



The impact of changing attitudes & advancing technology



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**WHERE IS PRODUCT SAFETY
DEVELOPMENT HEADED?**



WELCOME

Agenda

- Evolution of safety in the access industry
- Shift in attitudes towards safety
- Gains in product safety development
- Impacting the industry: Manufacturers' Technical Committee
- Where are we headed? *Ignacy Puskiewicz, JLG Industries, Inc.*
- Evolution of safety: final thoughts

EVOLUTION OF SAFETY IN ACCESS

Advancing technology and **changing attitudes** are leading to significant gains in **product safety development.**





**SHIFT IN ATTITUDES
TOWARDS SAFETY**

RISK ACCEPTANCE

As the culture around safety has changed, **attitudes have changed, too.**



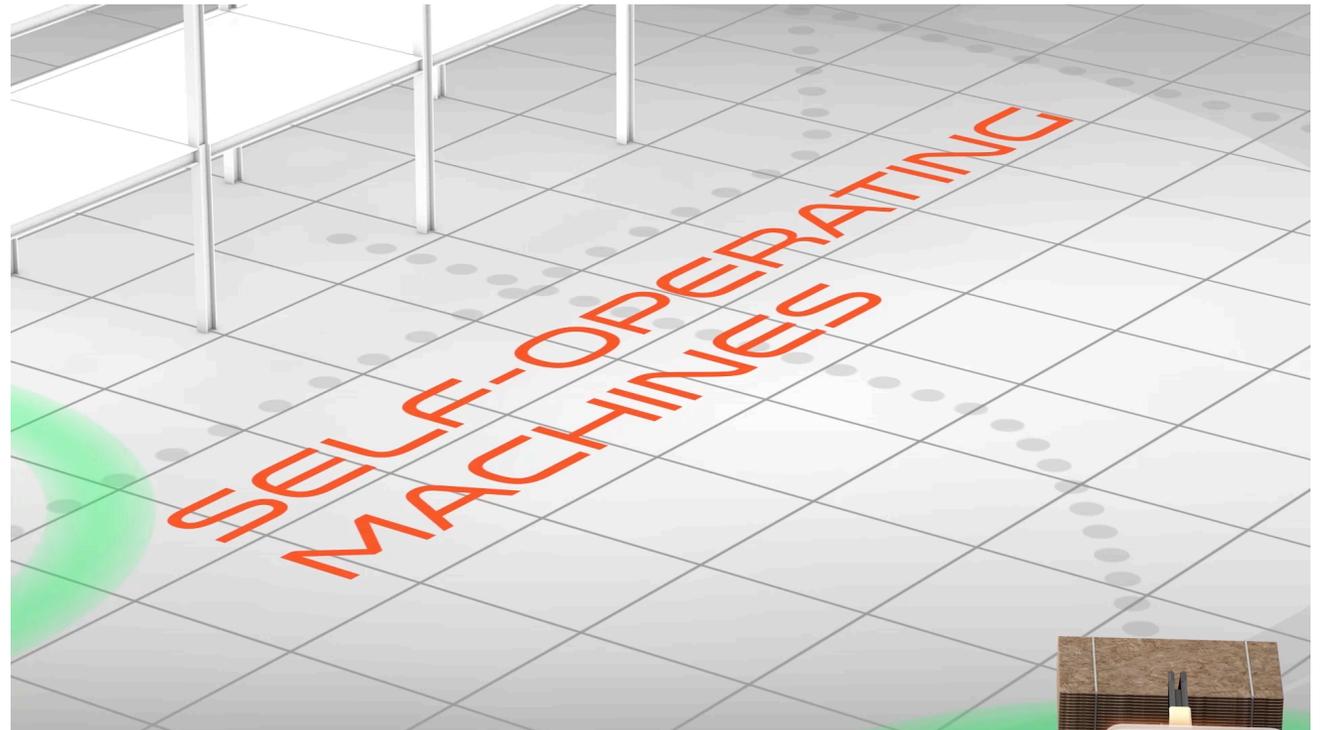
RISK ACCEPTANCE

As the culture around safety has changed, **attitudes have changed, too.**



ATTITUDES TOWARDS RISK

The pace of change is accelerating and shows a clear trend towards further **evolution of product safety** needs.





CORPORATE SAFETY CULTURE

“The best sales tool you have
is that of safety.”

– Pedro Torres, COO, Riwal



INDUSTRY COMPLIANCE

Our industry is **leaping beyond compliance.**

- Secondary guarding on boom lifts
- Emissions and noise requirements
- Worker health





**GAINS IN PRODUCT
SAFETY DEVELOPMENT**

PRODUCT SAFETY DEVELOPMENT

THEN...



PRODUCT SAFETY DEVELOPMENT

NOW...





**IMPACTING THE
WIDER INDUSTRY**

MANUFACTURERS' TECHNICAL COMMITTEE



LISTEN

Hear the voice of wider industry
and manufacturers



LEAD

Project-based focus
delivering results



COMMUNICATE

Exchange information on
work undertaken



ISO 21455 standard

The **first global draft** standard to consider control function consistency.

**MTC PROJECT:
CONTROL BOX STANDARD**

MTC CONTROL BOX STANDARD: ACCOMPLISHMENT

- Manufacturers and the regulator worked together
- Developing the draft was quicker than traditional methods
- As a result, the committee has successfully brought this work to the industry



BEYOND 2020: FUTURE PROJECTS

- Owner registration
- Auxiliary lowering decal
- Standard alignment
- Noise/environmental performance (with FEM)
- Work in Australia with MIMG for scissor lifts
- Simplified communication tools for committee
- Anchorage point research
- Secondary guarding developments
- MEWPs as fall arrest guidance





Ignacy Puskiewicz

Senior Director, Advanced Technology
and Industrial Design

JLG Industries, Inc.

**WHERE IS PRODUCT SAFETY
DEVELOPMENT HEADED?**



**MEGATRENDS: RESHAPING
THE BUSINESS LANDSCAPE**

MEGATRENDS: GLOBAL TRENDS

Megatrends help establish long-term product development strategies.

Data is a common thread that binds all megatrends.



Digital Future

A futuristic digital landscape with glowing blue lines and data points, representing the digital future.



Sharing Economy

An aerial view of a parking lot with several cars parked, illustrating the sharing economy.



Urban World

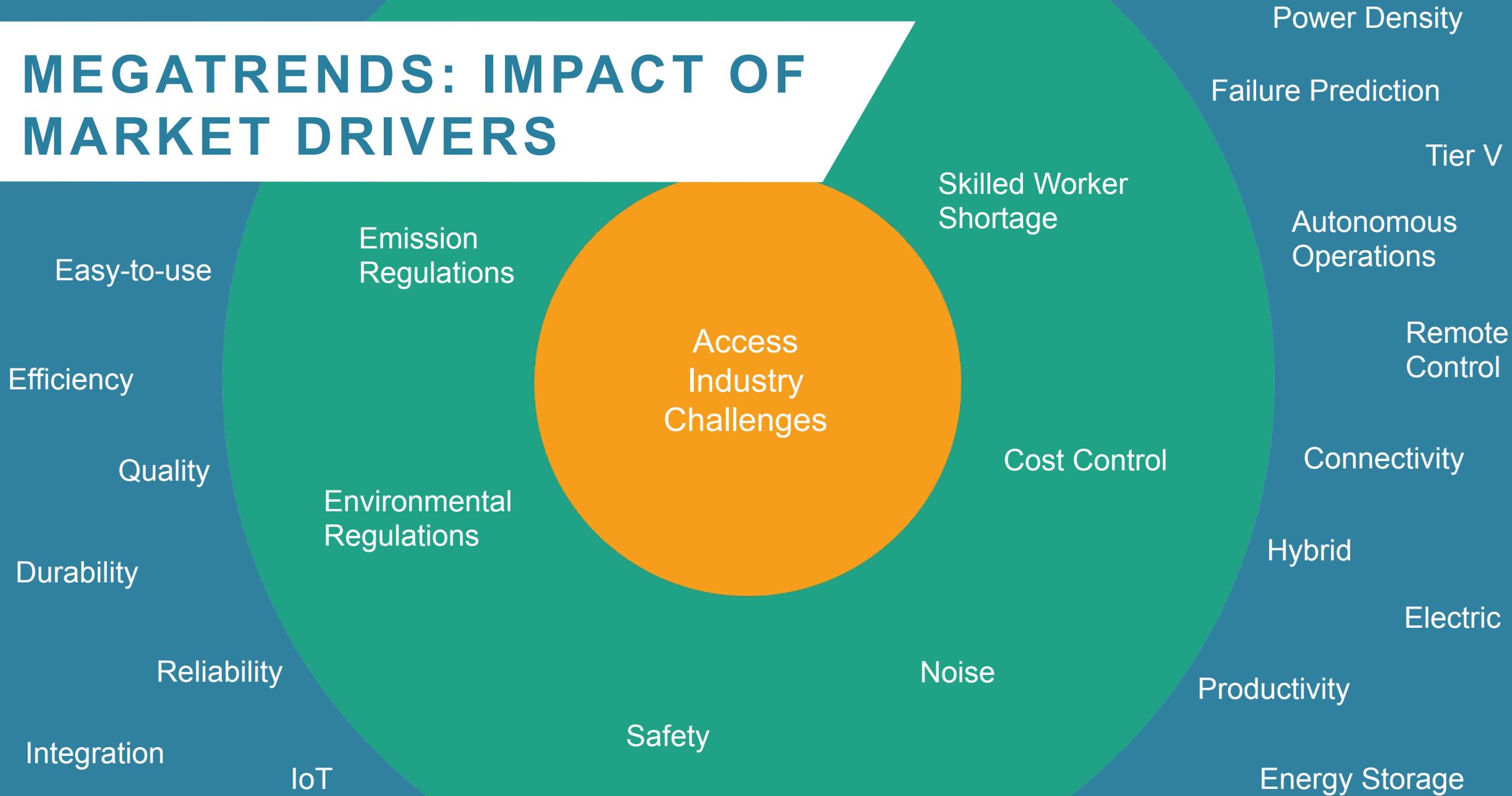
A night view of a city skyline with illuminated buildings and streets, representing the urban world.



Global Marketplace

A world map with glowing yellow lines connecting various locations, representing the global marketplace.

MEGATRENDS: IMPACT OF MARKET DRIVERS



MACHINE SYSTEMS & SAFETY

Platform-to-environment

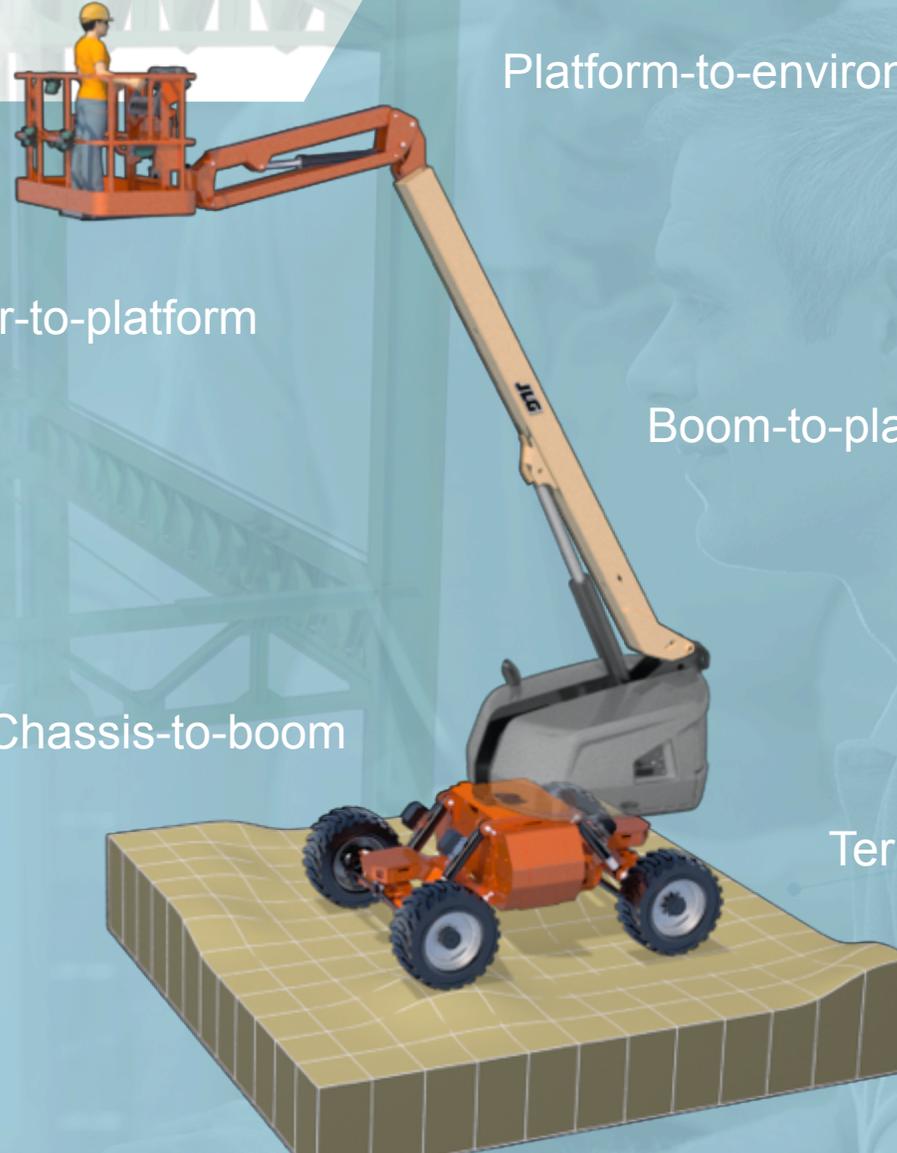
Operator-to-platform

Boom-to-platform

Aerial work platform
boundary conditions

Chassis-to-boom

Terrain-to-chassis





OPERATOR-TO-PLATFORM

CONTROL BOX EVOLUTION

CONSUMER PRODUCT CONTROLS



Analog radio
with large knobs

CONSTRUCTION EQUIPMENT CONTROLS



Cab with long
direct control
levers

AWP CONTROLS



Direct hydraulic
controls

CONTROL BOX EVOLUTION

CONSUMER PRODUCT CONTROLS



Analog radio
with large knobs



Game controller

CONSTRUCTION EQUIPMENT CONTROLS



Cab with long
direct control
levers



Cab with
pilot-operated
joysticks

AWP CONTROLS



Direct hydraulic
controls



Joysticks

CONTROL BOX EVOLUTION

CONSUMER PRODUCT CONTROLS



Analog radio
with large knobs



Game controller



iPhone

CONSTRUCTION EQUIPMENT CONTROLS



Cab with long
direct control
levers



Cab with
pilot-operated
joysticks



Cab with large
monitor replacing
switches

AWP CONTROLS



Direct hydraulic
controls



Joysticks



Next generation
control box

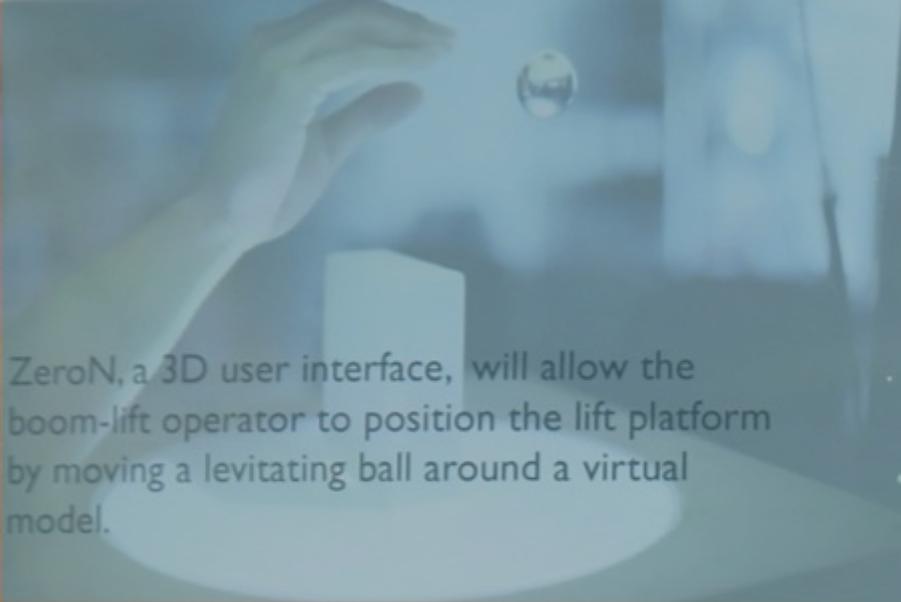
CONTROL SIMPLIFICATION CONCEPTS



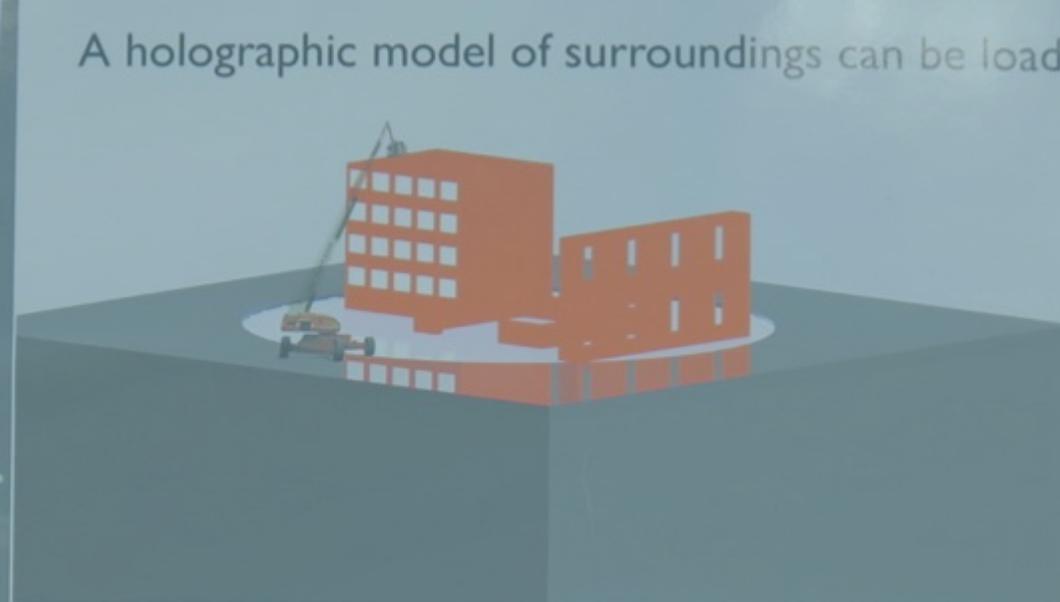


- Extensive Voice of Customer (VoC) based trade study
- Multiple configurations built for physical VoC evaluation
- Modern controls/switching

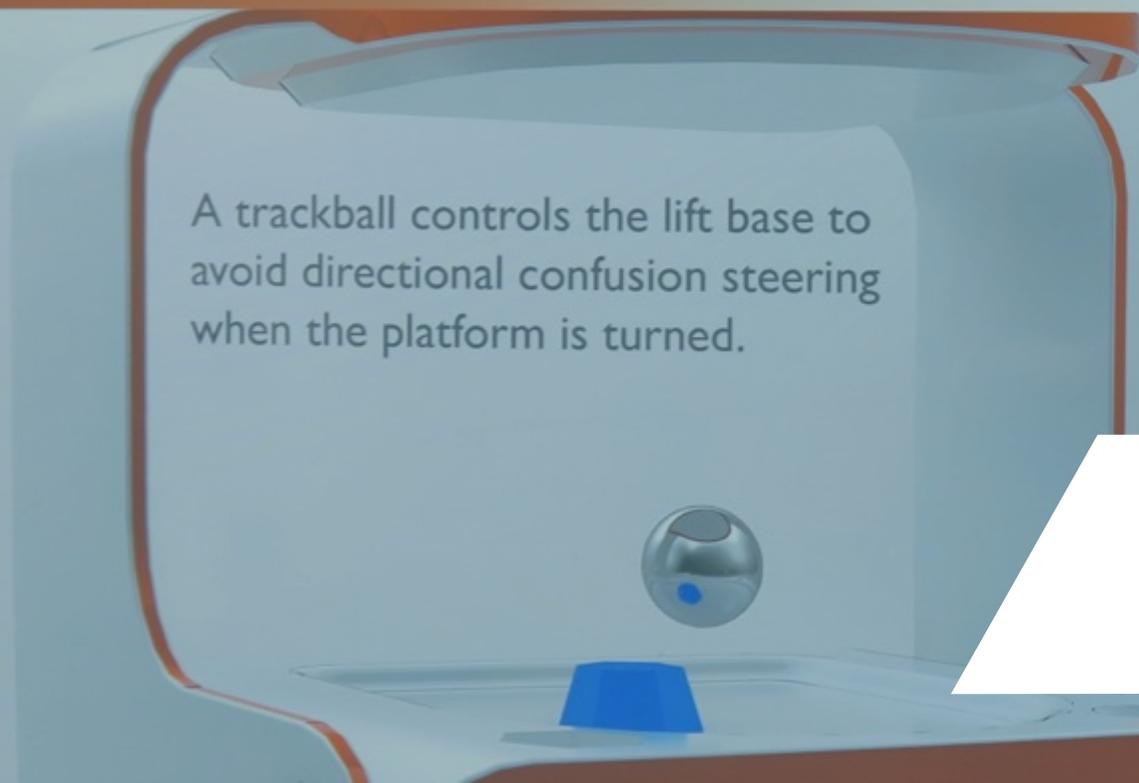
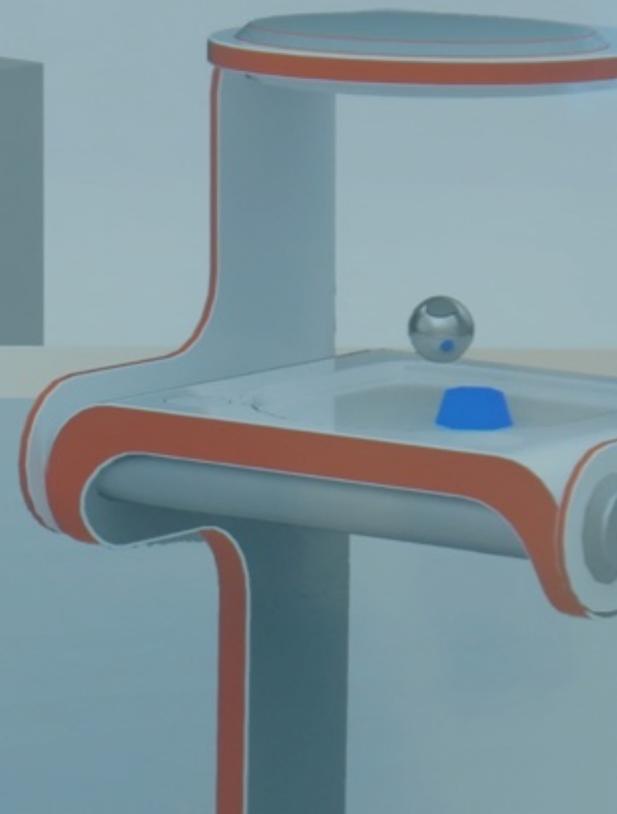
MINI-JOYSTICK CONTROLS & A STABLE BASE



ZeroN, a 3D user interface, will allow the boom-lift operator to position the lift platform by moving a levitating ball around a virtual model.



A holographic model of surroundings can be loaded onto the console.



A trackball controls the lift base to avoid directional confusion steering when the platform is turned.

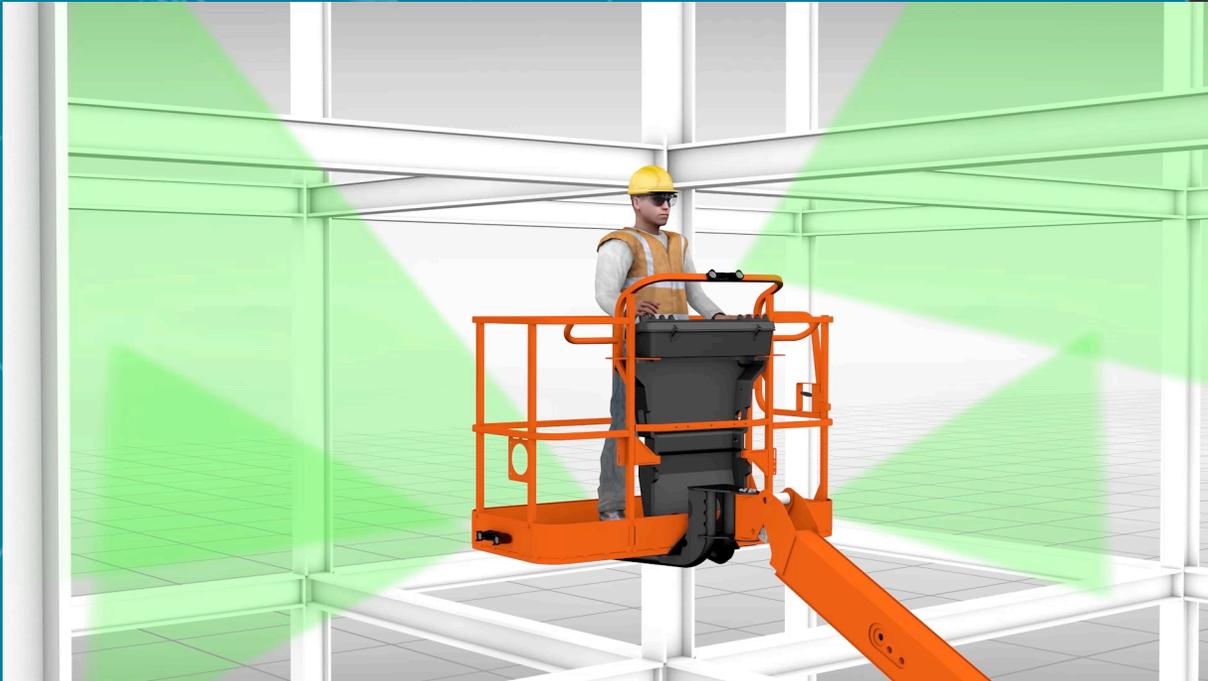
POINT & GO CONTROLS



PLATFORM-TO-ENVIRONMENT

SITUATIONAL AWARENESS

- Continuing to evaluate and deploy improved sensing suites based on rapidly evolving technology



Detection Zone

Speed Reduction Zone

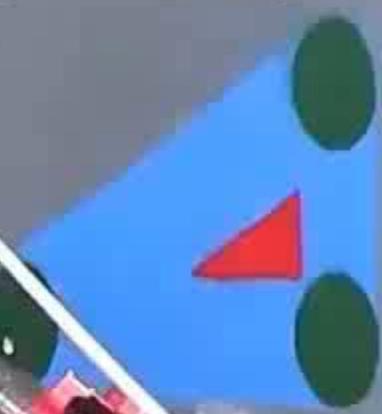
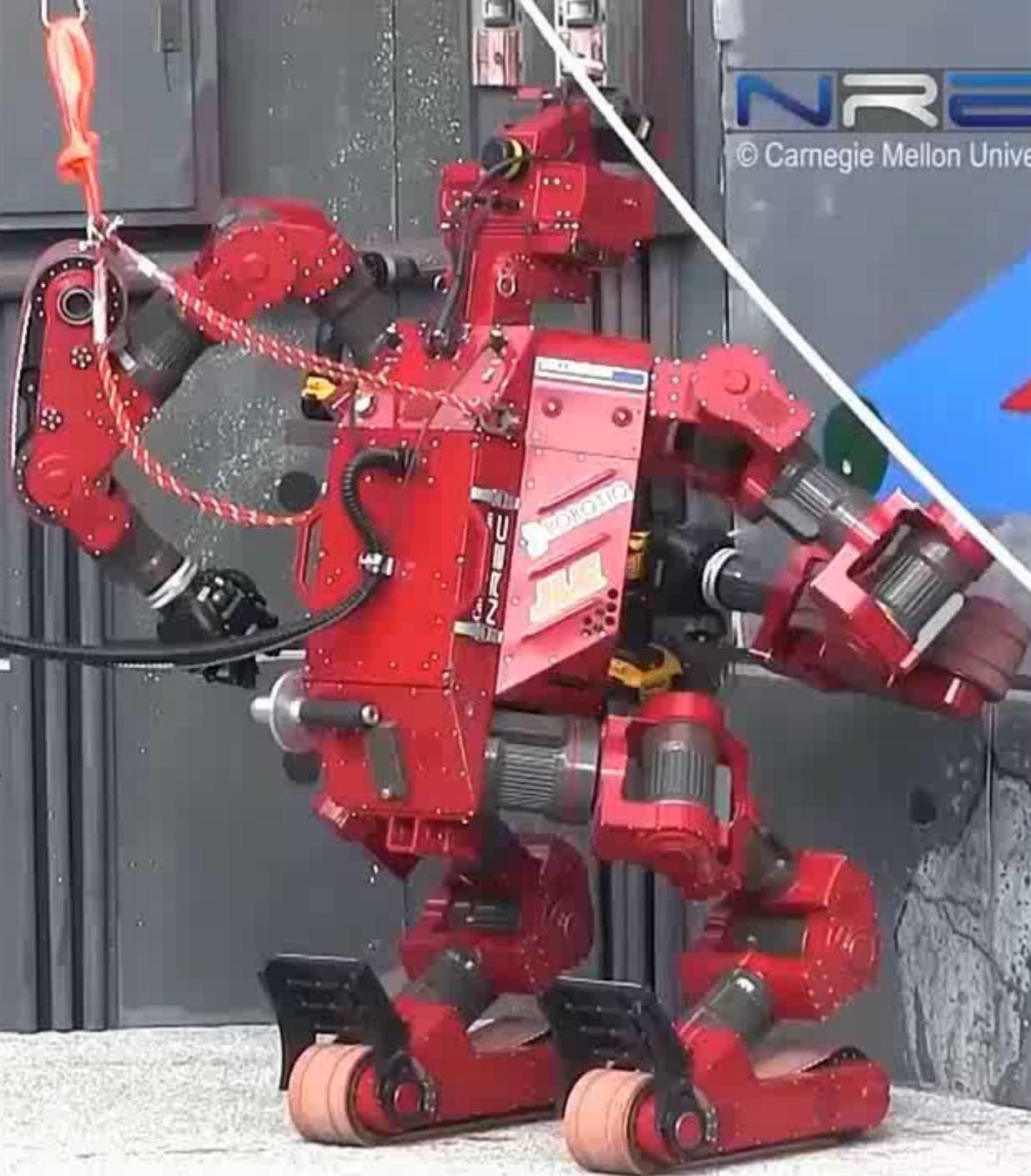
Stop Zone

ELECTRO SHOCK HAZARD
KEEP CLEAR
NORTH 88 SOUTH 88 EAST 88 WEST 88

WHAT'S NEXT

NREC

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EVOLUTION OF SAFETY: FINAL THOUGHTS

Changing attitudes will lead to
a desire to see new
technologies integrated into
our industry

