Intersection of Safety & Technology

Iowa-Illinois Safety Council

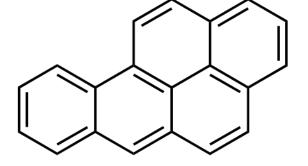
March 2022

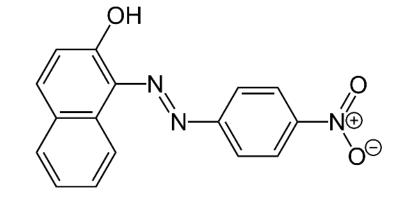


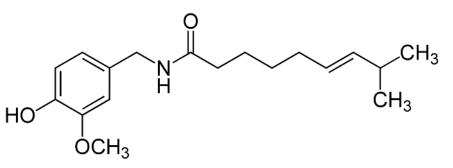


Steven Shaffer

- Grinnell College, Chemistry, 1991
- Analytical Chemist
- Drake University, Inorganic and Organic Laboratories, EHS Department
- EMC Insurance, 2005;
 - Rehab the Lab
 - Emerging Issues Chair
 - RI Innovations Team











RI Innovation Team



Chad Veach



Steven Shaffer



Nathan Smith



Jake Thoren



Chris Murphy



VP, LOSS CONTROL

LEVELUP



March 2002



January 2017

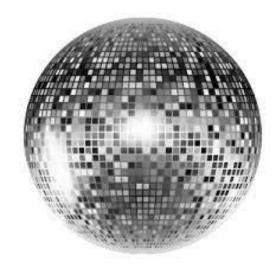


Britt Fritz Josh Jacobsen Kory Kunde Jim McMillen Loss Control Consultant, PC AVP, Loss Control Loss Control Consultant Sr. Loss Control Consultant, PC Construction Team Chris Murphy Christy Nebben Ray Pastorius Larry Poague VP, Enterprise Loss Control, PC Risk Management Consultant, PC Sr. Loss Control Consultant, PC Sr. Loss Control Consultant Troy Schultzen Justin Slapnicka RW Smith Chuck Snyder Sr. Loss Control Consultant, PC Sr. Loss Control Consultant, PC Sr. Loss Control Consultant, PC Risk Management Director, PC Construction Team C-Store/Retail Team Jeff Steinert Alex Trentor Sr. Loss Control Consultant, PC Sr. Loss Control Consultant Construction Team Construction Team



#1 Rule of Technology Start with the problem

The best way to use technology, as summarized by Jim Collins in his book, *Good to Great*, is as "an accelerator of momentum rather than a creator of it." Having studied companies over a five-year period, Collins came to the conclusion that not only do successful organizations think differently about technology than mediocre companies, but they tend to **become pioneers in the application of carefully-selected technologies**.







RI Innovation – Technology & Data









Aerial Intelligence

Wearable IoT

Building/Equip IoT

Machine Vision











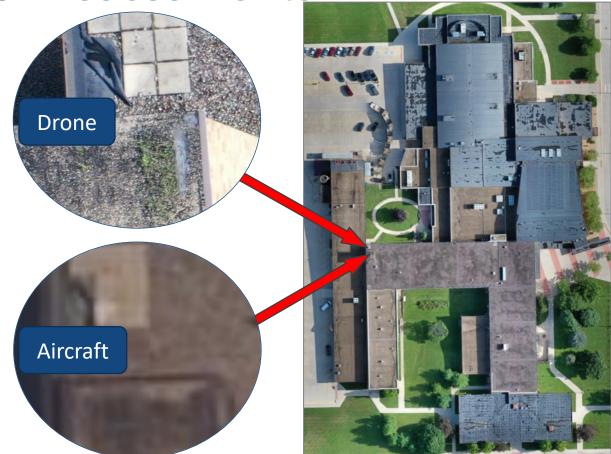
Drones / Aerial Intelligence





VERIFIED Data Analytics Drone Roof Assessments

- Roof Assessment Service Reports for policyholders
- Report generator with Computer Vision built inhouse
- Roof Score for underwriting generated based on detections from HD imagery







Why Roof Assessment?

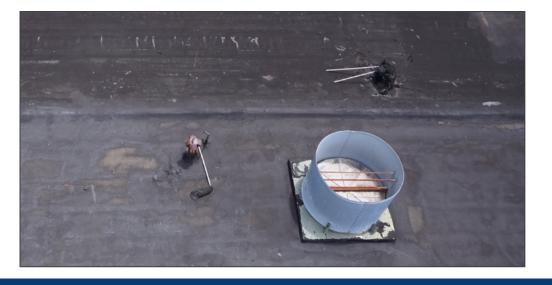








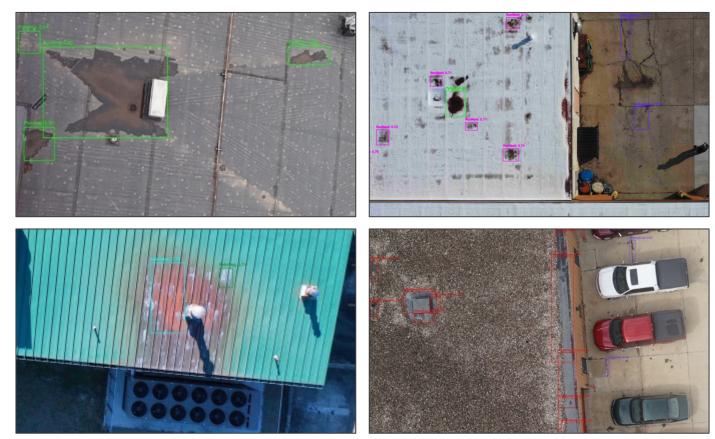








INFR/LYTIKS Machine Vision



LEVELGP

Current Models Used

- Ponding
- Displaced Ballast
- Staining/Mold
- Corrosion/Rust
- Wrinkled Membrane

Models Not Used

- Walkway Crack
- Patching

Future Models

- Overhanging Tree
- Debris
- ???



Roof Assessment Service Reports

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eportTemplate for 3A72080																			Ro	Roof	Roof As	Roof Asse	Roof Assess	Roof Assessmer	Roof Assessment F	Roof Assessment Repo	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report	Roof Assessment Report
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Wearable IoT





NCCI – Wearables Paper

• Is wearable technology a game changer for workers compensation?

"As wearable technology advances, the interviewed stakeholders agree that **wearables** are well positioned to become an integral part of the future workplace and the workers compensation system. Notably, with more widespread use, wearables could provide data and information that could lead to safer workplaces and may help reduce recovery times, facilitate return-to-work, and reduce the overall costs of workers compensation claims.

One of the most important goals in workers compensation is to prevent an injury before it occurs. If wearables can **identify and mitigate risks in real time—before a worker is injured—it could transform the world of loss control and, most importantly, transform the lives of workers**. As one of our stakeholders noted, "By preventing injuries, everybody wins: the employee, employer, agent, and the insurance company."

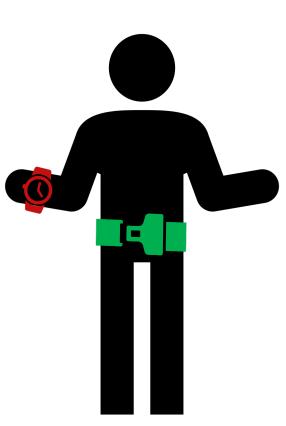


https://www.ncci.com/Articles/Pages/II_Insights_Wearables.aspx

Two Directions of Wearables



Inward: Sensors that measure things inside the worker: oxygen concentration, pulse, number of steps, etc.



Outward:

Sensors that measure things around the worker, actions taken by worker, or communicate with the worker

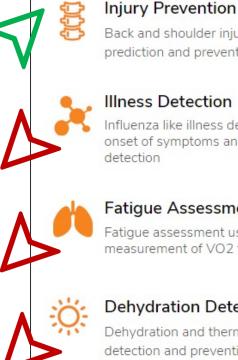




GoXLabs



Boost is the only all-in-one solution on a third party Samsung or Apple smartwatch.



Back and shoulder injury risk prediction and prevention

Illness Detection

Influenza like illness detection prior to onset of symptoms and social distance detection

Fatigue Assessment

Fatigue assessment using real-time measurement of VO2 from a watch

Dehydration Detection

Dehydration and thermal stress detection and prevention prior to onset of symptoms

Lone Worker Safety

Lone worker safety includes GPS location, health status, and communication on a watch

Noise Detection

Noise detection and warning (Coming December 2020)

CO2

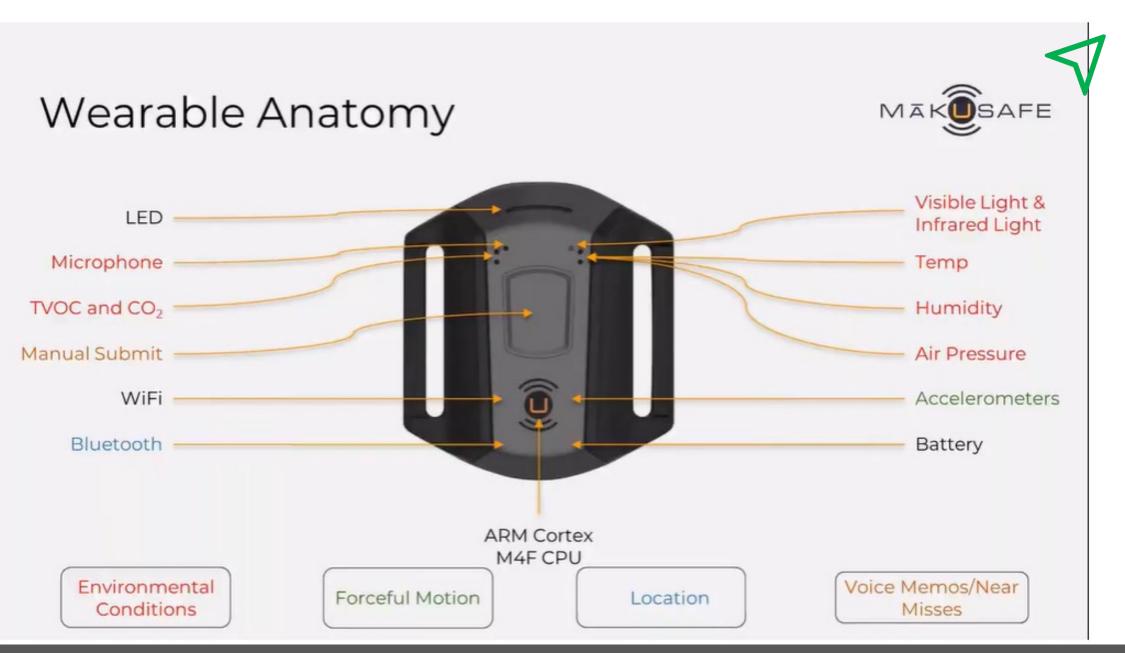
CO2 Detection

CO2 detection and warning (Coming December 2020)

Learn More >



17







- Two Pilots completed in 2019
 - > 3 months & 40 devices
- Beta phase with 1,200 devices and 12-month nocost trial for WC policyholders









MAKOSAFE MākuSmart Platform

MĀKOSAFE	Motion Explorer		Fastco Ir	ndustries Main Production Plants 🛛 🔍 Chad Veach 🗸
Report Incident	Last 30 Days Last 7 Days Yesterday			Y Filters Search Q
	RANKIE USER 0	PHYSICALITY	WORK ROLE \$	LAST 30 DAYS
 Portfolio Dashboard 	1 Leroy Davis	VERY HIGH	Setup Tech, Thread Roll	
Motion Explorer	2 Austin Harris	нсн	Cold Heading	
 Indicators Locations 	3 Tommy Field	HIGH	Setup Tech, Cold Heading	
실 Users G Tasks	4 Dale McGarry	CAUTION	General Labor, Maintenance	
Disks	5 JR Jerry Ready	CAUTION	Cold Heading	
Reports Learning Center	6 JB Jason Billins	CAUTION	Setup Tech, Cold Heading	
	* 7 Le Latesha Carter	CAUTION	Setup Prep, Thread Roll	
	8 Tonda Dow	АССЕРТАВІ Е	Inspection	
	9 Enrique Duran	ACCEPTABLE	Material Handler, Production Control	
© MåkuSafe Corp.	10 Nate Leary	ACCEPTABLE		





Wearables – Doing Their Part!

GENERAL INDUSTRIES | CLIENT RESOURCE

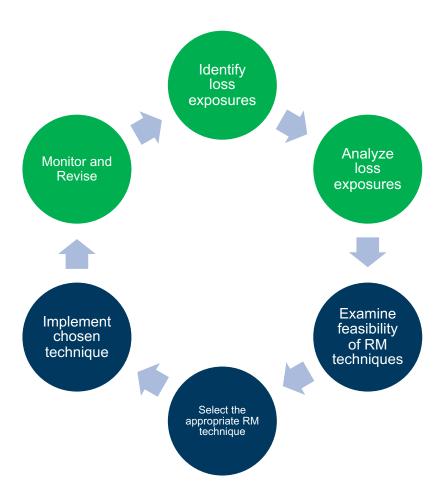
How wearable devices are changing the future of workplace safety

A look at this emerging technology's uses and benefits

BY CHRIS MURPHY

Considerations to keep in mind

While wearables can help identify and analyze workplace safety issues, they shouldn't be viewed as a cure-all. They often don't solve underlying safety issues on their own, and should be used as a component of larger risk management strategies that combine traditional risk mitigation techniques to correct issues.



21



Building / Equipment IoT





Are building sensors game changers?



HBJ PHOTO | STEVE LASCHEVER

Gordon Hui, a vice president at Hartford Steam Boiler, says sensor technology could change the insurance industry's focus from paying claims to predicting and preventing loss

2020 article: Further, he thinks the ability to prevent accidents that lead to property damage could turn the insurance industry on its head within the next five or so years.

"It's going to be about predicting and preventing loss, and not just about paying out for losses," Hui said. *"I think that is going to be a huge sea change for the industry."*



https://www.hartfordbusiness.com/article/ct-companies-see-sensors-as-game-changing-technology/



Sensors have been around for awhile...

In 1830, Andrew Ure a Scotsman, invented what today we refer to as a thermostat with a view to keeping steam boilers warm.

A few decades later, in 1880, a Professor from Wisconsin named Warren Johnson became truly obsessed with regulating the temperature of the classrooms in which he taught. **His obsession led him to create the electrical thermostat, a device to control the room temperature inside buildings.**







Other "Sensors"





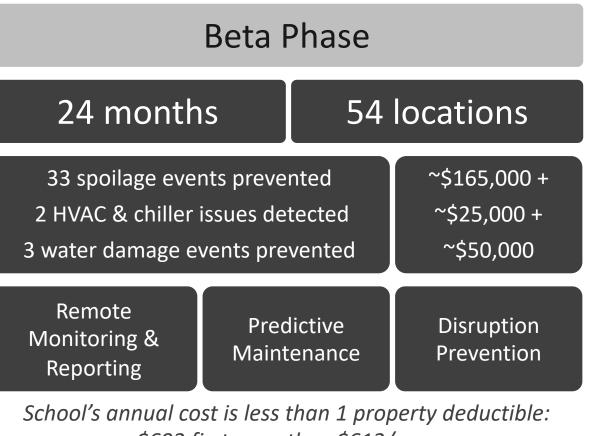




HSB. Building / Equipment Monitoring

- Sensor Solutions by HSB available for EMC schools
- Monitoring for Water, Spoilage, Freeze, & Mold





\$692 first year, then \$612/year



HSB. Building / Equipment Monitoring

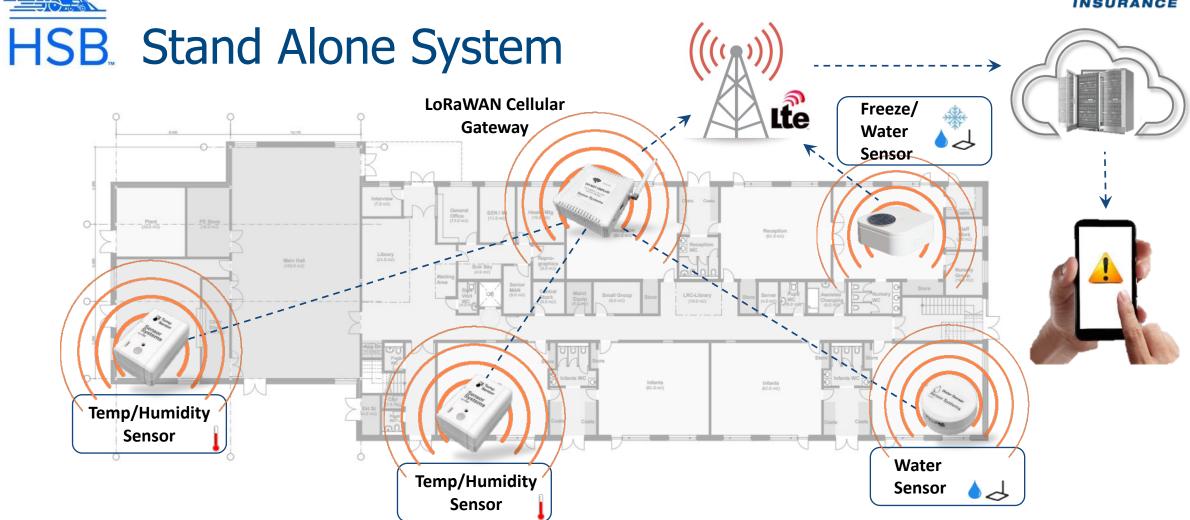
Sensor Solutions by HSB Freeze Prevention Kit



Policyholder's annual cost is less than 1 property deductible: \$192 per year







THE REAL PROPERTY AND A

LEVELGP





- CO2 sensor for fermentation
- pH sensor for sour beer
- Pressure & temp carbonation

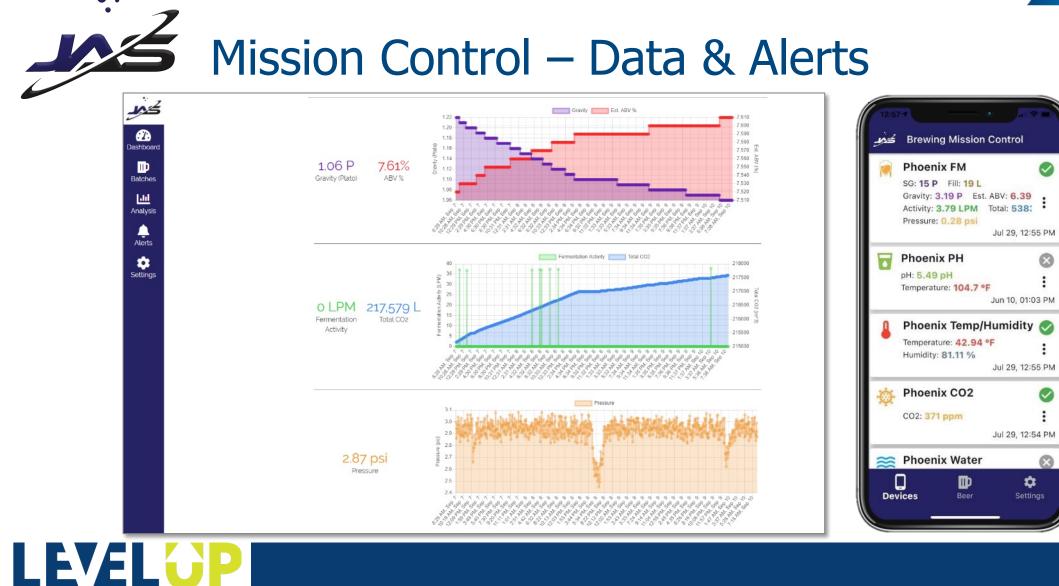
- Temp/humidity refrigeration
- Ambient CO2 for worker safety
- Water leak or intrusion







Mission Control – Data & Alerts





Computer Vision / AI









14.9% Discount



Pedestrian & Cyclist Collision Warning





Speed Limit Indicator

Lane Departure Warning





Forward Collision Warning

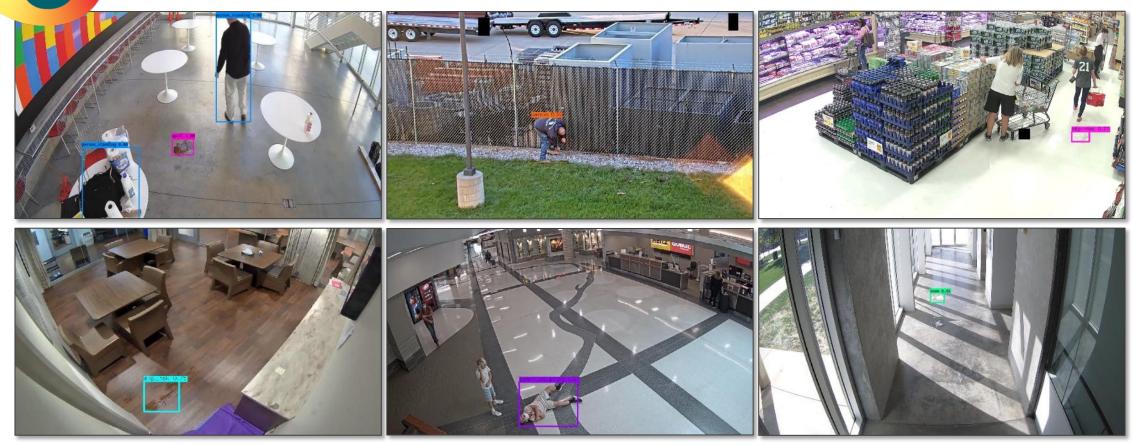
Headway Monitoring & Warning





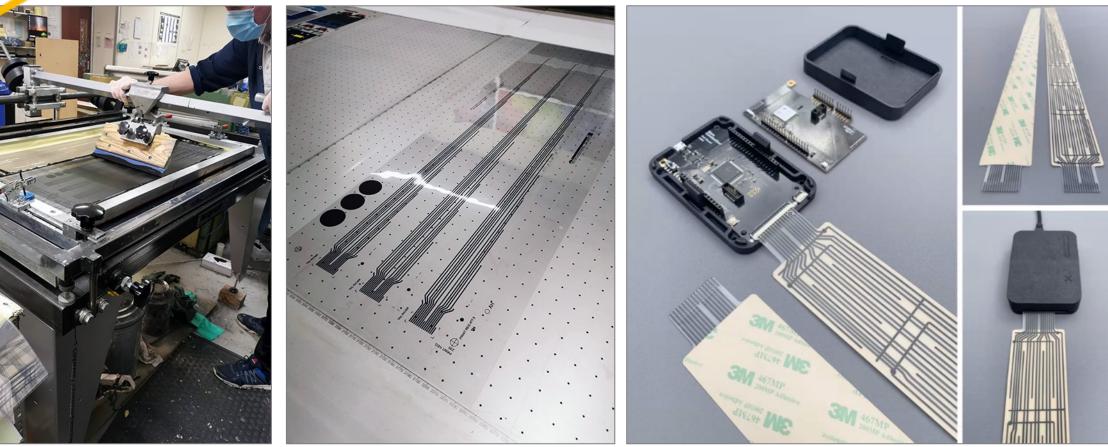


IntelliSee Machine Vision on Video



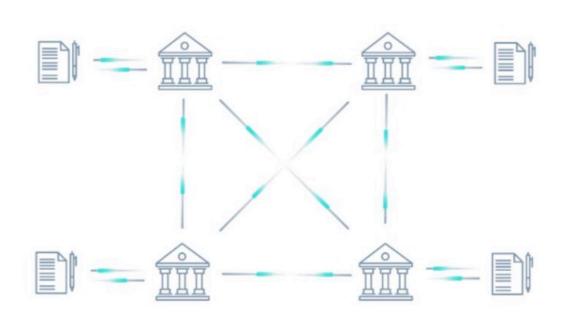


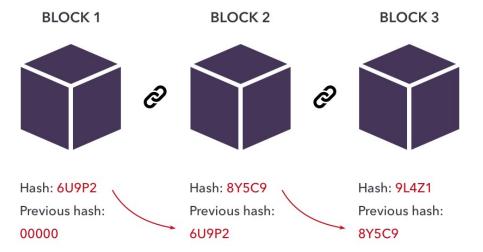






The Institutes RiskStream Collaborative





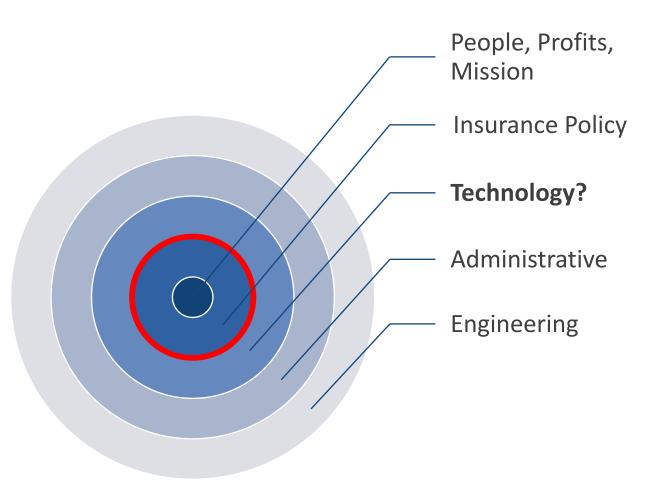
- Certificates of Insurance
- Surety Bonds Power of Attorney
- Work Comp Data Source Sharing
- Reinsurance Bordereaux Reporting





Key Takeaways

- Technology can accelerate business by assisting in risk management – start with the problem
- Insurers and brokers will continue to test and learn
- Solutions get better every day





Intersection of Safety & Technology

Questions?

