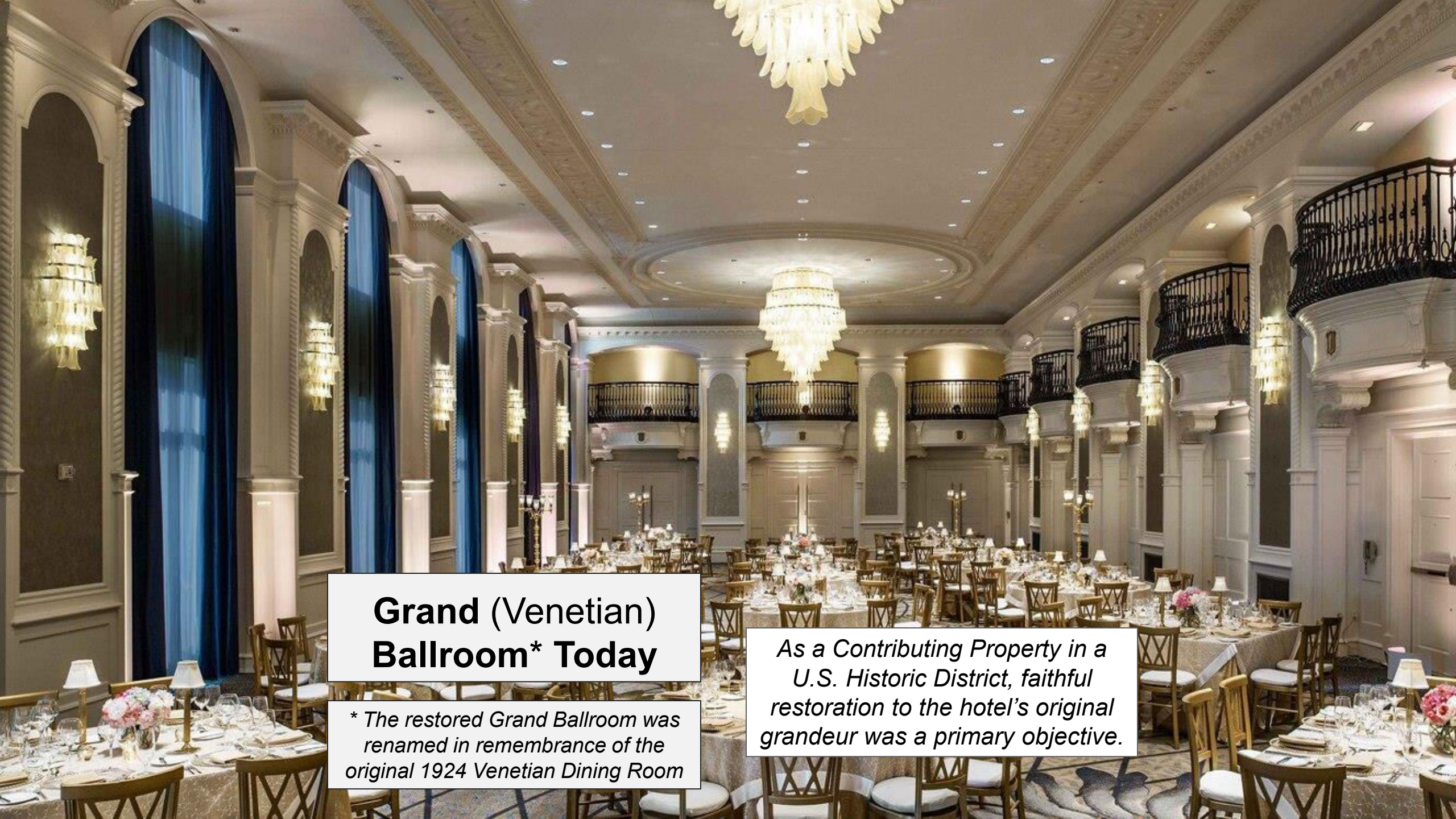






Grand Ballroom
1924

As a Contributing Property in a U.S. Historic District, faithful restoration to the hotel's original grandeur was a primary objective.



Grand (Venetian)
Ballroom* Today

** The restored Grand Ballroom was renamed in remembrance of the original 1924 Venetian Dining Room*

As a Contributing Property in a U.S. Historic District, faithful restoration to the hotel's original grandeur was a primary objective.

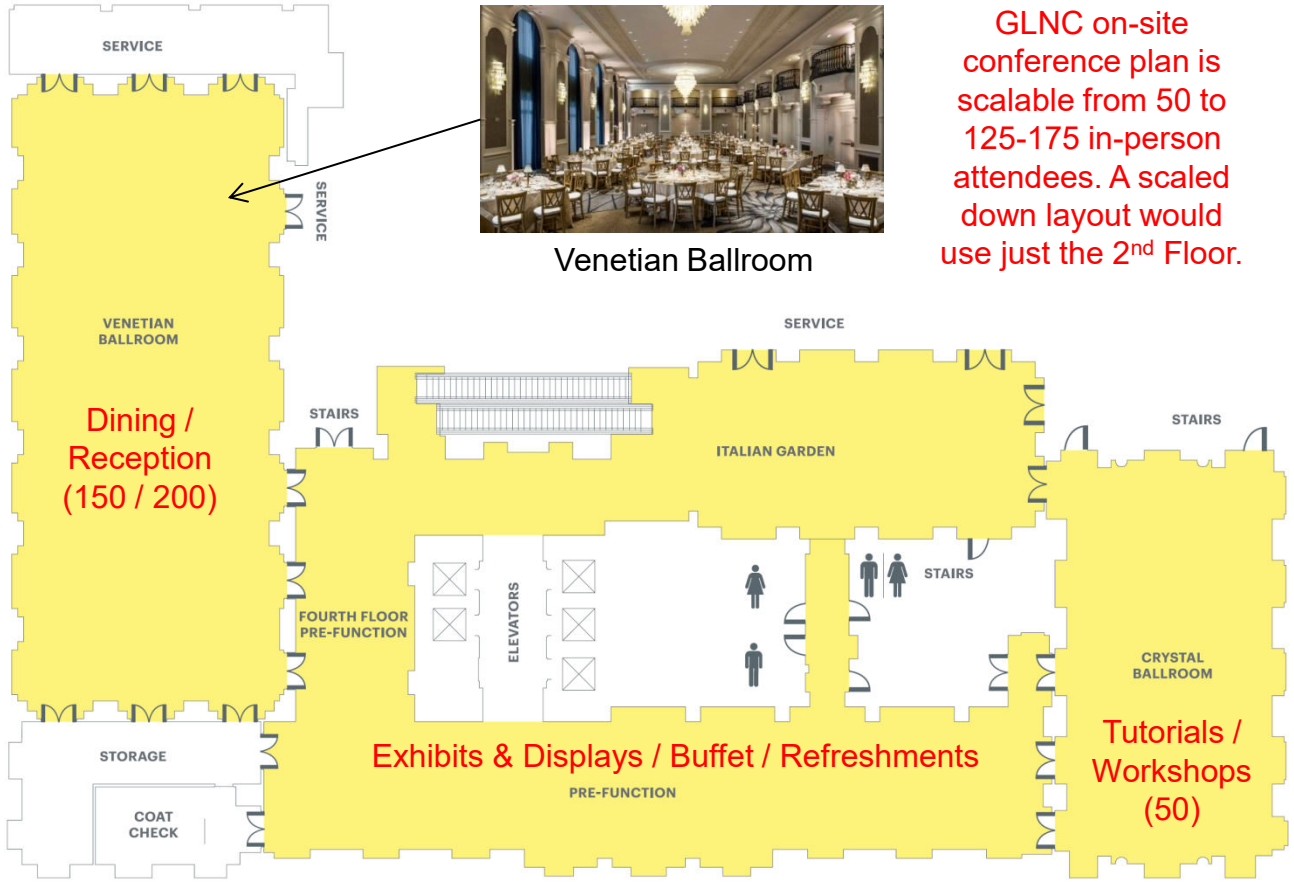
Woodward Ballroom
(Conference Plenary Room)

General Layout: Function Rooms – Book Cadillac

Fourth Floor

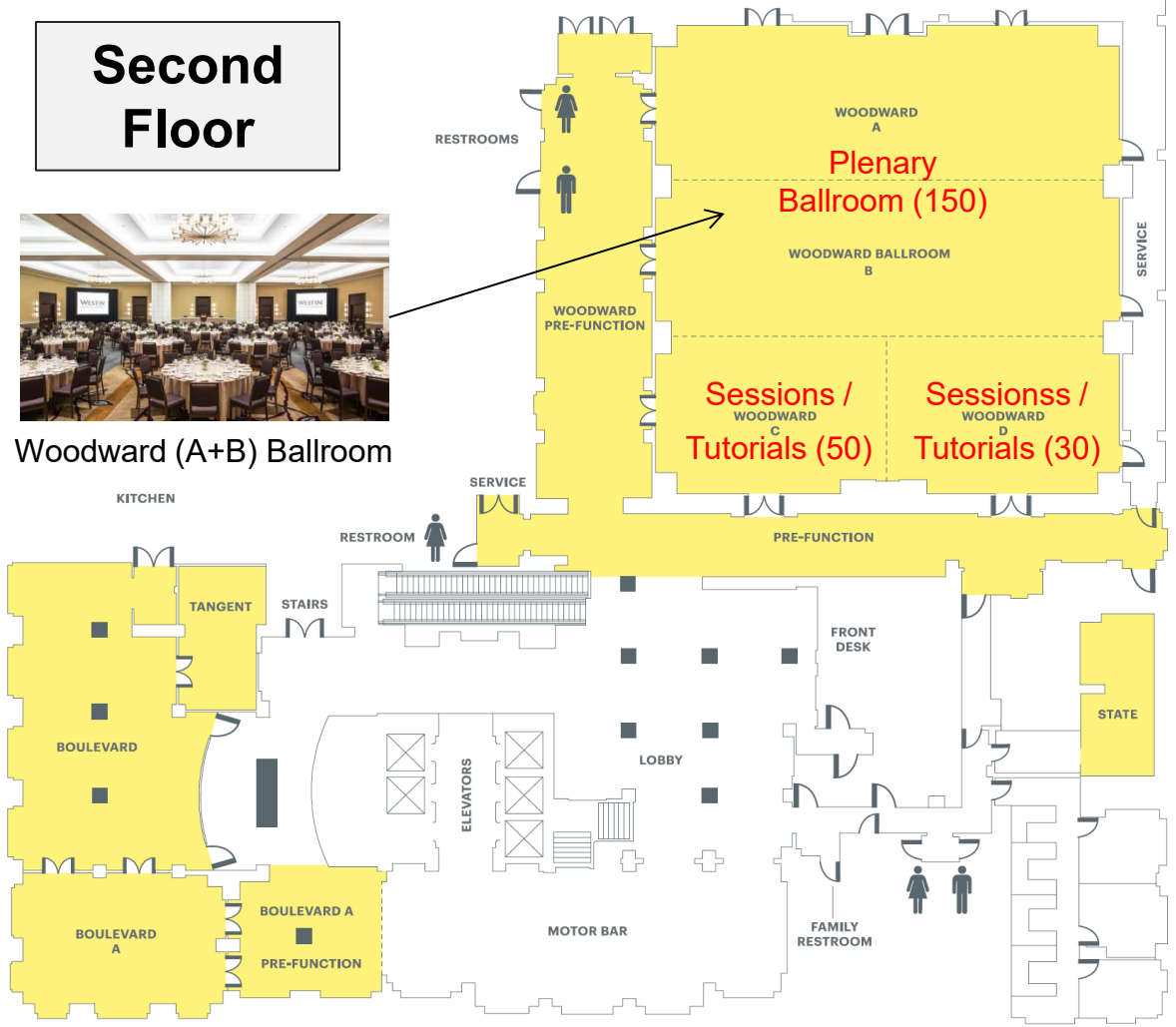
Venetian Ballroom

Due to the uncertainties related to COVID-19 the GLNC on-site conference plan is scalable from 50 to 125-175 in-person attendees. A scaled down layout would use just the 2nd Floor.



Second Floor

Woodward (A+B) Ballroom

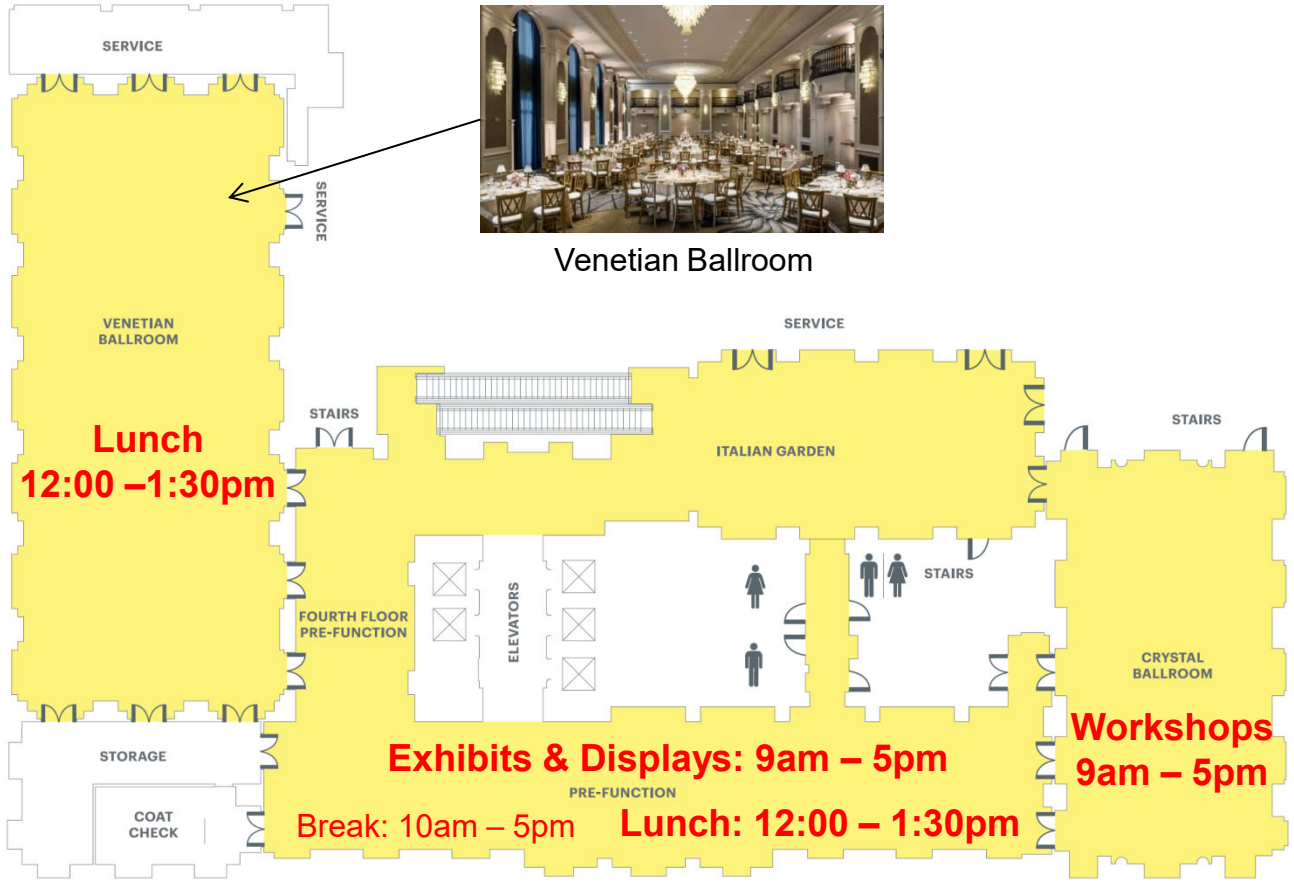


The GLNC14 is a hybrid (virtual + in-person) event with on-site AV/IT by Marriot provider Encore Global and Virtual Platform by INCOSE provider KMD Events, Toulouse, France.

Main Conf. (Day 2 and Day 3): Room Schedule – Book Cadillac

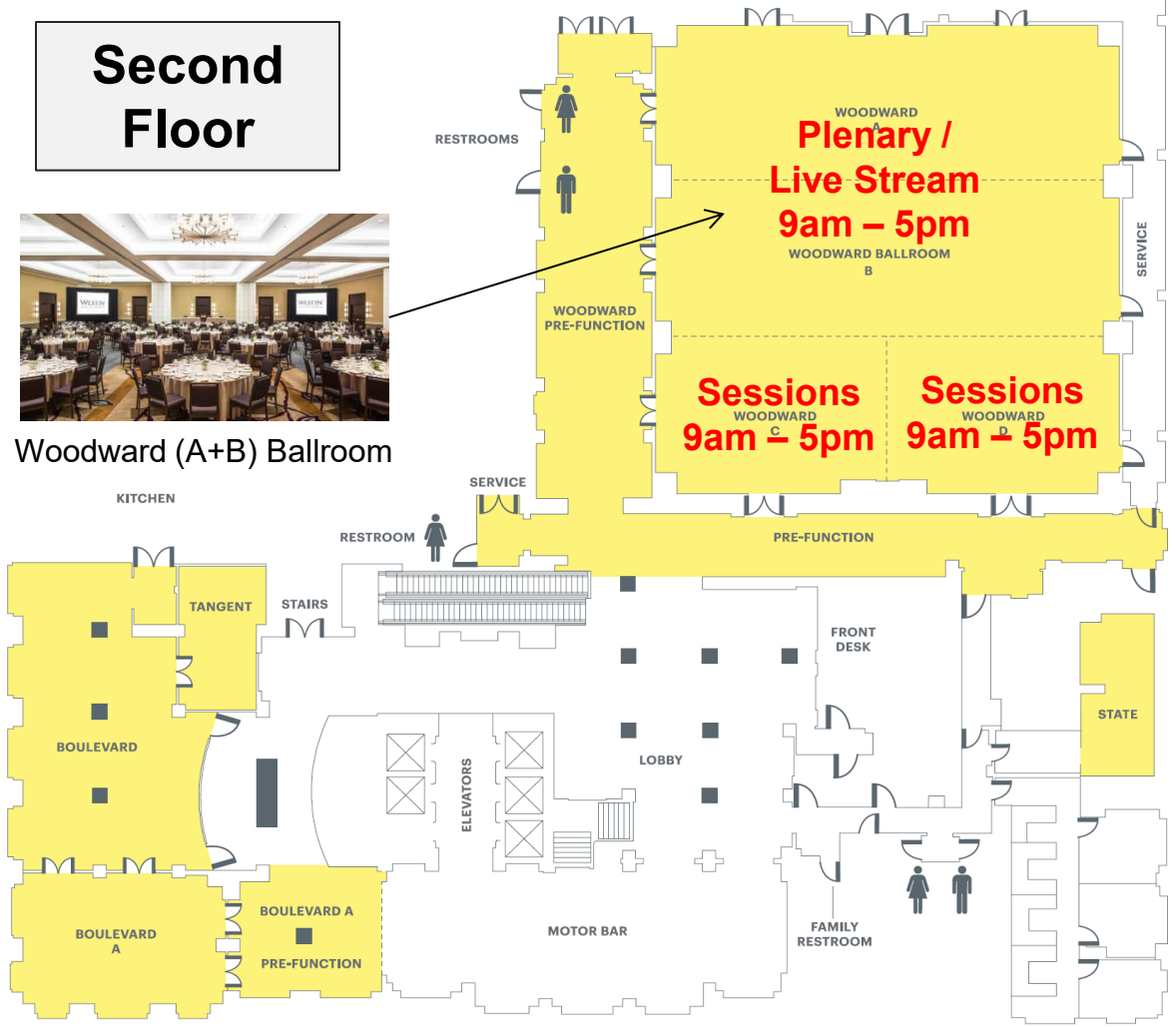
Fourth Floor

Venetian Ballroom



Second Floor

Woodward (A+B) Ballroom



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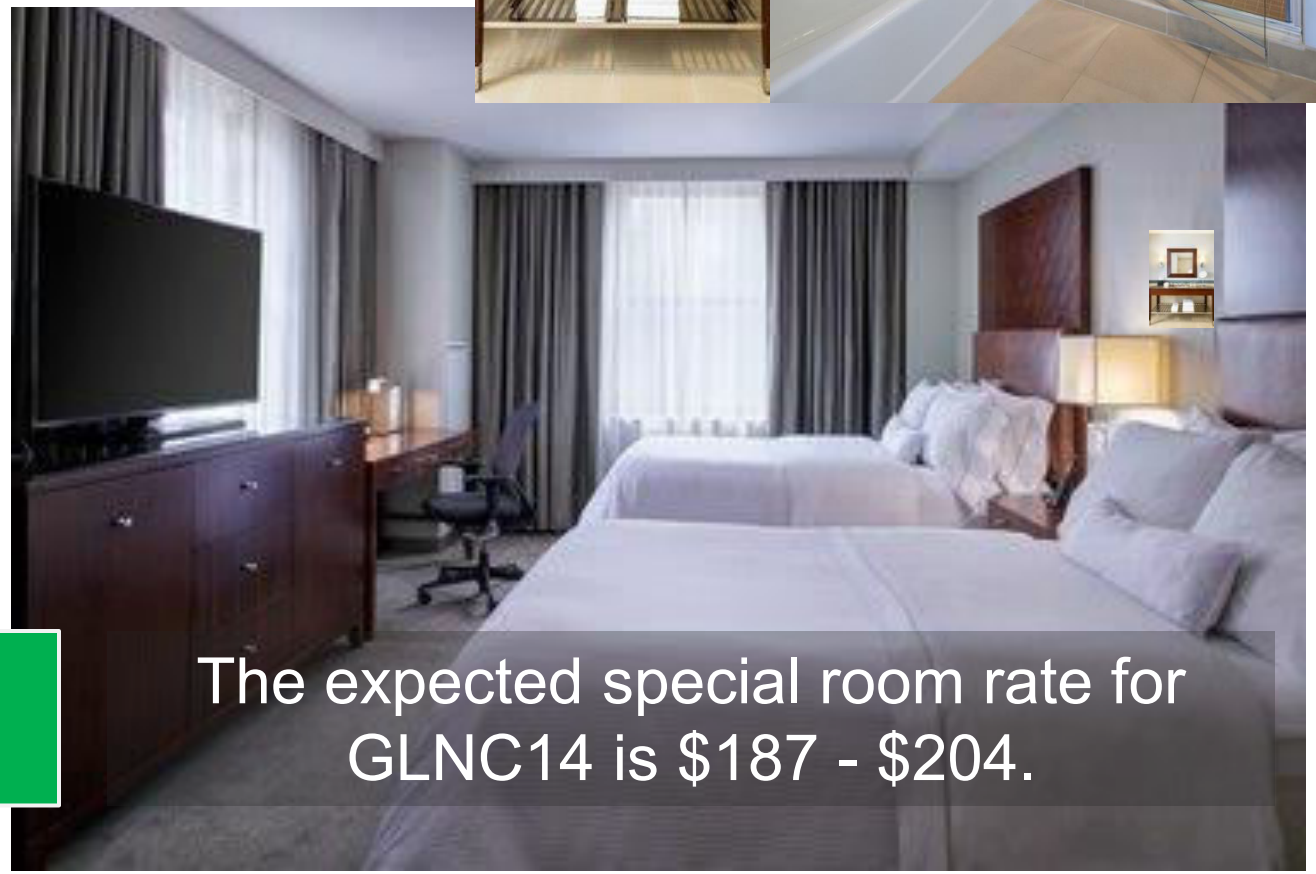
Standard Guestroom 1924

Standard Guestroom 2021

Conference Registration
(Expected to open Aug 15, 2022)



The expected special room rate for GLNC14 is $187 - $204.