Technology Trends in Safety - Construction & Manufacturing

Webinar # 03
Date: 12 April 2020

Gilbane
BUILDING MORE THAN BUILDINGS®

TeamTech EHS
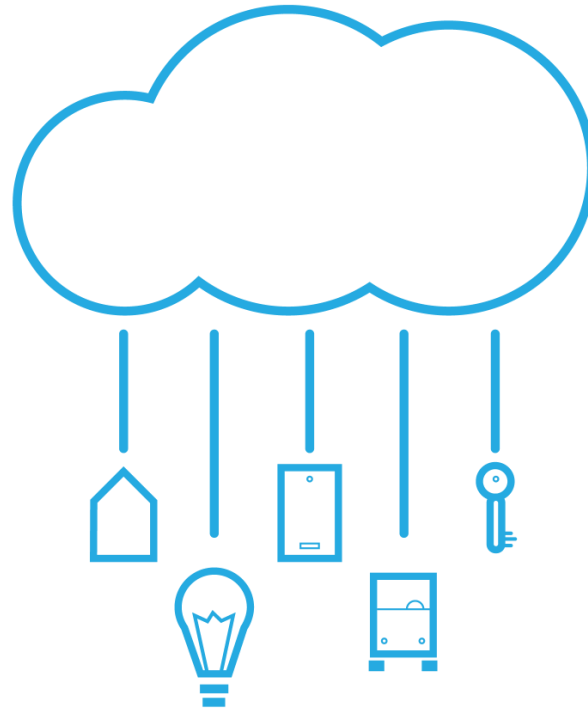Your partner for sustainable brand value

Agenda

- Key Takeaways

- Know Your Speaker

- Technology in Safety & its Benefits

- Technology Trends in Safety – Manufacturing & Construction Sector

- Q&A Session

Key Takeaways

- Know about of AI, Machine Learning, IoT, etc. in the field of Safety

- Know the safety technology is use at manufacturing & construction industry

Know your speaker

RAGHUVARAN CHAKKRAVARTHY, MS, GSP, CHST, Grad IOSH, STSC

Raghuvaran, a Bachelor's in Mechanical Engineering, from India with 13 years of construction safety and health experience. He holds a Master of Science in Occupational Safety and Health from Columbia Southern University, USA. Raghuvaran currently working as a Senior Safety Manager at Gilbane Building Company, USA.

DR AMIT R. PATIL, DPT, DBM, ADIS, MMS, MSC, IGC, PHD

Dr Amit R. Patil is an established HSE professional with a PhD in "Behaviour Safety". He has illustrated success of over 21 years, in strategic level assignments in India, Middle East, Turkey, Africa & Asia Pacific region. With a background of Engineering along with qualifications in Environment & Business Management, he has served various industrial sectors.

Technology in Safety

- Artificial Intelligence (AI)

- Machine Learning (ML)

- Internet of Things (IoT)

- Virtual Reality (VR)

- Augmented Reality (AR)
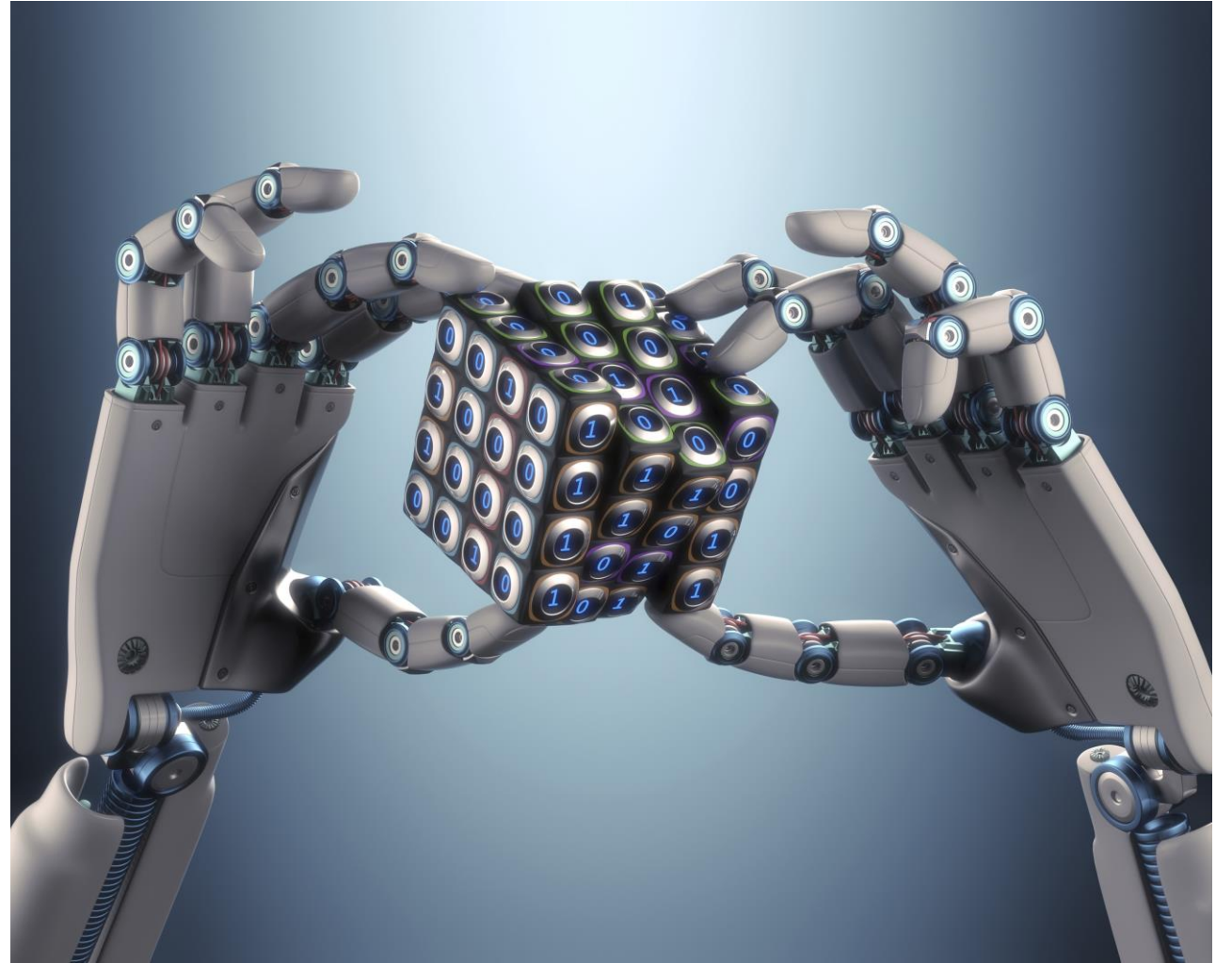
Benefits of Utilising Technology in Safety

- Continually improve health and safety of worksites

- Reduces human error

- Better data management, analytics and prediction

- Safer and easier work environment

- It is fast

- It can work 24 x 7

- It can work in challenging environment

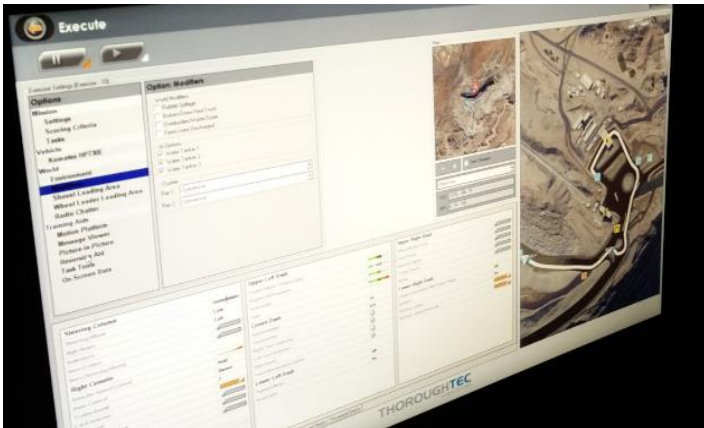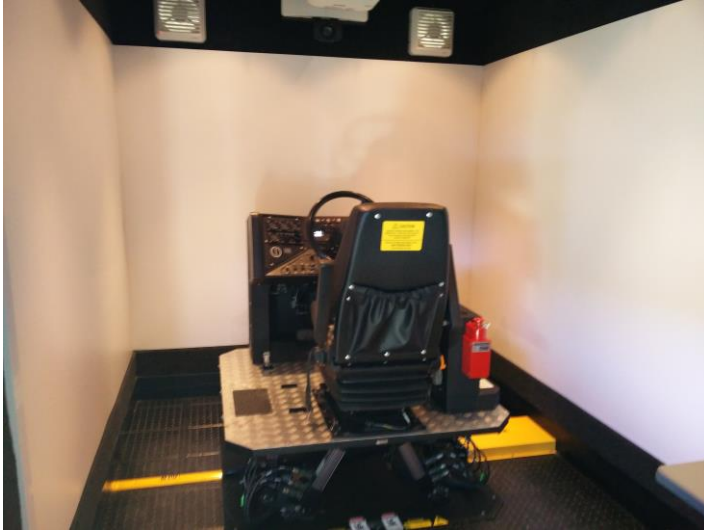# Technology Trends in Safety

VR/AR simulation for HSE Training

- Learn better through hands on instruction, by doing and carrying out activities during training.

- VR/AR simulation trainings can be beneficial because it allows employees to be virtually present in a particular site that they will work in and presents various safety scenarios that the employee might encounter.

- Overall cost of employing these tools in training is becoming more accessible and less expensive.

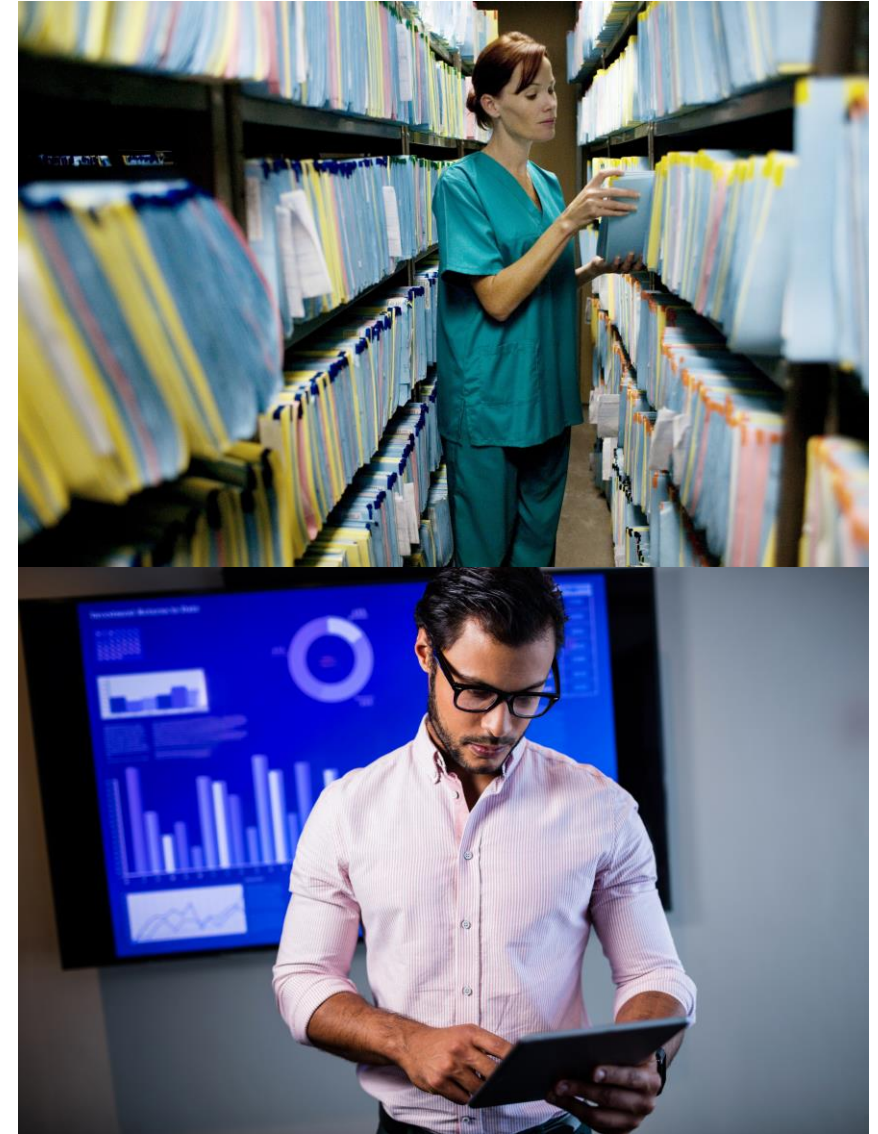# Technology Trends in Safety – Manufacturing

A simulator in use for Haul Truck Operators training/refresher trainings

Technology Trends in Safety

Digital safety data management

- Web/Apps based software's that can record audits, safety inspections and incident observations, then transmit this real-time data to a centralized database.

- Centralized recordkeeping system for quick access to useful data that can help to take informed decisions.

- Ability to efficiently filter the data and look at historical trends to quickly identify the root cause of an incident and prevent future incidents from occurring.

Technology Trends in Safety

Journey Management for Incident Reduction

- Journey management software to carefully track their employees and the safe use of their vehicles while in operation.

- Features, such as GPS tracking of vehicles including speed limit compliance, check-in reminders for employees as well as risk assessments that can be conducted for each planned trip prior to its undertaking.

- Serious risks during the journey can be managed through escalation alerts with real time dashboard data, journey mapping and audit logs.

- Scheduled check-in & emergency support

Technology Trends in Safety – Manufacturing

**Traditional way - Building scaffolding all around the tanks for the thickness testing**
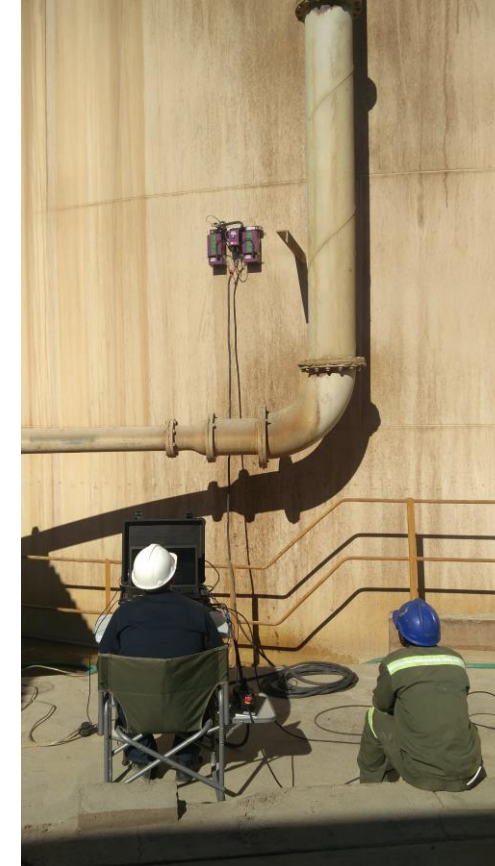
Technology in place - NDT Crawlers for thickness testing

Technology Trends in Safety

Manage your scaffold business easy with web/app based software (s)

- Complete inventory control

    - Track any type and status, including available, at job, damaged, re-rented, new and used, serialized and non-serialized, fixed assets and consumables.

- Industrial Scaffold Management

    - Know how much you have and where it is

- Scaffold Design Software

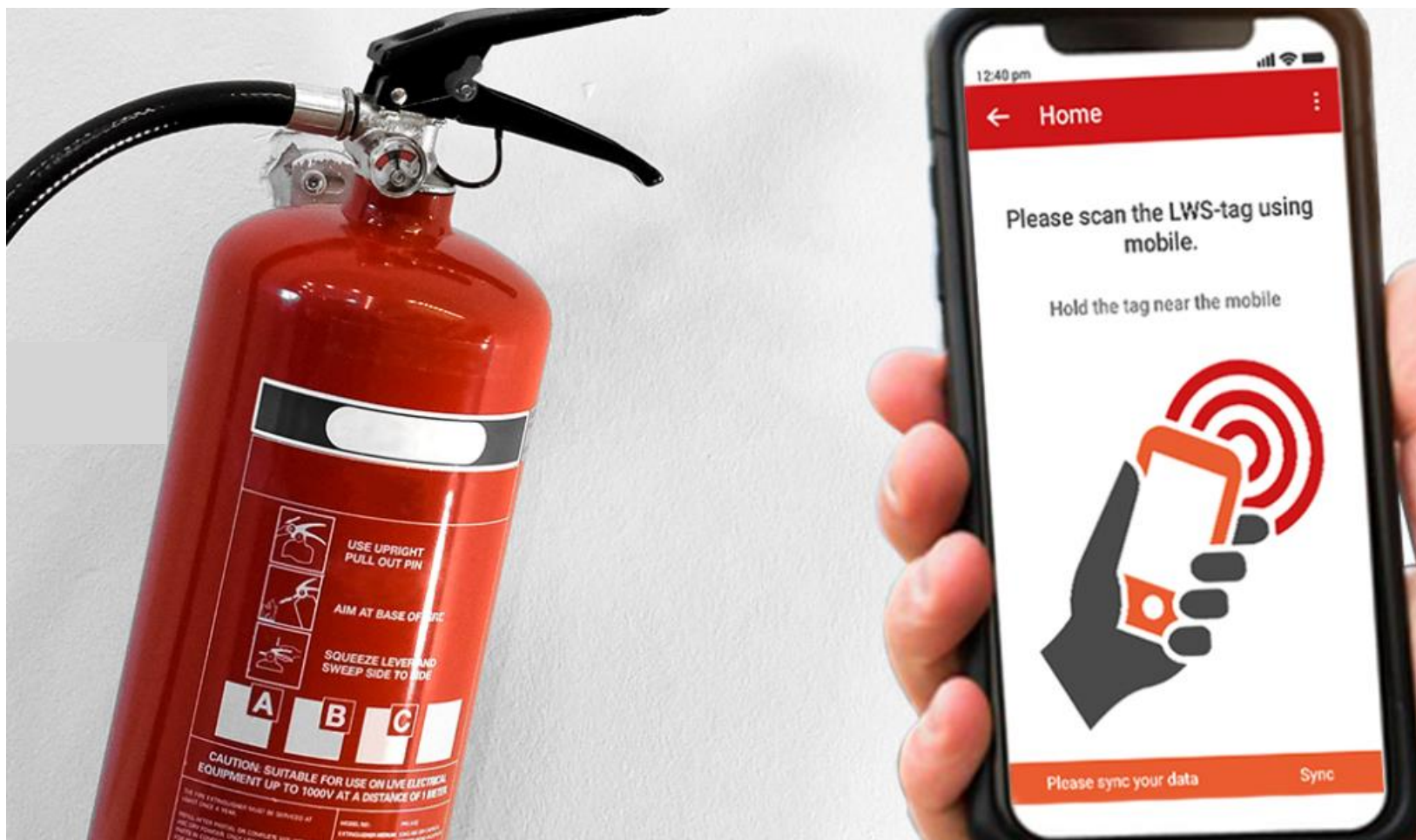   - Informed decisions

    - More verifications
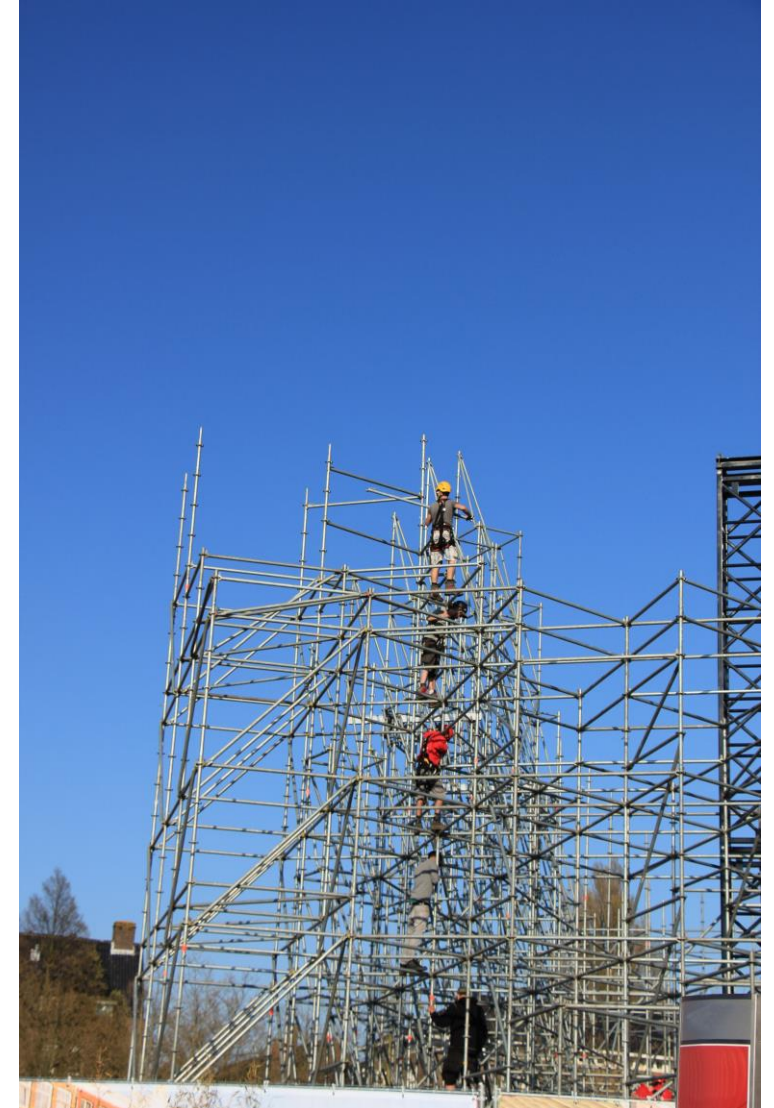
Technology Trends in Safety

Inspection cameras for suspected oil leaks and vibration noise detection in heavy equipment's (haul trucks, shovels, etc.)

Technology Trends in Safety

Fire Extinguisher Preventive Maintenance Application

Technology Trends in Safety

Use of Personal Interactive Body Cameras by Safety Professionals – Monitor behaviours for positive reinforcement of Safety and Security

Technology Trends in Safety

Smart Safety Clothing

- Connected hearing, connected gas detection, vital signs monitoring

- Prevention of falls for example, safety vests may include an air bag collar to protect workers and may come equipped with vital signs monitors.

Therefore, in the event of a fall, the airbag will fully inflated

Technology Trends in Safety

Smart Safety Clothing

- Hard hats with LED lights as beacons. Audio visual alerts.

- Connected fall protection - specially designed sensors on the hook of the lanyard

Technology Trends in Safety – Construction

Image Credits: http://100photos.time.com/photos/lunch-atop-a-skyscraper

What do we accept today that we will not accept tomorrow?

The famous 'Lunch atop a Skyscraper', workers during construction of the RCA building in New York,1932. By CC Ebbets

Gilbane Cares
Because we're all one family.

Top Rated Safety Program

#1 SafetyExcellence

Construction Users Roundtable (CURT Award)

*Gilbane's **strength of overall ethical culture** is greater than the national average (NBES) & the construction industry (CNBES).*

© Ethics Resource Center

Technology Trends in Safety – Construction

Artificial intelligence in construction industry

- Predicting future risks.

- Increase the production rate without compromising safety and quality

- AI-based applications for construction industry

Technology Trends in Safety – Construction

Artificial intelligence tools in use

❑ Smartvid.io/VINNIE

- Smartvid.io a specialist in image recognition on the development of an AI engine nicknamed ''Vinnie'' for predicting future accidents.

❑ Drones

- Construction team using drones (Pilots) to boost project safety and quality

❑ Doxel

- Autonomous devise to monitor the site.

❑ Virtual Reality (VR)

- Practical application to the construction industry.

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Smartvid.io/VINNIE
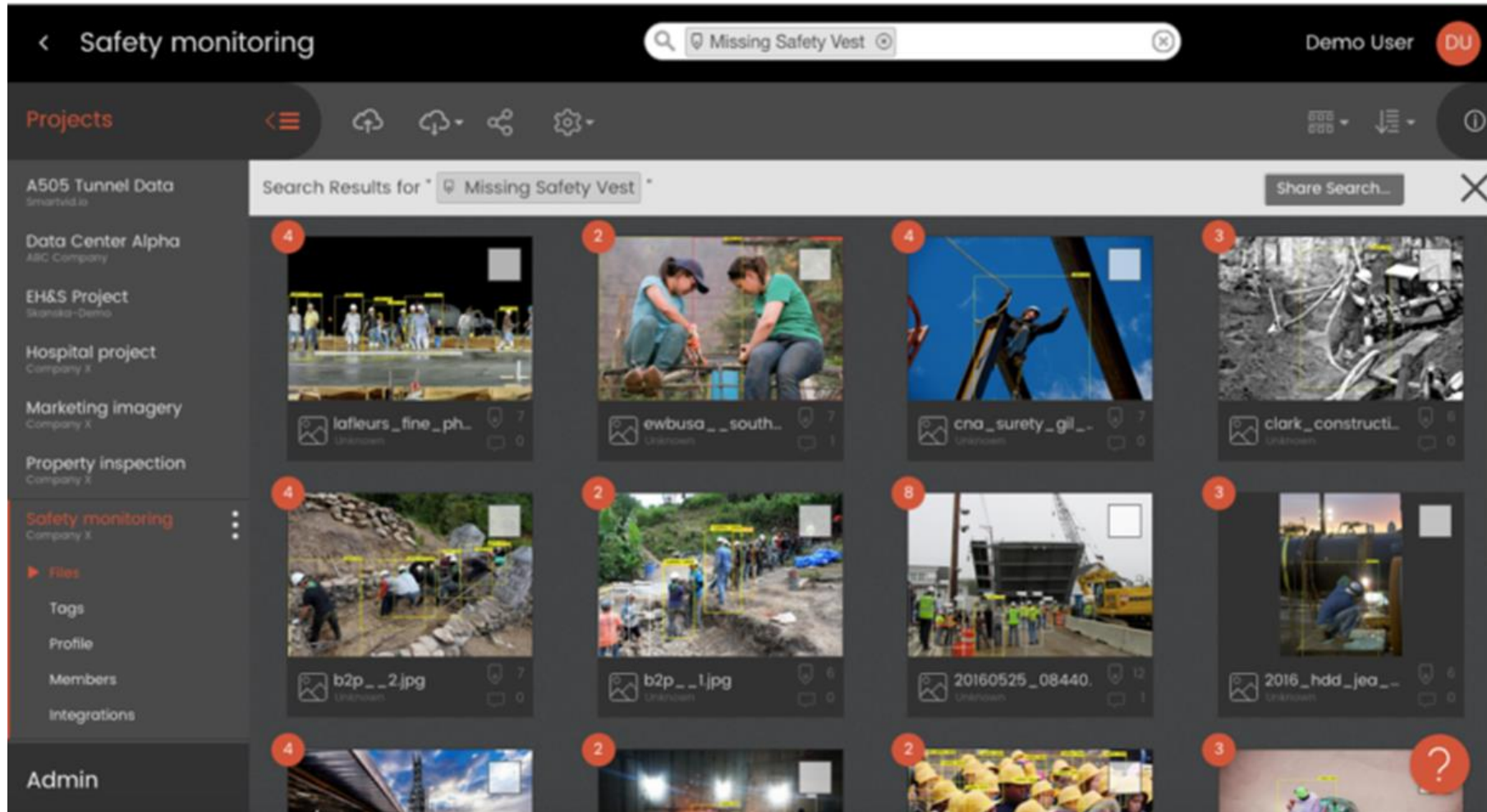
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Drones

Gilbane Case Study: A Gilbane VDC team member recently flew a drone around a 6-story hospital building to capture all elevations and surfaces of the building's exterior. In about 15 minutes, they captured more than 100 photos from all different altitudes of the building. These photos were then loaded into a software program that processes the images and creates a 3D point-cloud model. This model was then integrated with the architectural design model revealing a deviation of only a few inches. This service greatly benefits our customers with a less time-consuming data capturing process than previously available, allowing our teams to quickly validate design decisions and plan adjacent to existing conditions at a level of detail higher than ever before.

Gilbane Ink Page – <u>Click here</u> to know more

Doxel
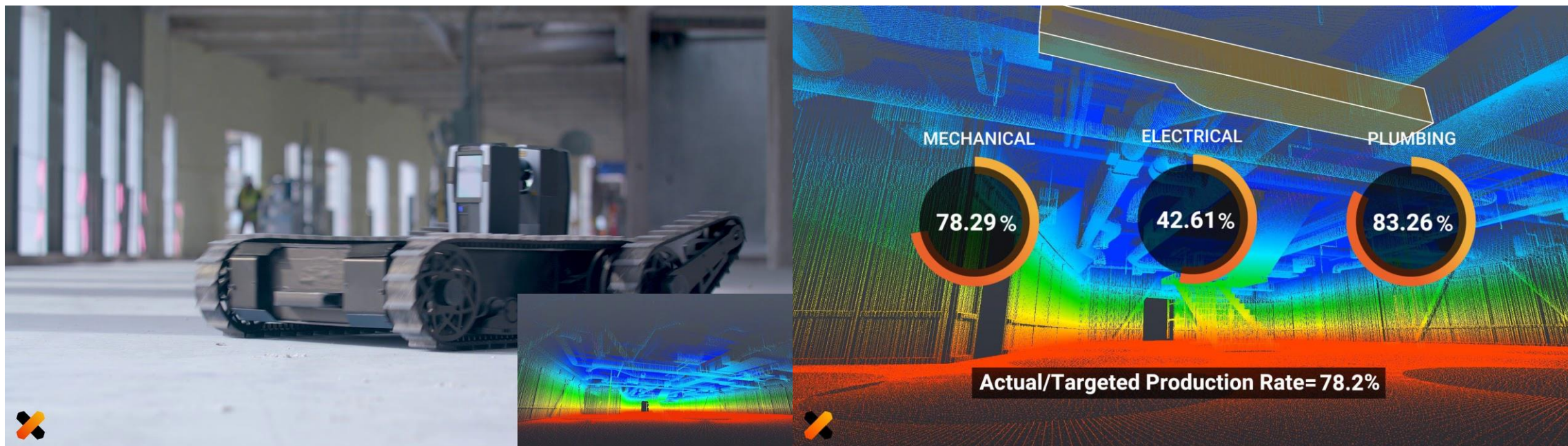
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Virtual Reality – BIM/ RIVET

Technology Trends in Safety – Construction

Technology is growing faster than we think - Robot Science Museum in Seoul will be built by robots and drones!

Image Credits: https://www.dezeen.com/2019/02/20/robot-science-museum-melike-altinisik-architects-maa-seoul/

Let us make work safer…..

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