

22<sup>ND</sup> ANNUAL



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# Behaviors & Lean Strategies to Foster a Strong Safety Culture

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THE ABC'S OF LEAN: TRANSFORMATION THROUGH ACTIONS, BEST PRACTICES AND COACHING

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# Meet The Team



**Jan Handeland**  
Merck GES  
Associate Director



**Michael O'Donnell**  
Lendlease  
Sr. Project Manager



**Naveen Nerwal**  
Lendlease  
Lean Manager

# Session Overview



01.

**An overview of Lendlease (LL)/Merck relationship, history and core values.**

LL/Merck safety approach & B46 Vaccine Expansion Project overview & challenges

02.

How to influence people behavior by implementing Lendlease/Merck **Field execution best practices** to develop a strong safety culture

03.

**Lean Strategies** implemented by the Team to eliminate waste, improve efficiency, and improve overall safety

04.

**Key Take-Aways** on what other Teams can do to foster a strong safety culture at their own organizations



# Lendlease/Merck Relationship, History, Core Values, and Safety Approach



# Lendlease/Merck Lifesciences Relationship & History



## LIFE SCIENCE EXPERIENCE

PARTNERSHIPS WITH MERCK



LENDLEASE HAS SHARED MANY GLOBAL SUCCESSES WITH MERCK  
CONSTRUCTING OVER \$20 BILLION ON PROPERTIES WORLDWIDE.

11

30

1990-2020

Multiple Decades  
Relationship

6

Working Relationship  
Across Regions

160+

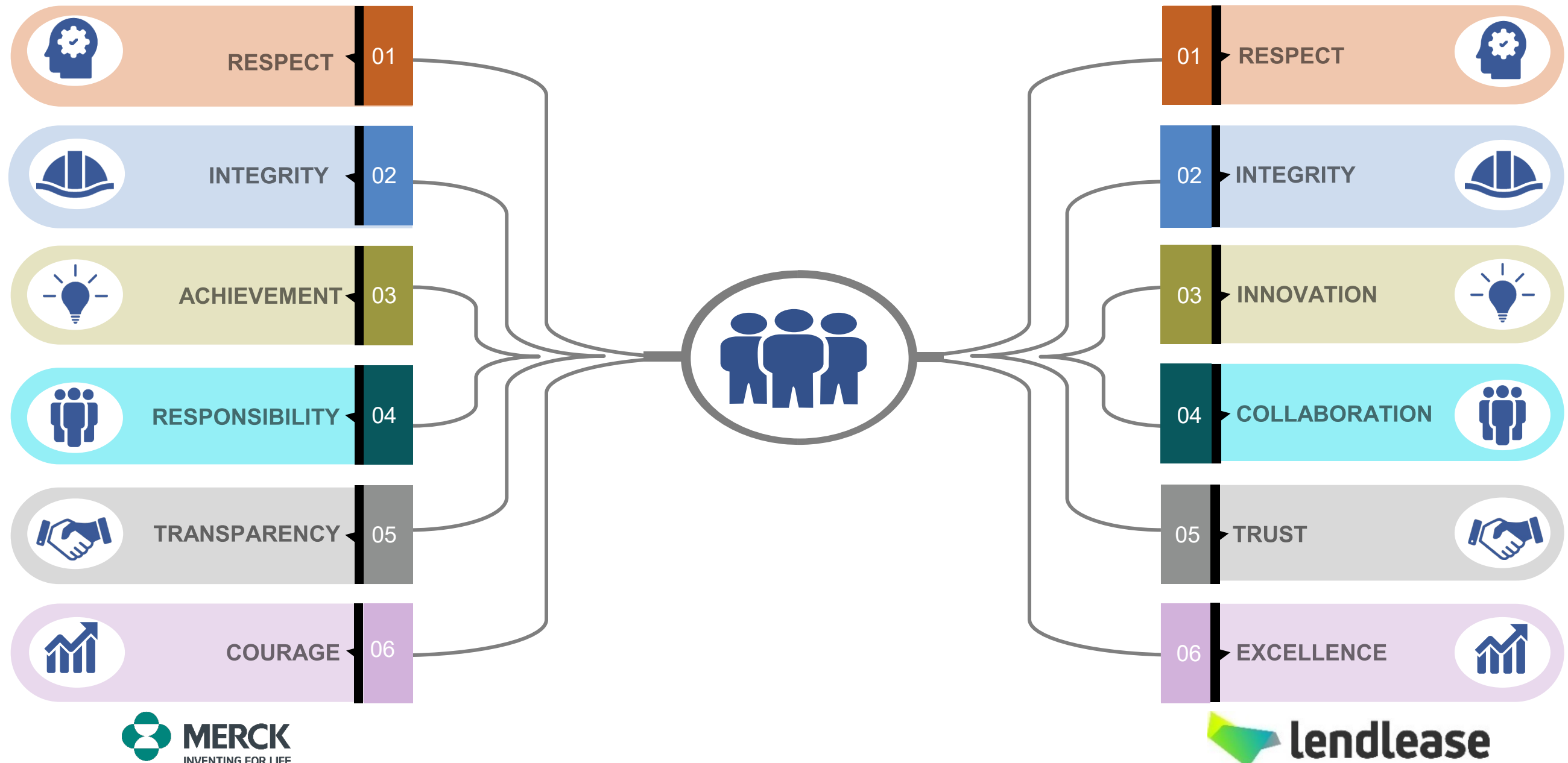
# of Projects Together

\$20B

\$ of Projects Together



# Lendlease & Merck Core Values & Guiding Principles





# Project Overview & Challenges



# B46 Vaccine Lab Expansion

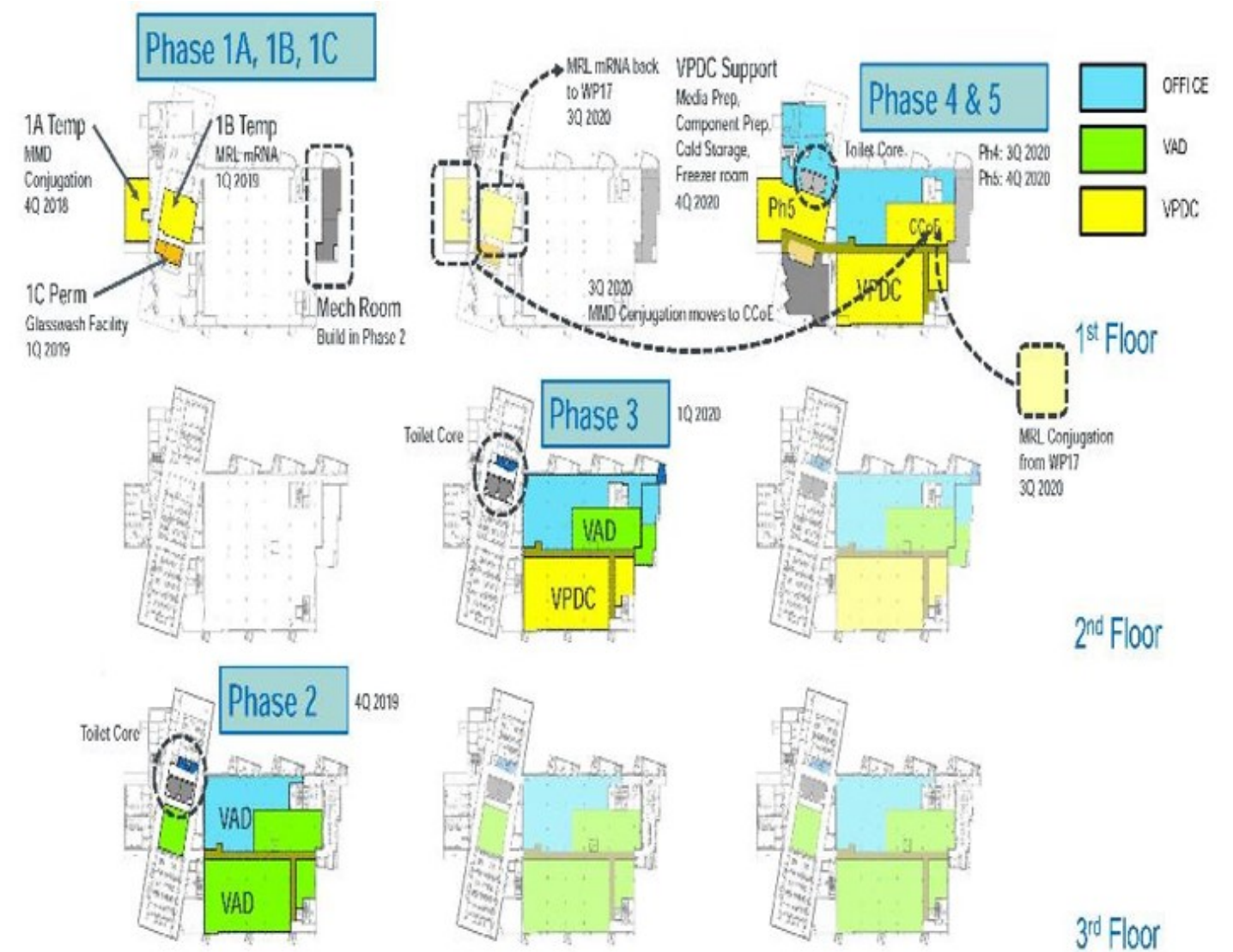
- Renovation of Vivarium space to Lab & Office Building
  - 104,405 sf renovated space
  - 56,695 sf new lab space
  - 23,740 sf new office space
  - Remainder – Mechanical & Support
- First Integrated Business Unit Facility on campus (Research & Manufacturing)
- BSL-2 Capable Labs up to 250L SUB (single use bio-Rx) capabilities
- USGBC LEED Gold





# Project Safety Challenges: B46 Vaccine Lab Expansion

- Renovation of existing occupied building
- Existing building & structural conditions
- Building users occupancy through-out renovation
- Certain building infrastructure operational through-out renovation

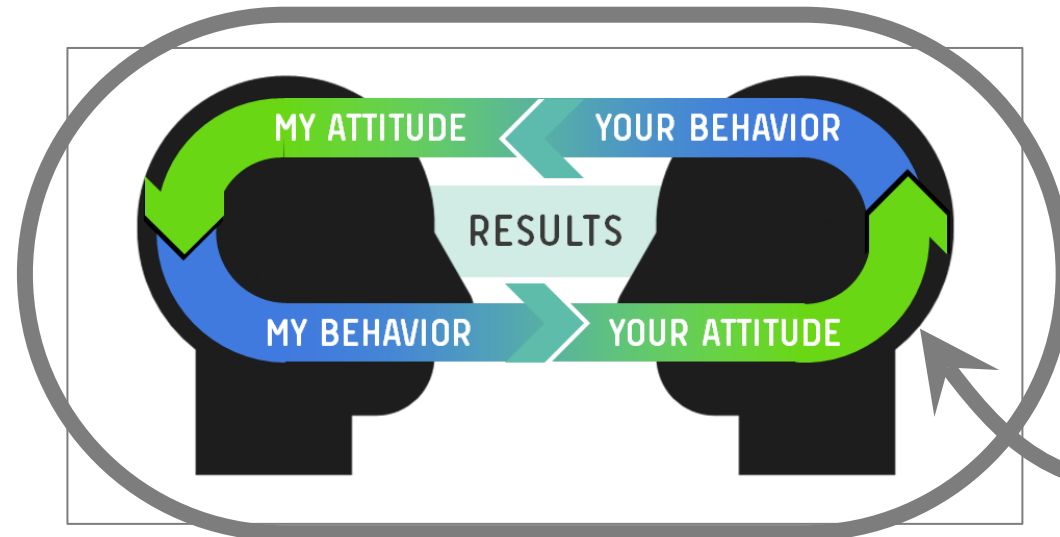


# What Matters Most?



# What Matters Most (WMM)?

**MY BEHAVIOR AFFECTS  
YOUR BEHAVIOR, AND IN  
TURN AFFECTS  
OUR RESULTS!**



**SAFETY IS NOT ABOUT  
PROTECTING YOU FROM  
SOMETHING – IT IS  
ABOUT PROTECTING YOU  
FOR SOMETHING!**



Leaders play a crucial role in achieving a shift in culture.



# Leading Causes of Injuries & Incidents

## UNSAFE PROJECT CONDITIONS



## EMPLOYEE BEHAVIOR



## LACK OF PROCEDURE ADHERENCE

# Lendlease-Merck Safety Approach

## POLICIES & PROCEDURES

Safety Briefings & Walkthroughs  
Dedicated Safety Resourcing  
Permits & Inspections  
Construction/Cx Hazard Analysis (CCHA)  
Job Safe Analysis (JSA)  
Safe Plan of Action (SPA)  
Safety Tap-Ins

## PEOPLE BEHAVIOR



## LEAN STRATEGIES

Last Planner System & Takt Time Planning  
Prefabrication & Just In Time  
Visual Management & 5S  
Gemba Walks

## BIM & TECHNOLOGY

STRATEGIES, SOLUTIONS & TOOLS DEPLOYED TOGETHER  
LEADING TO A CONTINUOUS IMPROVEMENT & SAFETY CULTURE !



# How to Foster a Strong Safety Culture



Respect, Care  
& Trust



Engage, Communicate  
& Collaborate



Eliminate Waste  
& Risks



Observe, Educate  
& Improve



Dedication, Discipline  
& Accountability



Recognize, Reward &  
Celebrate



# Respect, Care & Trust



# Wellness Program

- Toolbox Talks
- Stretch & Flex
- On-Site Occupational Athlete Coach
- Monthly Health & Wellness Newsletter
- Break Trailers & Food Trucks





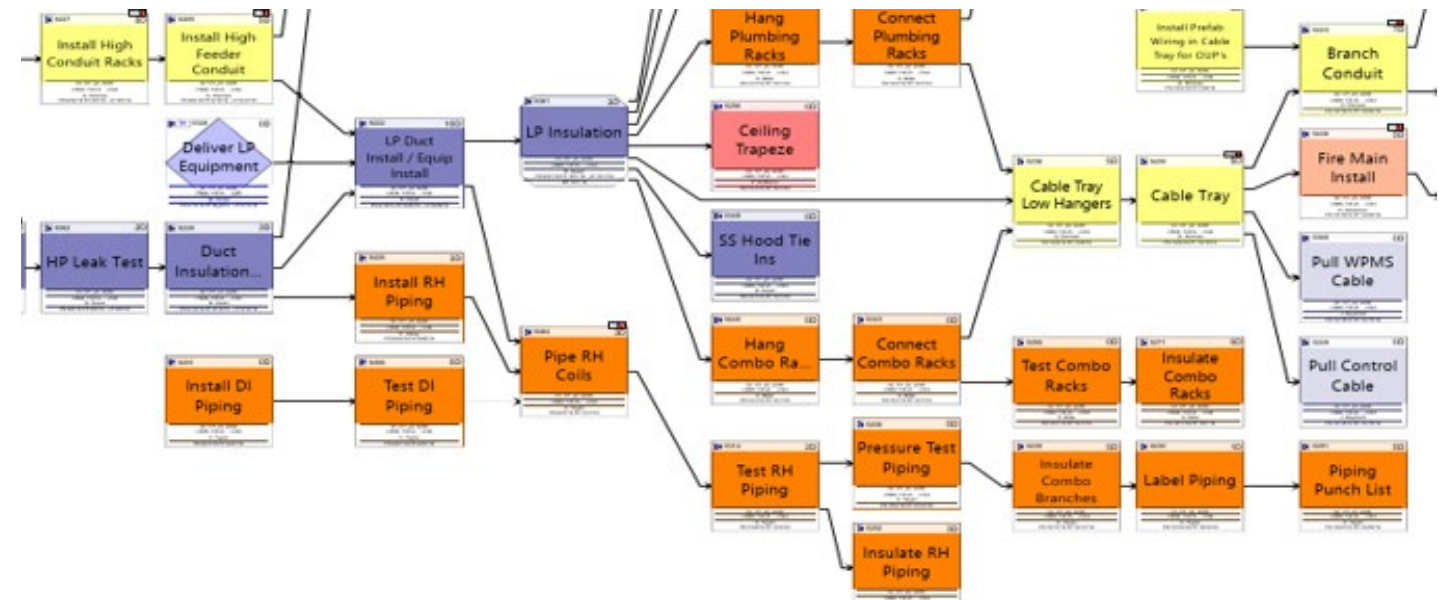
# Engage, Communicate & Collaborate





# Takt & Last Planner System

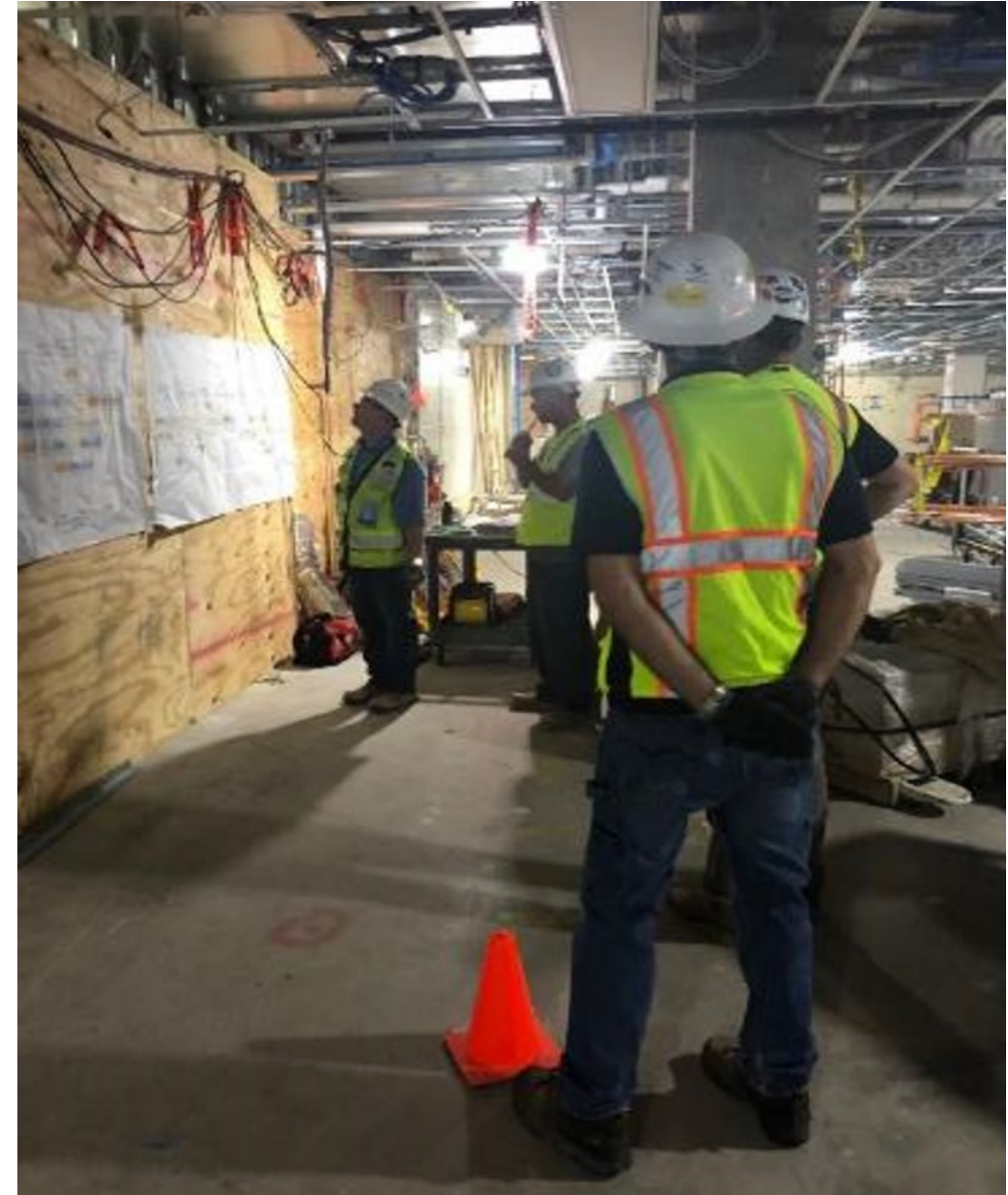
- Engage everyone + 100% buy-in
- Creates better flow by removing variation and resource leveling
- Identify high risk work activities & remove waste
- Increased accountability & transparency among trade partners
- Whole system optimization





# Daily Huddles & Safety Briefings

- High risk work
- Permits & inspections
- Daily work plan progress
- How many crews & where
- Constraints & issues
- Material deliveries



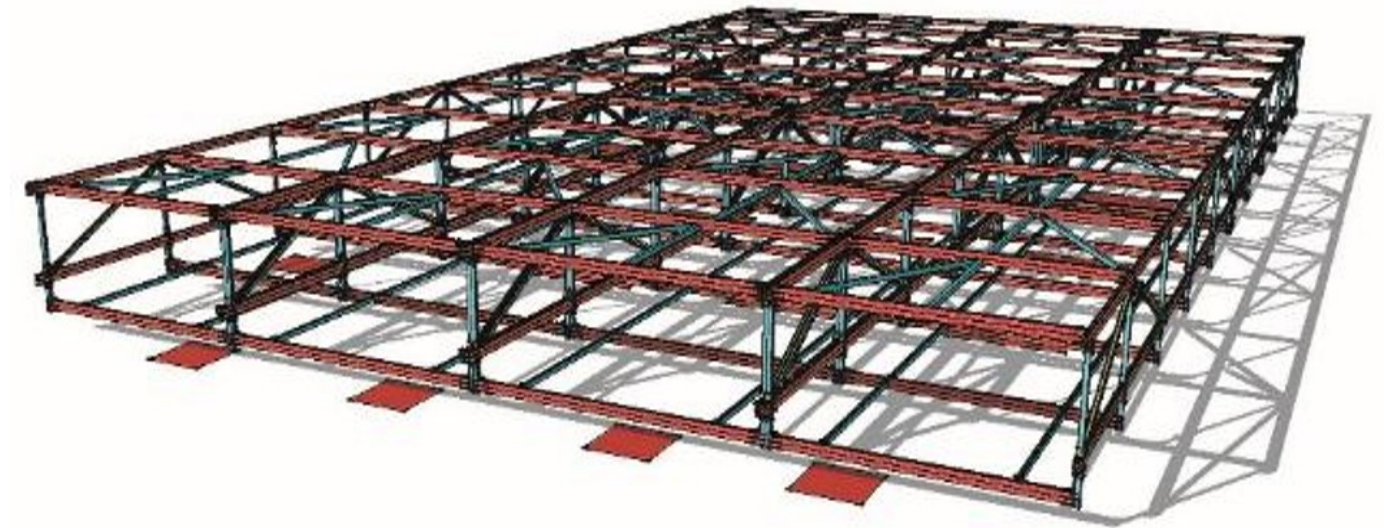
# Eliminate Waste & Risks





# Role of BIM & Technology

- Scope analysis during Pre-Con and Procurement
- Clash detection & hazardous activity identification
- Visual coordination & communication of construction sequences
- Fewer errors, rework & incidents on-site



# Prefabrication & Just In Time (JIT)

**Off-site  
Productivity &  
Quality**

**Dedicated  
Storage/FAB  
Warehouse**

**Minimized  
Trade  
Stacking**

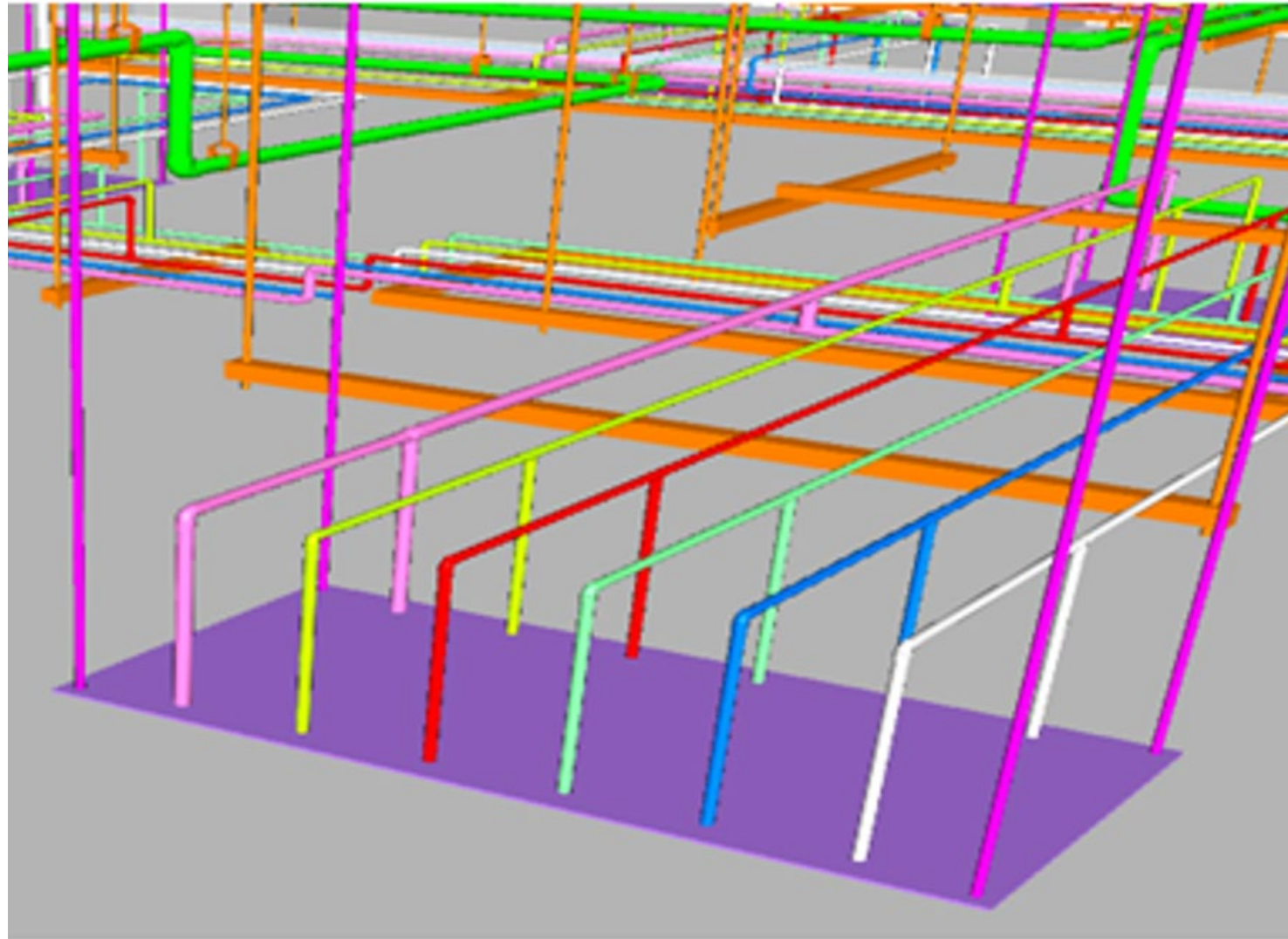
**Reduced  
Risk**

**No Inventory  
Waste**

**Quicker & Safer  
Install**



# Prefabrication & Just In Time (JIT)



Pre-Assembled Standard Overhead Utility Panels



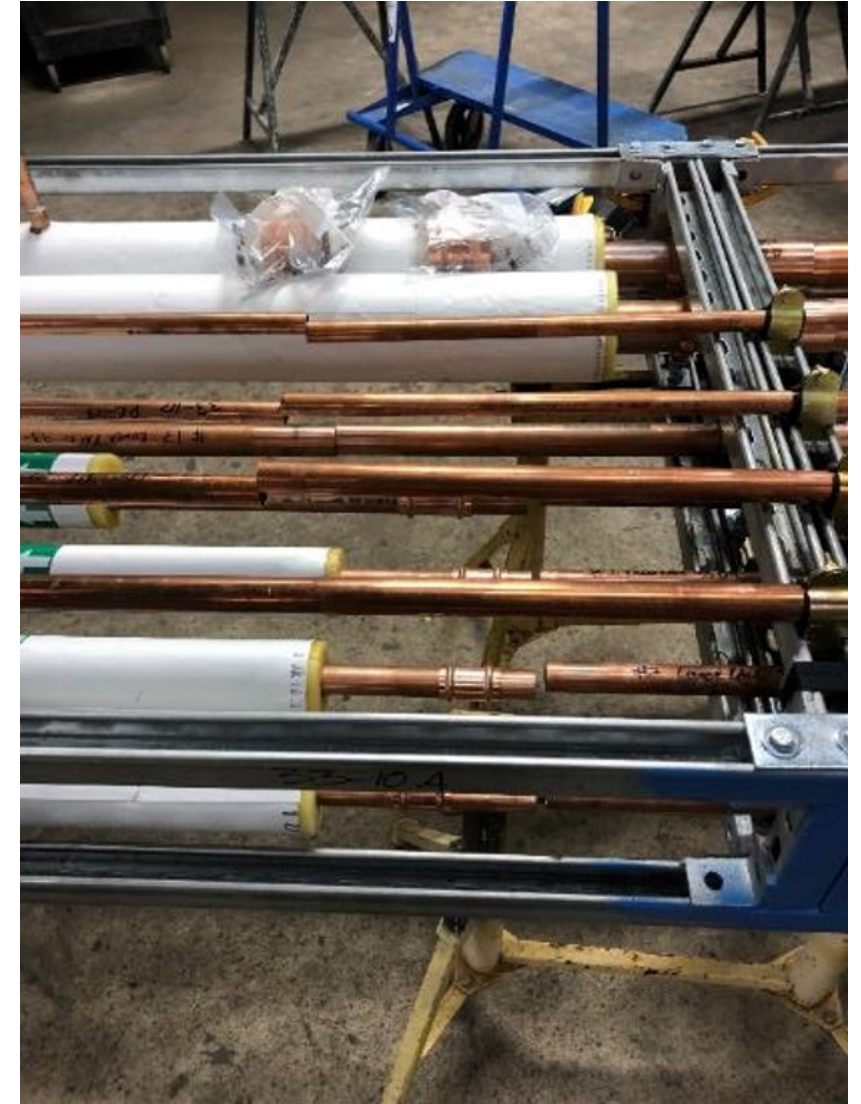
# Prefabrication & Just In Time (JIT)



Pre-Fabricated Electrical Panels



# Prefabrication & Just In Time (JIT)



Pre-Fabricated Piping Racks



# Observe, Educate & Improve





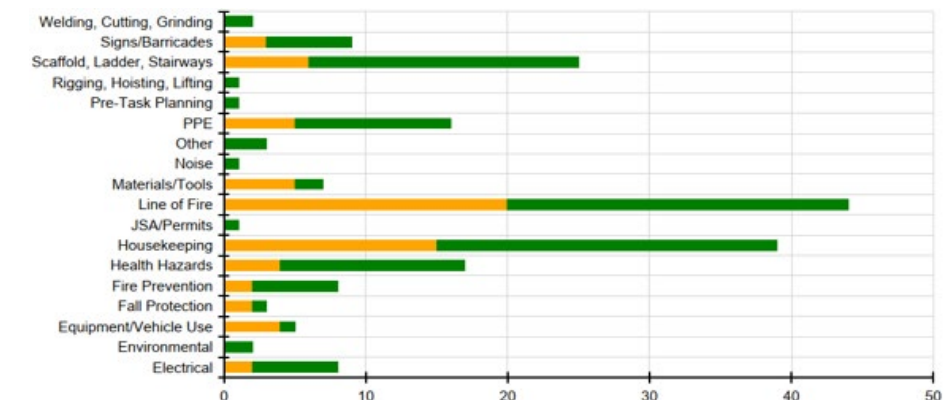
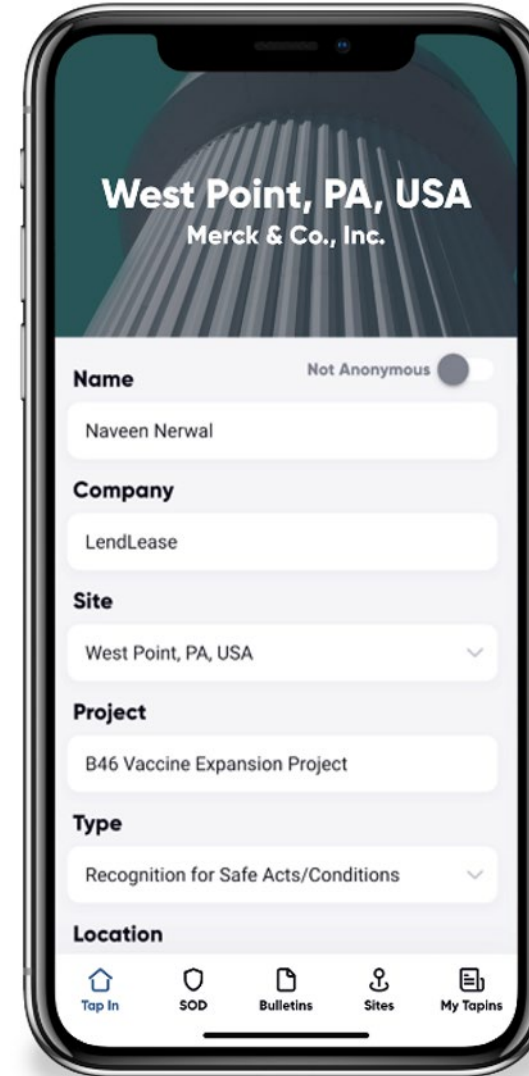
# Safety Training & Peer to Peer Learning

- Merck new engineer safety orientation & mandatory safety trainings for all PM & Field Staff
- Weekly safety Lunch & Learn for the entire Lendlease Life Science Group
- Merck/EPCM/Trade Partners safety walks
- Integrated Safety Community of Practices



# Safety Observations & Virtual Safety Walkthroughs

- Mobile safety observation app
- Observation cards
- Safety scoreboard
- Go-Pro virtual walkthroughs during COVID-19





# Gemba Walks

- Involves front line workers vs. only management
- Break down barriers, engage & show you are
- Focus on improvements vs. compliance
- Identify and eliminate safety issues & waste



# Dedication, Discipline & Accountability





# Dedication, Discipline & Accountability

- Dedicated safety resources
- Mandatory drug & safety testing for all
- Safety & hazard planning: CCHAs, JSAs, SPAs
- Permitting process
- Daily tools & equipment inspection audits



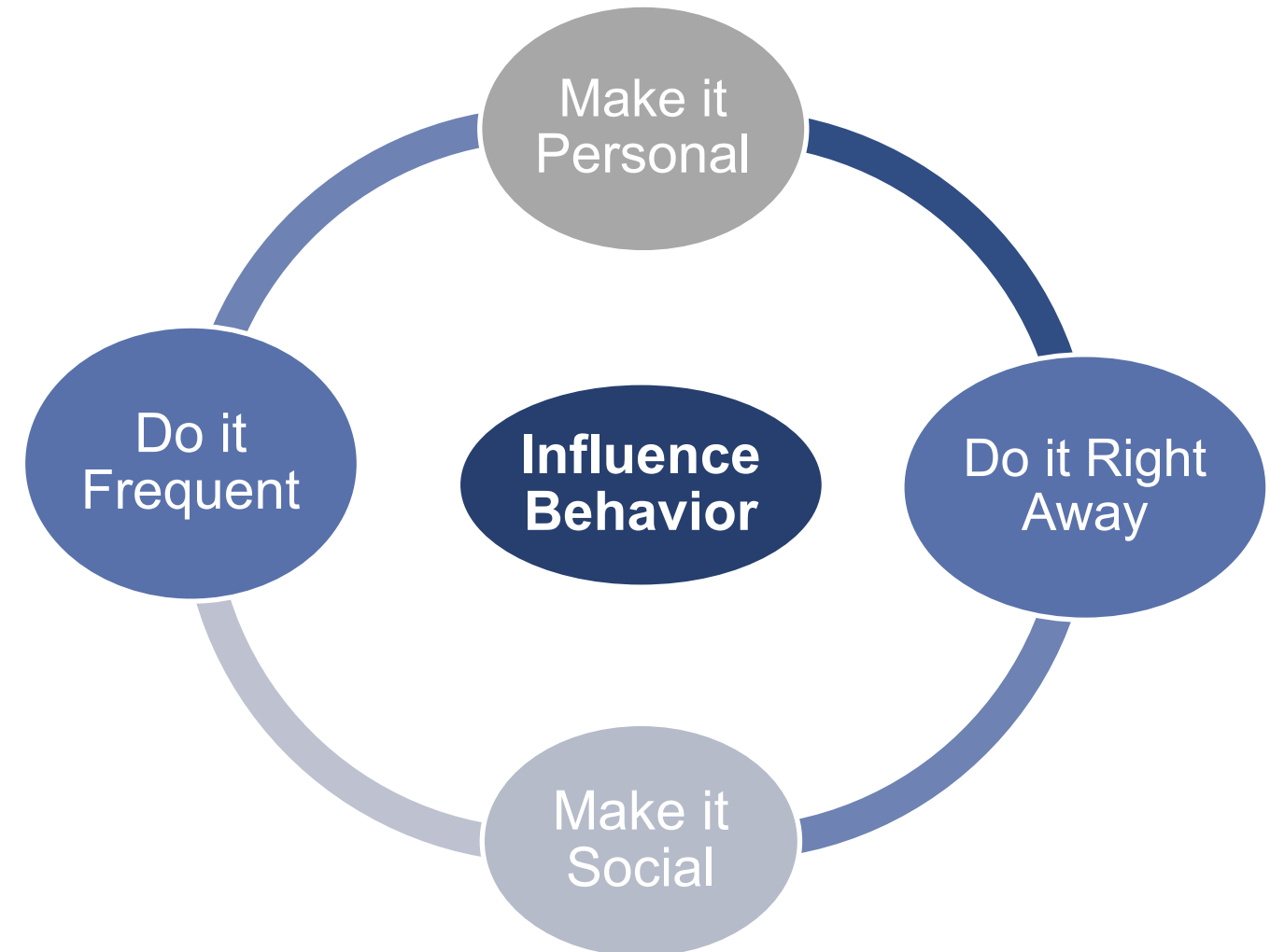


# Recognize, Reward & Celebrate





# Recognize & Reward – Positive Behavior



**The Carrot or The Stick**

# Reward, Recognize & Celebrate

- Lendlease project specific safety incentive program
- Merck campus wide safety program
- Project safety lunches





# Take Away



# How Can You Apply This Tomorrow?



## **Respect, Care & Trust**

Build relationship & make it personal



## **Engage & Collaborate**

Build a culture of continuous learning & get better together



## **Observe, Educate & Improve**

Multi-discipline engagement is important.  
Communicate findings & improve



## **Recognize, Reward & Celebrate**

Investment pays dividends in all areas  
The carrot or the stick



# Contact Us

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**Thank you for attending this presentation. Enjoy the rest of the 22<sup>nd</sup> Annual LCI Congress!**