

 **MAMMOET**

**THE BIGGEST THING  
WE MOVE IS TIME**



# INDUSTRY'S RATE OF INNOVATION – DRIVEN BY NECESSITY

## LIFTING

## TRANSPORTING



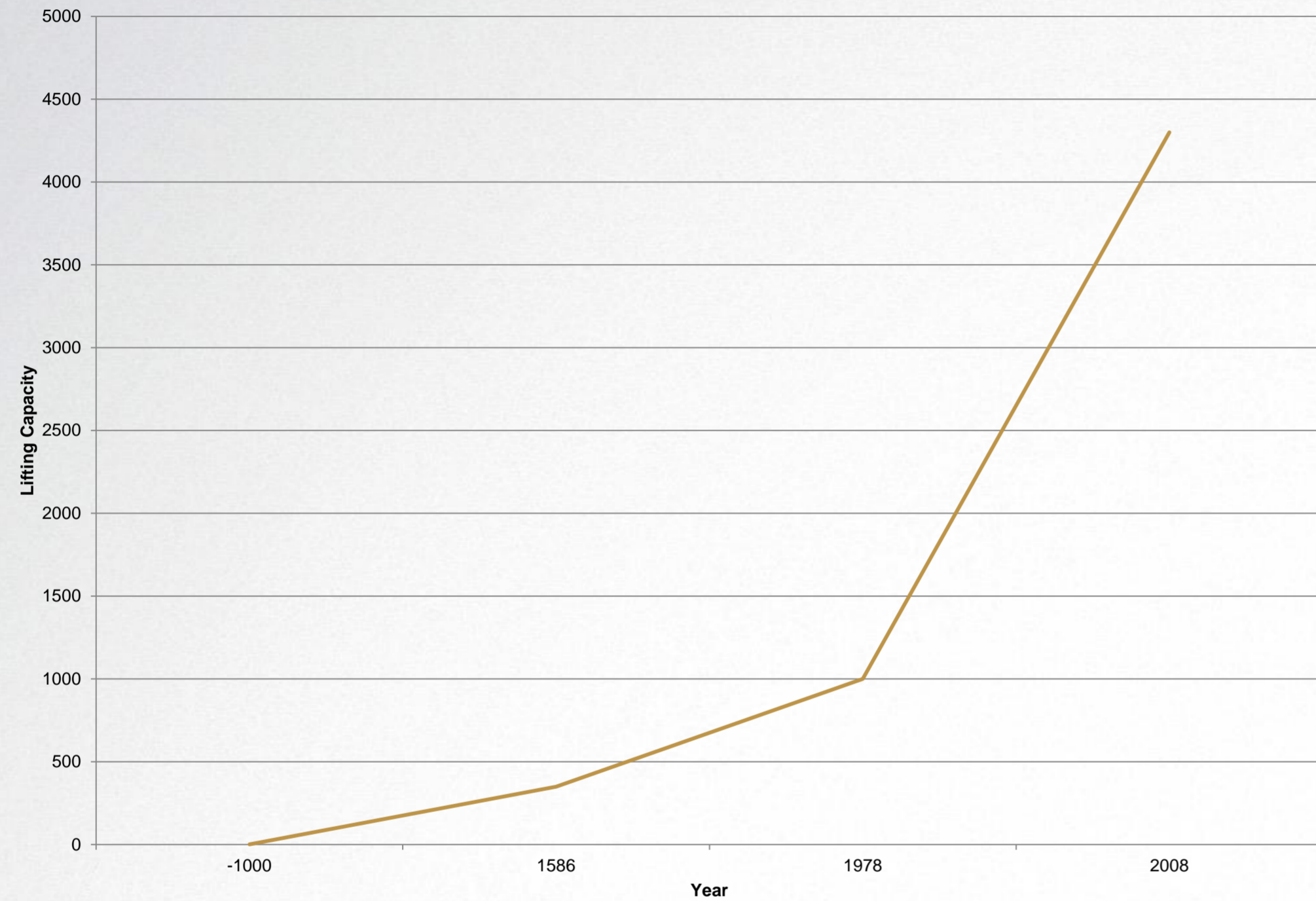
350 Tons  
1000 Tons  
4000 Tons

36000 Tons  
2000 Tons  
4 Tons  
10 Tons

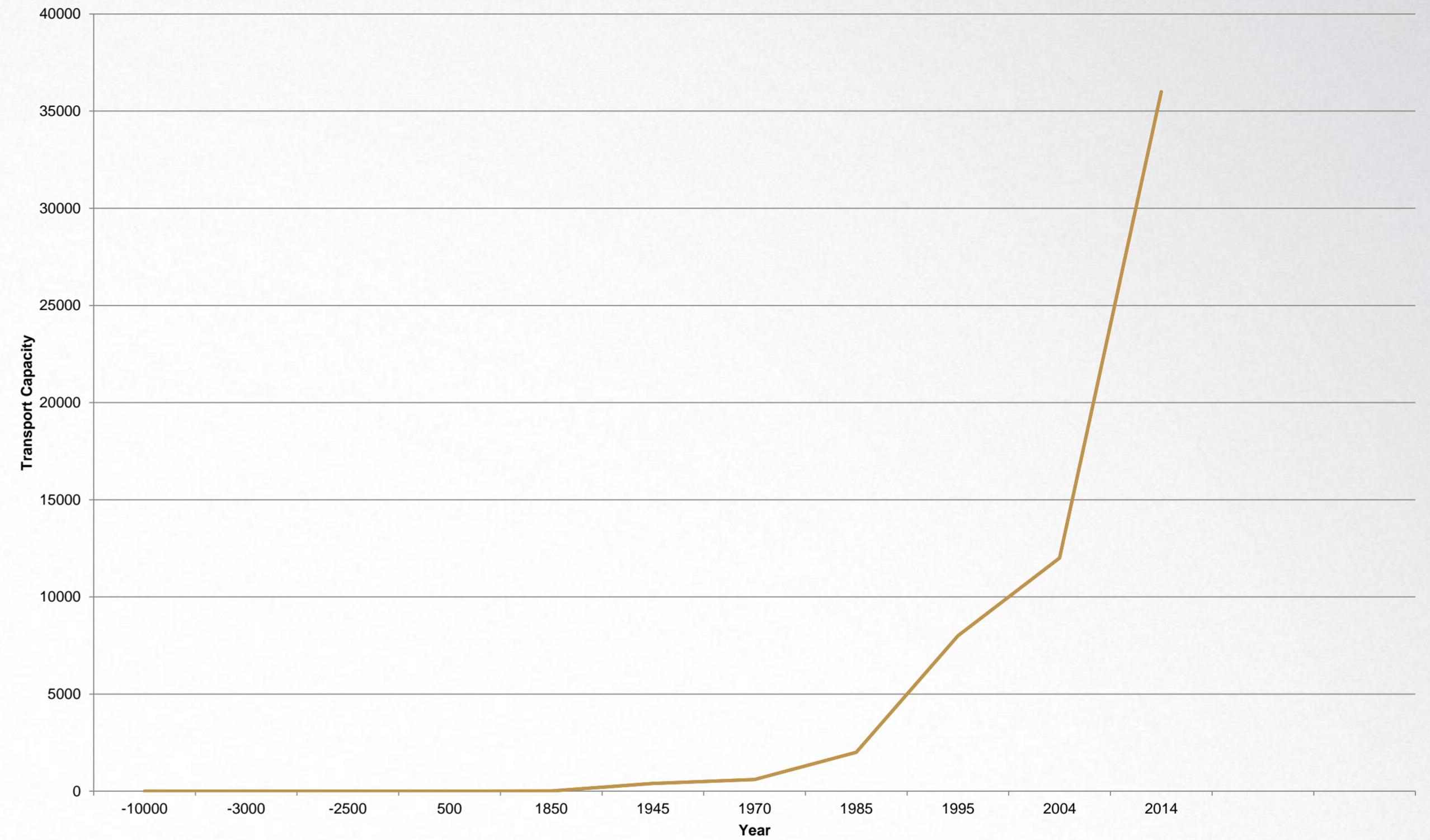


10,000 BC - 3000 BC - 2500 BC - 1000 BC - 500 AD - 1586 - 1850 - 1945 - 1970 - 1985 - 1978 - 1995 - 2004 - 2009 - 2011 - 2014

# OUR INDUSTRY'S RATE OF INNOVATION – CAPACITY TRENDS



**LIFTING CAPACITY  
(ONSHORE CRANES)**



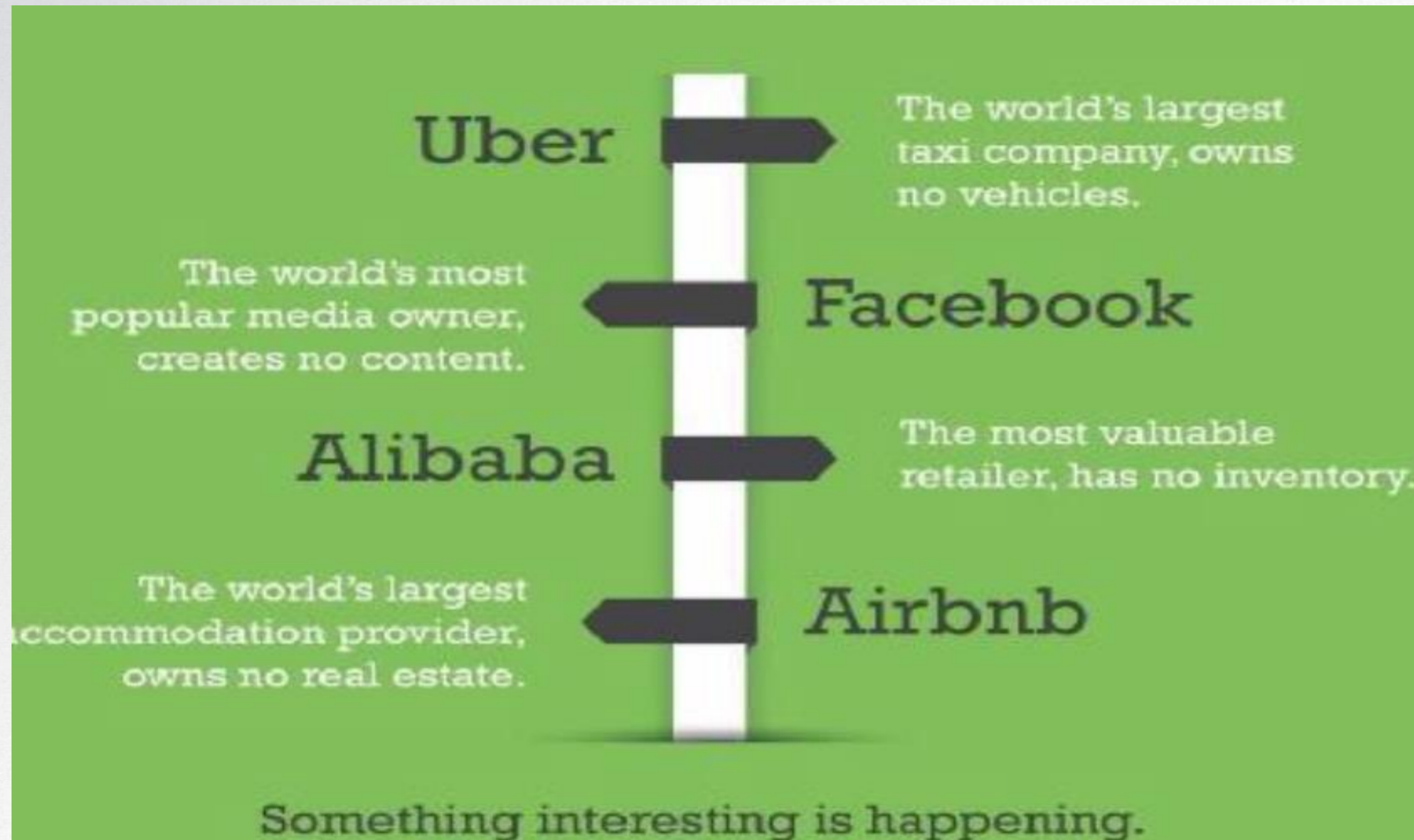
**TRANSPORT CAPACITY  
(LAND TRANSPORT)**



**We see major change, ..... In our personal lives**



But also major change in business models

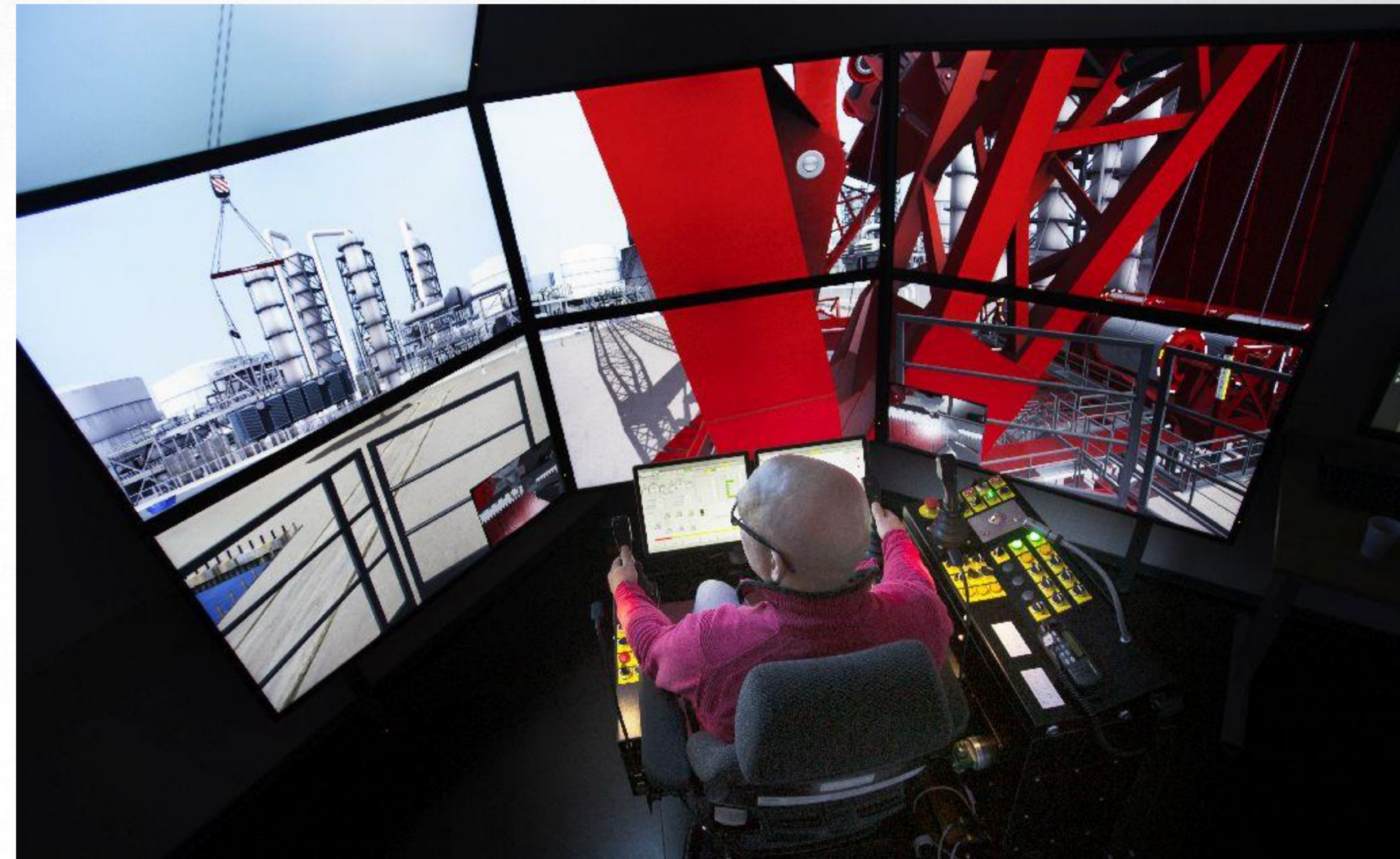


- Technology is facilitating connections

- What could this mean for our industry?

# With innovation in mind, we set out to find a solution that could:

- Create a consistent approach to measuring competency among jurisdictions
- Reduce our incident rates
- Improve regulatory compliance and provide a more objective measure of due diligence
- Eliminate unnecessary training and create efficiencies in a crane operator's development



PTC Crane Simulator

## IN EARLY 2014, A POTENTIAL TOOL WAS FOUND.....

- International Competency Assessment Board (I-CAB Foundation) was introduced to Mammoet through client utilization
- Senior Leadership at Mammoet committed fully to participating



# COMPETENCY DEFINITION / PURPOSE

**[UK]** “the ability **to undertake responsibilities and to perform activities** to a recognized standard on a regular basis. Competence is a combination of practical and thinking skills, experience and knowledge.”

**[USA]** someone who is:

- capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and
- who has authorization **to take prompt corrective measures** to eliminate them

**[Canada, Ontario]** a person who:

- (a) is qualified because of knowledge, training and **experience to organize the work and its performance;**
- (b) is familiar with this Act and the regulations that apply to the work, and
- (c) has knowledge of any potential or actual danger to health or safety in the workplace

# COMPETENCY CHARACTERISTICS

Experience

ABILITY

TRAINING

Qualifications

Apply Regulations

Determine Mitigation

Practical Thinking

**TRAINED**

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- Not a label or title, not ever complete
- Designates an ability or capability that is specific to an activity/function

# I-CAB OVERVIEW

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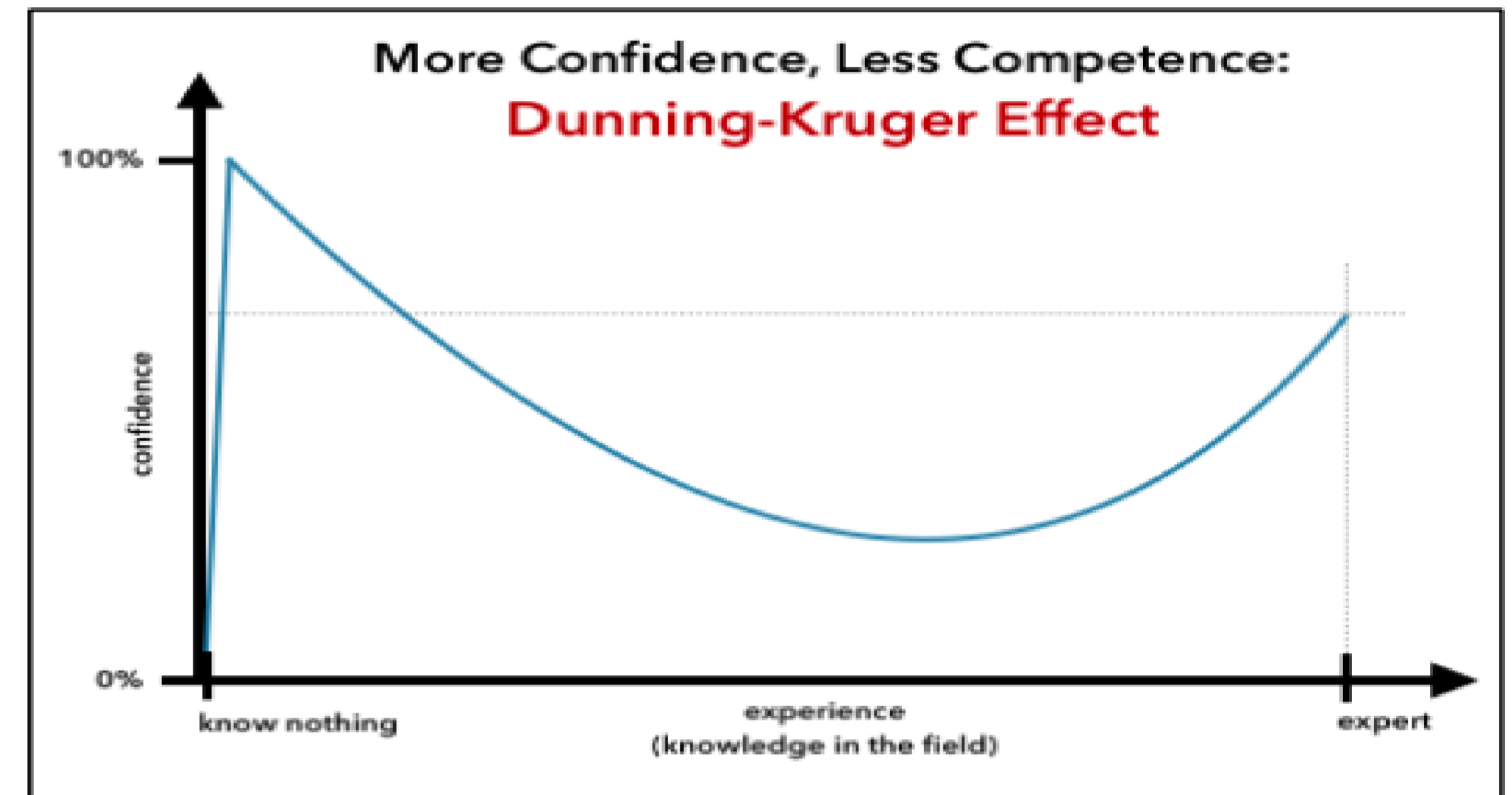
- The International Competency Assessment Board (I-CAB Foundation) is a non-profit organization providing assessment specific to the jurisdiction and industry.
- OHS assessments are currently divided into 81 Separate Jurisdictions and 34 Distinct Industries.
- I-CAB Foundation's Mandate:
  - To administer functional competency assessments that allow individuals and organizations to understand current levels of competency and initiate development plans for improvement.
  - To provide individuals and organizations with demonstrable due diligence relating to functional/regulatory competency.
  - To benefit employment-vulnerable groups such as students, young workers and the underemployed though providing assessments at no cost.



# COGNITIVE COMPETENCY BIAS

- Unskilled individuals suffer from illusory superiority, mistakenly rating their ability much higher than is accurate.
- Highly skilled individuals tend to underestimate their relative competence, erroneously assuming that tasks which are easy for them are also easy for others.

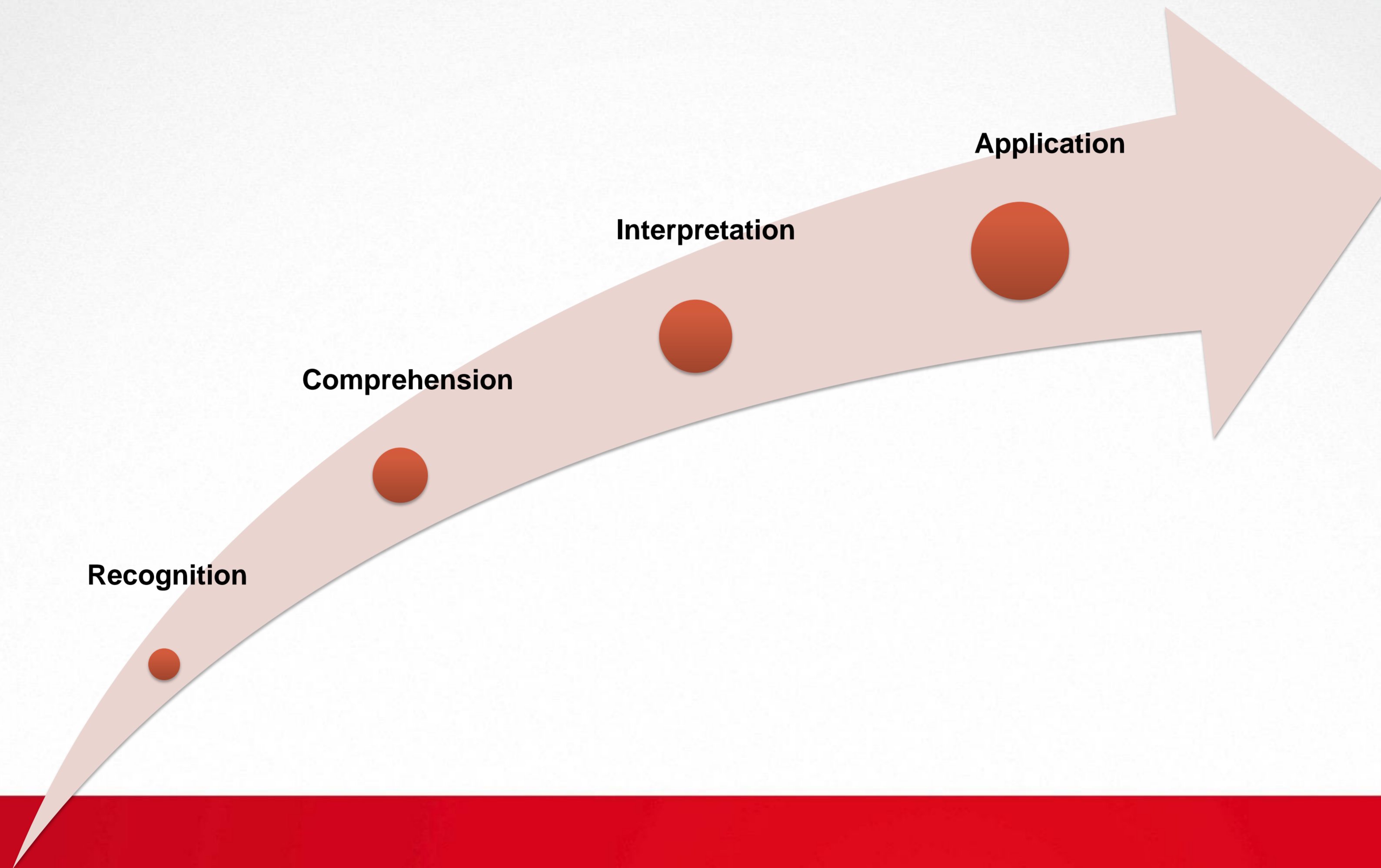
**Figure 3**



# Assessment / Development Process



# Four Levels of Functional Competency



# Assessment Result Confidence



- Participants authorize access to their video camera and microphone
- Each session recorded and vetted to ensure data integrity
- Assessment process utilizes biometrics as well as proctoring staff to ensure data integrity



### Report Type

- Organizational Analysis
- Post Incident Analysis
- Controlling Entity Analysis
- Competency Management
- Cumulative

UPDATE PREVIEW

### My Company

- Filter groups...
- E Tank Tank irm
  - FHills 8Hills Incor E
  - Mr Projr Projts E
  - Sxor Error Ergy In(All) (All)

Other Reports [all / none](#)

### Report Type

- Organizational Analysis
- Post Incident Analysis
- Controlling Entity Analysis
- Competency Management
- Cumulative

1

2

3

4

Click on the **add/edit** button to preview

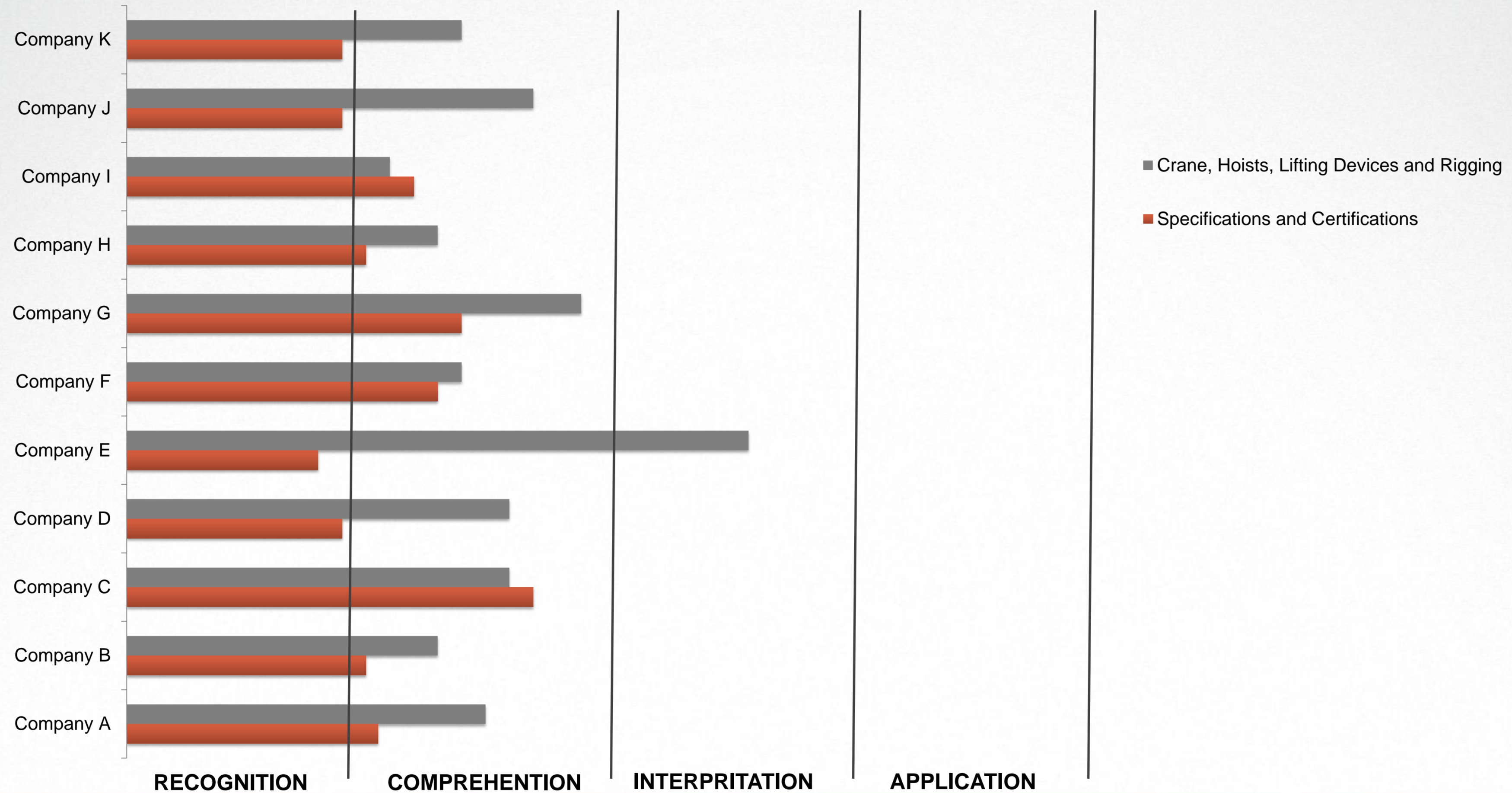
Click on the **add/edit** button for organization by clicking on the **add/edit** button and follow the instructions

Select any Shared Reports you wish to include

Click on Update Preview

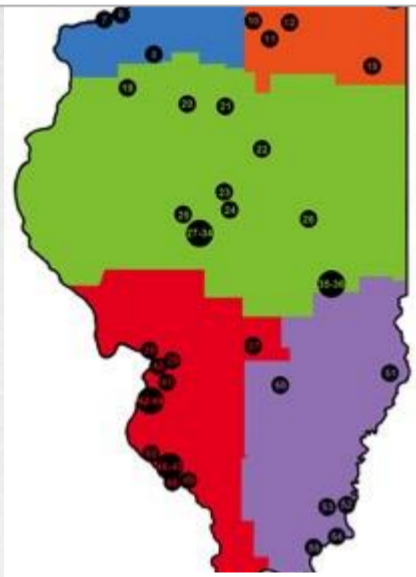


# I-CAB COMPETENCY METRICS (AVERAGE)

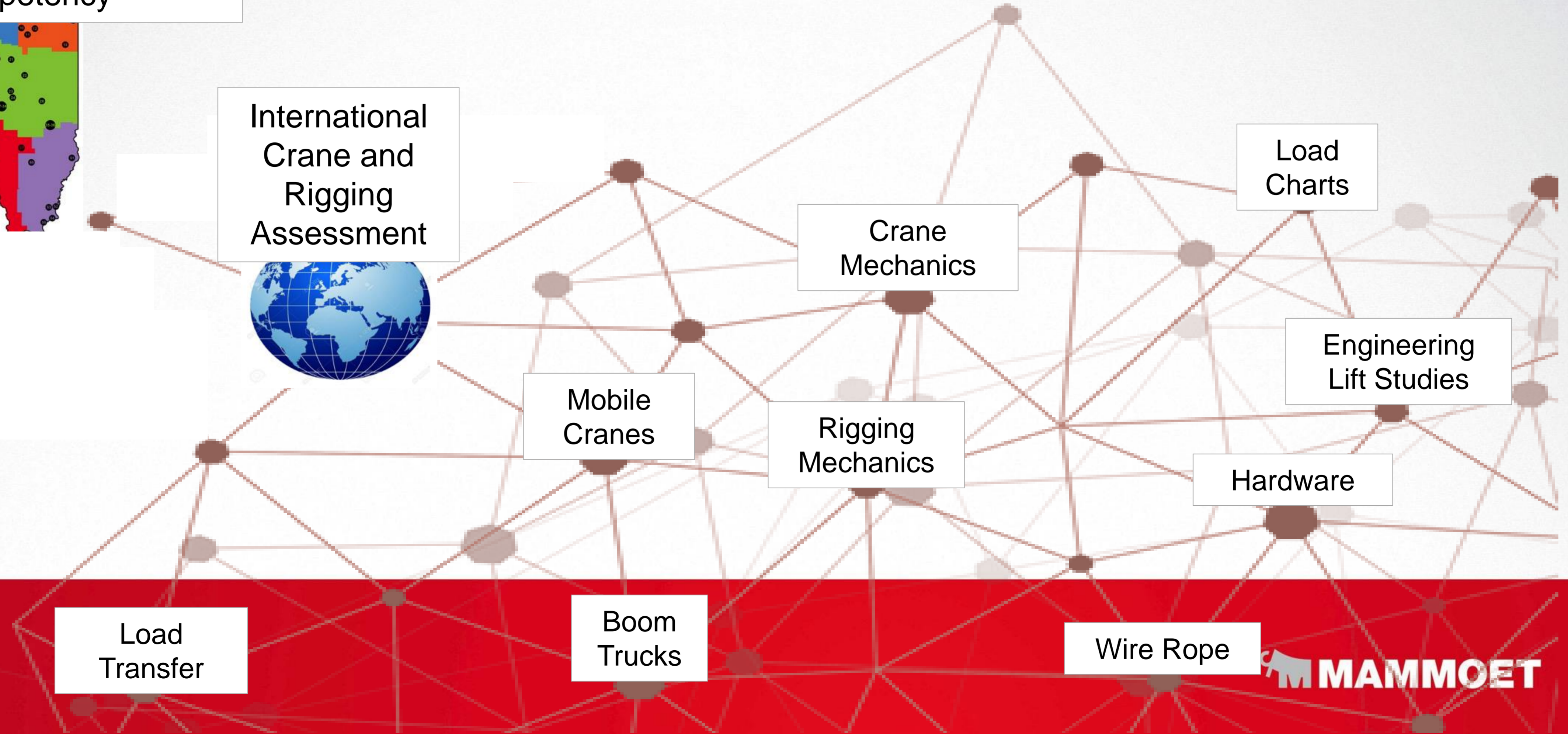


# ADVANCEMENTS IN COMPETENCY ASSESSMENT

Jurisdiction Assessments  
with Crane and Rigging  
Competency



International  
Crane and  
Rigging  
Assessment



Crane  
Mechanics

Load  
Charts

Engineering  
Lift Studies

Mobile  
Cranes

Rigging  
Mechanics

Hardware

Load  
Transfer

Boom  
Trucks

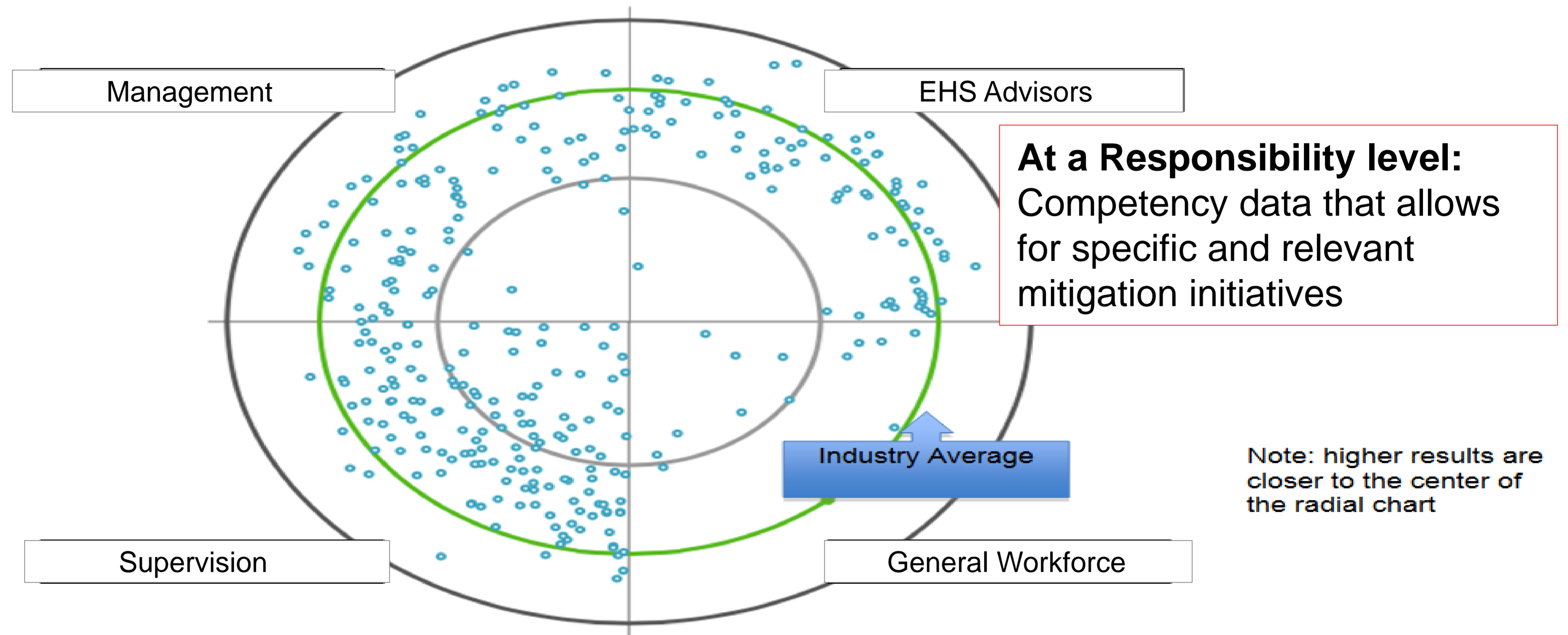
Wire Rope



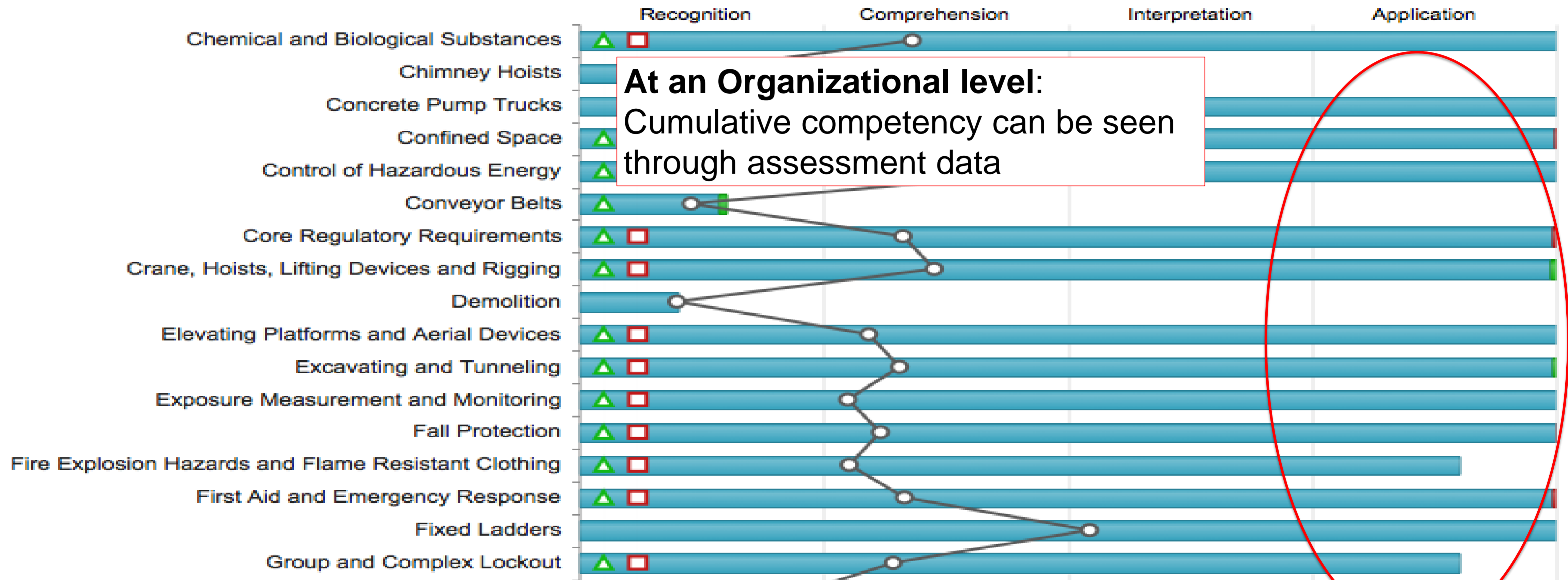
# Why Use an Independent Not-for-Profit 3<sup>rd</sup> Party to Assess Competency?



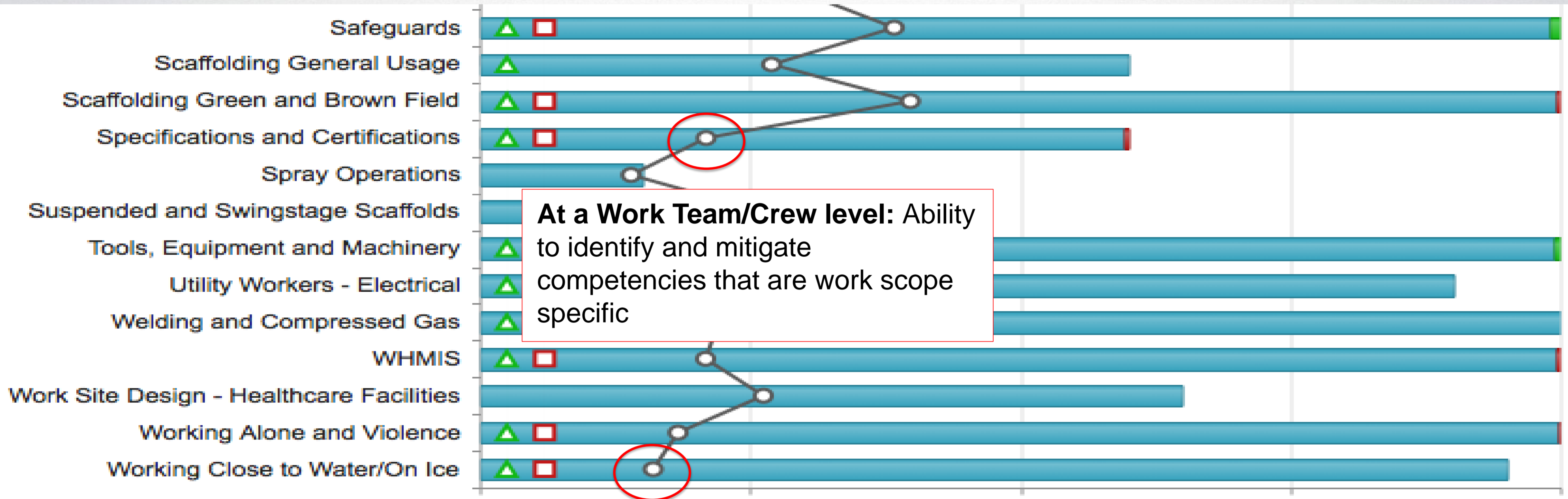
# COMPETENCY METRIC USES



# COMPETENCY METRIC USES (CONT.)

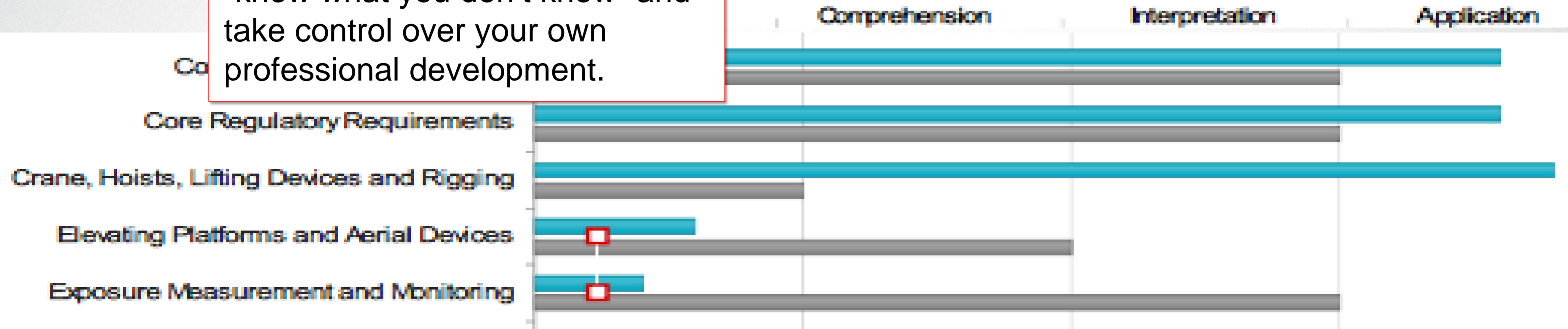


# COMPETENCY METRIC USES (CONT.)

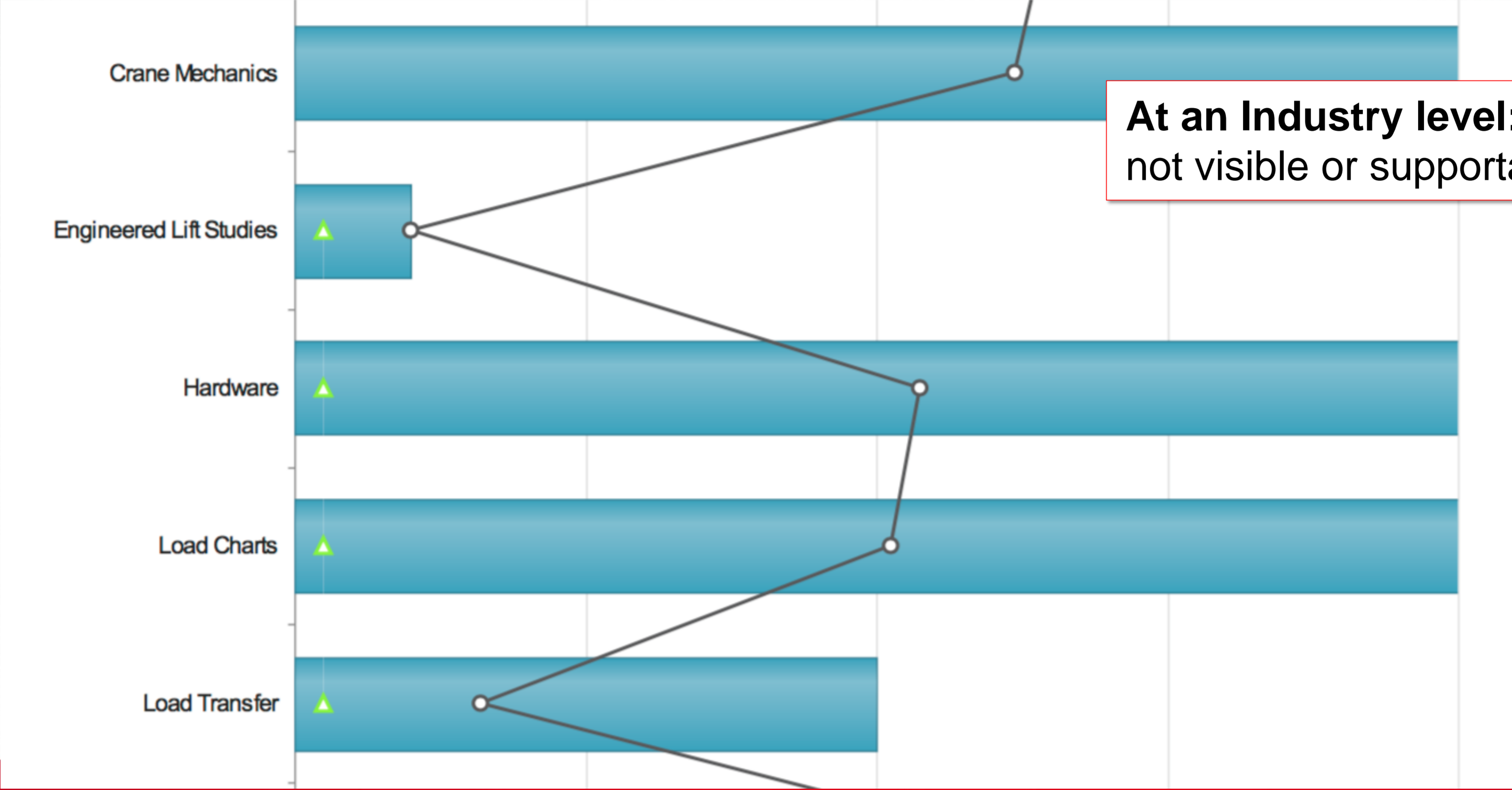


# COMPETENCY METRIC USES (CONT.)

**At an Individual level:** Ability to “know what you don’t know” and take control over your own professional development.



# INDUSTRY TRENDS

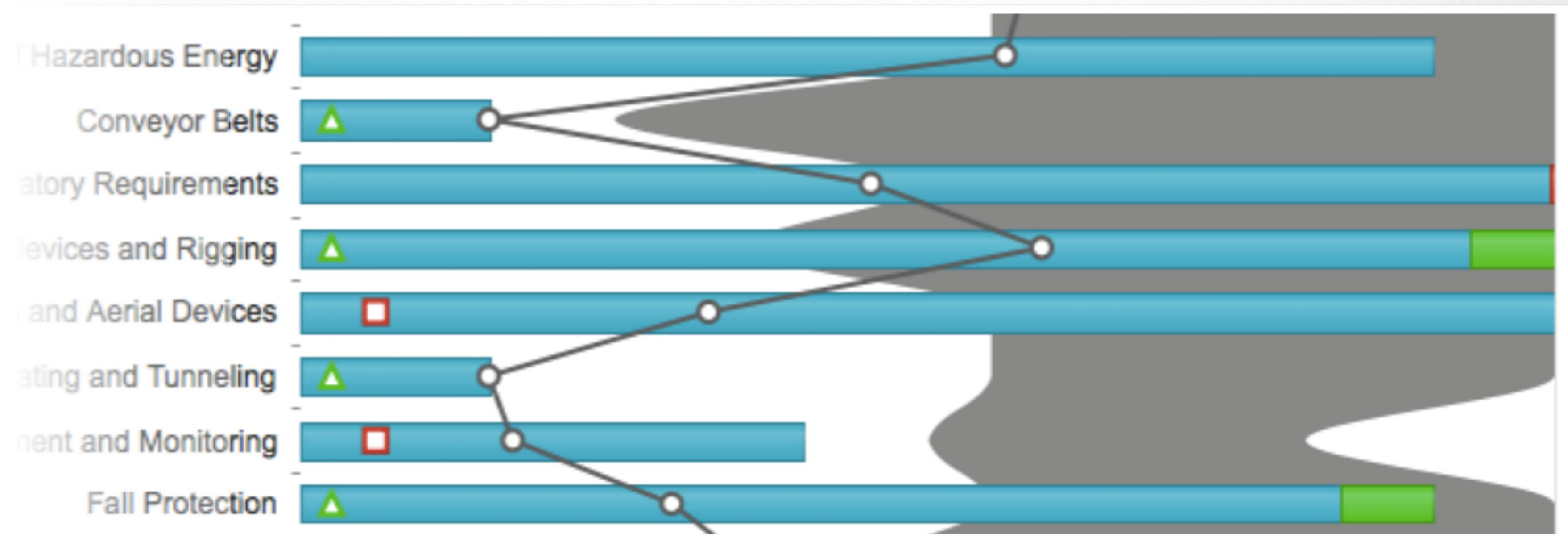


**At an Industry level:** See trends not visible or supportable now



# DEFINE TARGETS AT AN ORGANIZATIONAL LEVEL

- Each organization can define targets based on their operational needs and view analysis/progress data based on developmental progress



# INTEGRATED DEVELOPMENTAL PLANNING AND RESOURCES

## Guidance Documents

Based on the competencies selected the following guidance materials have been made available. The resources and reference materials pertinent to competencies can be viewed by clicking on the header for the listed competency.

My Assessments

Purchase Reassessment

Boom Trucks

Hardware

Load Charts

Rigging Mechanics

### INFORMATION RESOURCES

- LOAD CHART LEARNING GUIDE - Fulford Certification  
[fulford.ca/crane/pdf/cs\\_lc\\_fb\\_hbxs288\\_lg.pdf](http://fulford.ca/crane/pdf/cs_lc_fb_hbxs288_lg.pdf)
- Understanding Load Charts - Gary's Crane  
[www.garyscrane.com/index.php/...equipment-information/load-charts](http://www.garyscrane.com/index.php/...equipment-information/load-charts)
- How To Read a Load Chart | Crane Charts for All Crane  
[www.bigge.com/index.php/crane-charts/how-to-read-a-load-chart](http://www.bigge.com/index.php/crane-charts/how-to-read-a-load-chart)
- NCCCO Crane Load Charts - Operator Network  
<https://www.operatornetwork.com/nccco-crane-load-charts>
- UNIT 1: CRANE LOAD CHART BASICS  
[www.matf.org/.../hers\\_students/HERS-3-1-SMLoadCharts-Mar08.pdf](http://www.matf.org/.../hers_students/HERS-3-1-SMLoadCharts-Mar08.pdf)
- How to Use Load Charts: Cranes  
<http://store.iti.com/How-to-Use-Load-Charts/dp/B00BU9UOPQ>
- Mobile Crane Load Charts - 6 Things You Need to Know - ITI  
[www.iti.com/pro-rigger-mike-parnell/bid/44001/Mobile-Crane-Load-Charts](http://www.iti.com/pro-rigger-mike-parnell/bid/44001/Mobile-Crane-Load-Charts)

### VIDEO RESOURCES

- Manitex NCCCO Load charts  
[www.youtube.com/watch?v=bs6YcY\\_aMIs](http://www.youtube.com/watch?v=bs6YcY_aMIs)
- How to Read a Lift Chart  
[www.youtube.com/watch?](http://www.youtube.com/watch?)

### SUPPLEMENTARY DEVELOPMENT MATERIALS

- Machinery Specific Manuals
- Equipment Specific Manuals
- Machinery & Equipment Specific Load Charts
- Load Calculator (Bullivants)  
<http://www.bullivants.com/media/bullivants-load-calculator>

### FUNCTIONAL RESOURCES

There are numerous strategies that can be utilized to effectively develop competencies:

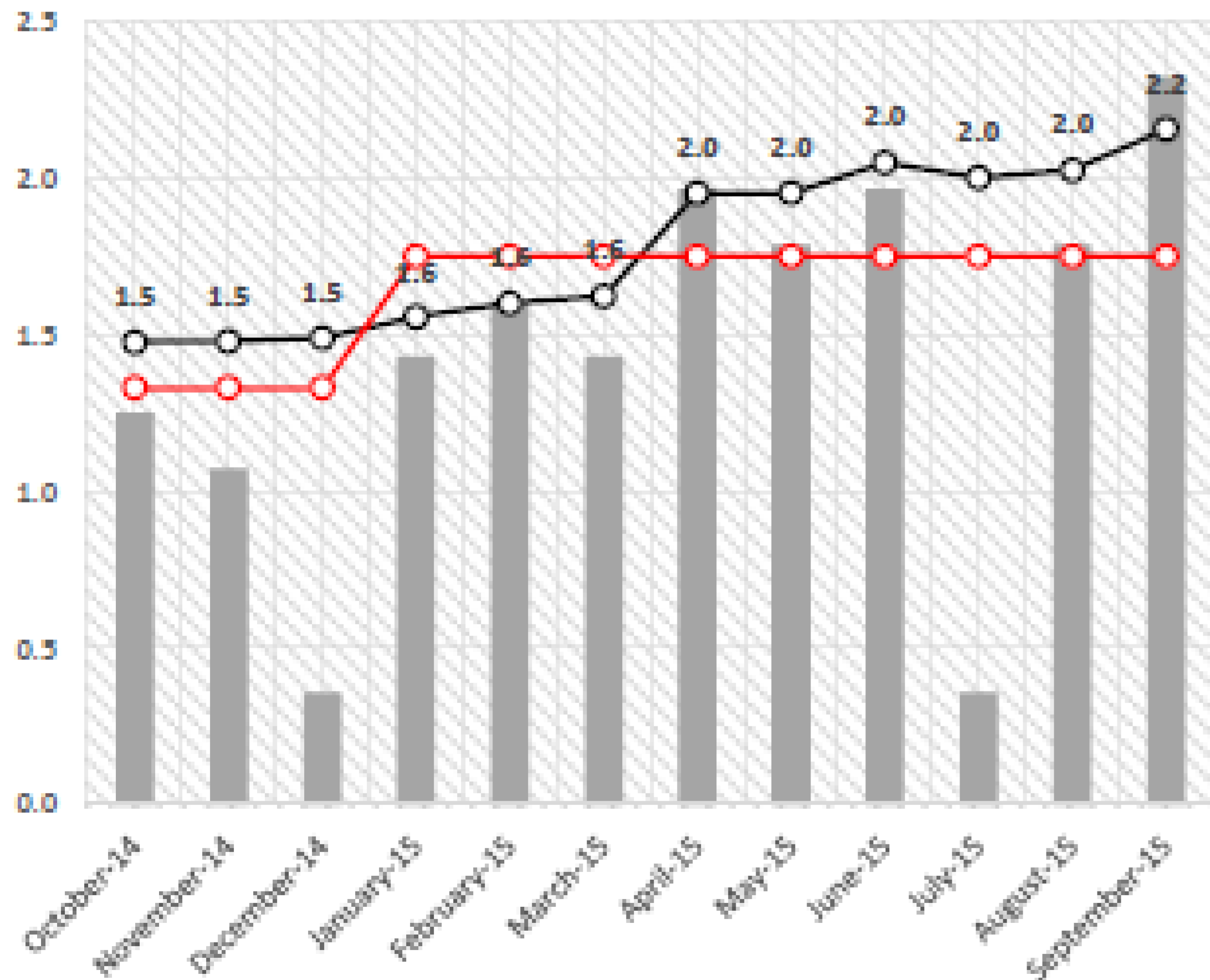
- **Self-Motivated Learning Opportunities**  
Online resources, print materials, industry documents, regulatory interpretations and internal organizational resources (policies and procedures)
- **Directed Training or Educational resources**  
Designed and/or directed learning (courses)  
Post secondary learning, conferences, industry based workshops or symposiums
- **Workplace coaching/mentoring & Job Shadowing**  
Development through exposure to the required knowledge within a workplace setting

# How Can We Reduce Our Industry Risk?

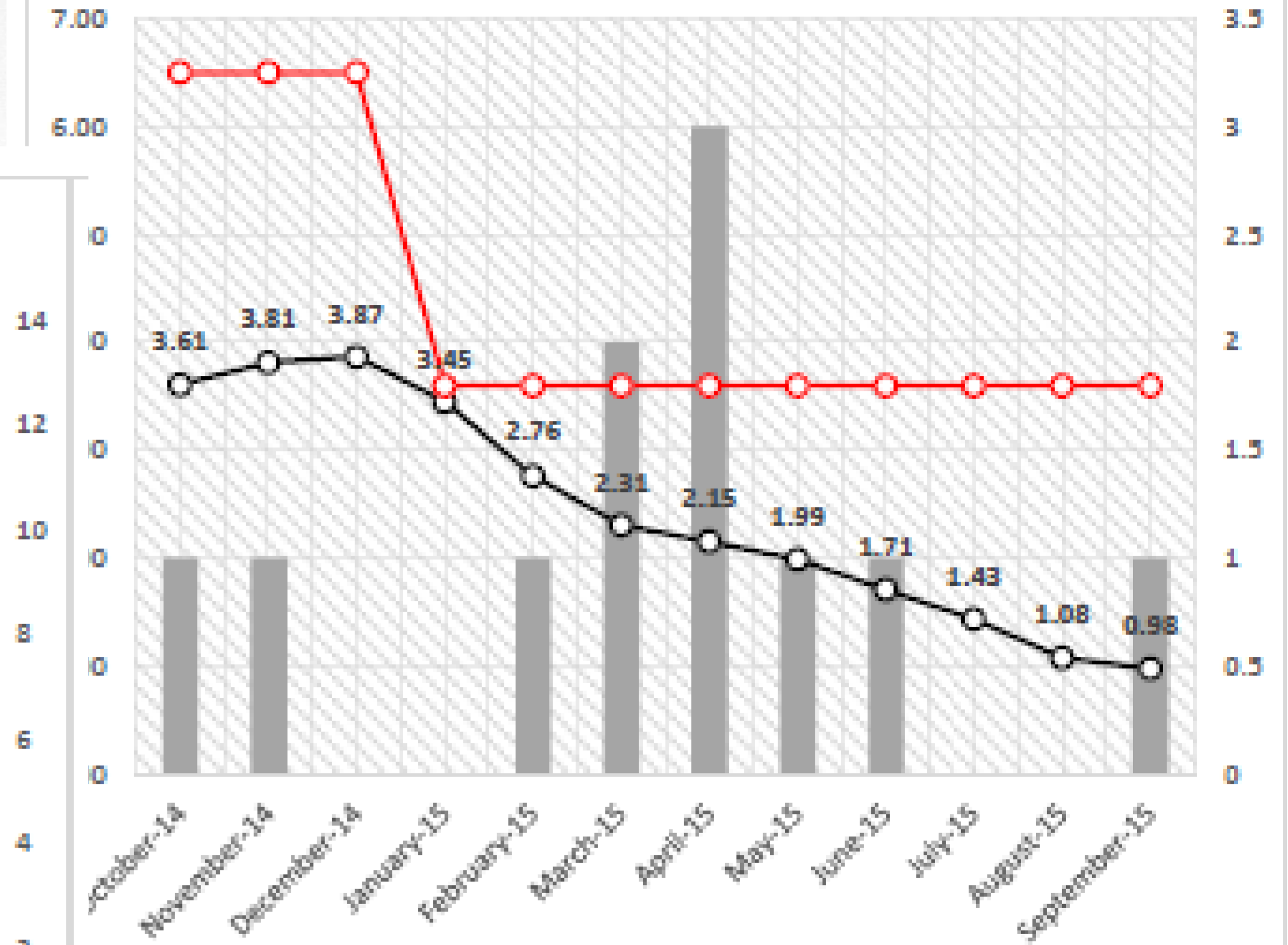
- Given the high risk of our work,
  - **Regulators, insurance** companies and **clients** have been asking:
- Following several major crane events, Mammoet was asked by the I-CAB Foundation to participate in an industry based approach to crane and rigging
  - For industry by industry



## Senior Leadership Engagement



## SIF Frequency



# COMPETENCY METRIC USE – OUTCOMES ACHIEVED

- Training expenditures can be targeted based on need
- Training budgets can be reduced given a targeted training focus.
- Ability to use workforce specific competency data in decision making.
- Increased motivation for competency development due to transparency and comparison to the industry peers (average).
- An identified correlation between low average competency scores in work teams and high-risk events.
- Ability to demonstrate organization due diligence through the management of workforce competency.

# OBJECTIVE

Support the development of the International Crane and Rigging Assessment using the I-CAB Foundation tool that is:

- Based on industry knowledge
- Efficient in both time and cost
- Does not set targets or expectations on organizations (organizations can set their own targets)
- Usable when seeking competitive rates from insurers
- Usable with clients to instill confidence and minimize perceived requirement to ‘manage’ hoisting activities
- Use as a method of capturing lessons learned from past incident with newer personnel

# DIVERSITY DESIRED FOR CONTINUAL GROWTH

- I-CAB Foundation has facilitated UK and Australia involvement / input
- Current involvement spans more than 10 companies and 4 countries
- Special Thanks
- Any organizations interested in participating or have further questions, please contact: [Sheldon.Redpath@mammoet.com](mailto:Sheldon.Redpath@mammoet.com)



**THANK YOU FOR YOUR TIME**

