


Wearable Devices in the Workplace & The Impact on Workers Compensation

May 20, 2019 Spring Meeting

Martin T. King - Kaiser Permanente, Moderator
Tom Ryan, Willis Towers Watson
Tom West, MäkuSafe



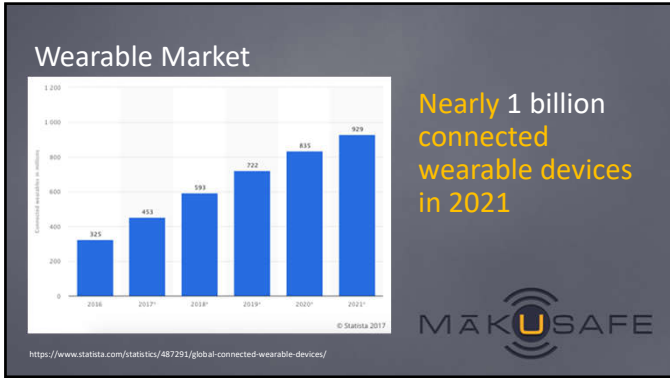
Impact on our Business Models

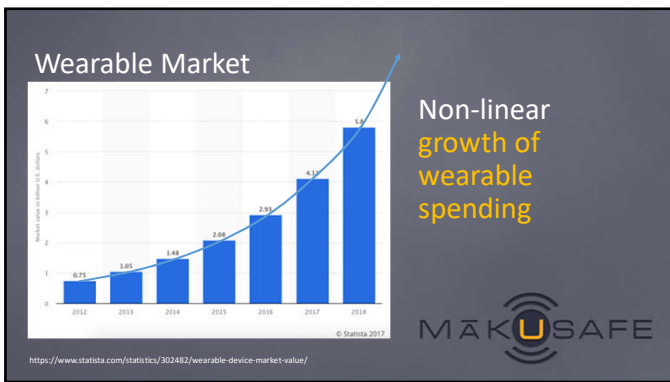
	World's largest Taxi company, owns no vehicles.
	World's most valuable retailer, has minimal inventory.
	World's largest accommodation provider, owns no real estate.
	World's most popular media owner, creates no content.

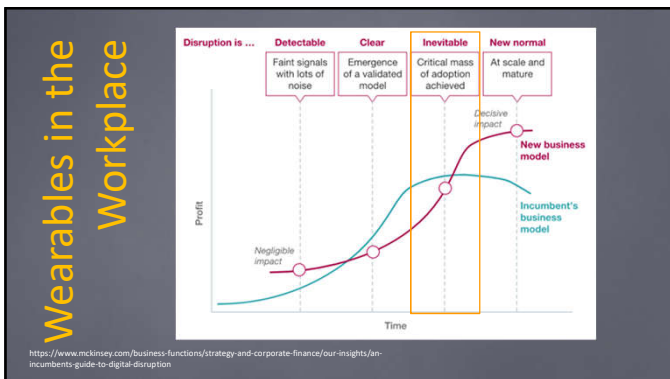
Something interesting is happening



Overview of the Current State of Wearable Technology







Wearable Market

Companies are beginning to test wearables in basic use cases like workplace security access (23%), employee time management (20%), and real-time employee communication (20%).



<https://www.salesforce.com/form/other/wearables-in-the-enterprise.jsp?id=701300000000G80&nc=701300000000G88>

Wearable Devices in the Workplace & The Impact on Workers Compensation

- Wearable Technology Landscape / Marketplace
 - Forecast
 - Trends
 - Next Generation of Wearables
- What are the Capabilities of Wearables ?
 - Smart Helmets
 - VR Visors
 - E-Textiles
 - Exoskeletons / Robotics
 - Biometric Tattoos
 - Smart Implants



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Military Applications

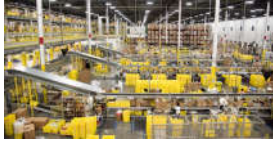
- Prototypes
- Exoskeletons
- Virtual Reality



Wearable Devices in the Workplace & The Impact on Workers Compensation

• Targeted Industry Groups

- Construction
- Distribution/Fulfillment Centers
- Health Care
- Lumber
- Mining
- Transportation
- Rail Systems
- Heavy Manufacturing



Wearable Devices in the Workplace & The Impact on Workers Compensation

• Employers' Perspective

- Wellness Programs
- Accident Prevention
- Safety Training
- Claims Management
- Disability Management
- Return to Work
- Data / Analytics



• Intersection of Wearables & Safety

Safety Gap




 **THE PROBLEM**

Workplace Accidents Are A Global Problem

		
Every Minute 500 workers are injured in work accidents, globally.	Every Day More than 1,000 workers die in work accidents, globally.	Every Week \$1.2B is paid out on Worker Compensation claims in the US alone.

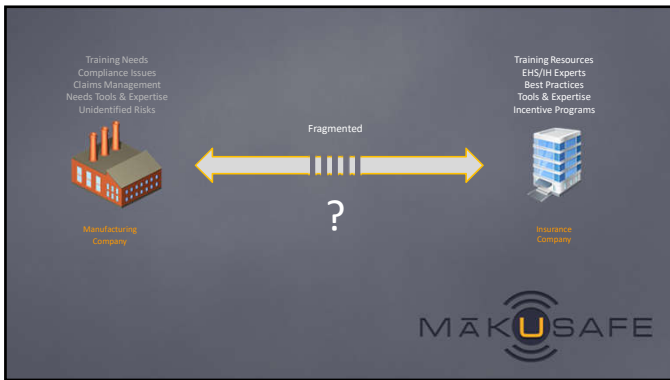
Scope of Problem¹

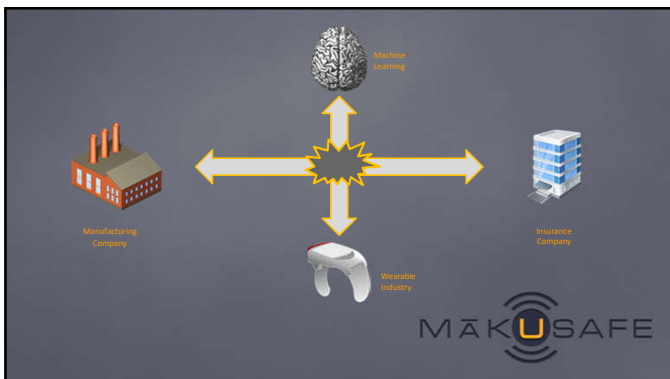
- Every 15 seconds, a worker dies from a work-related accident or disease.
- Every 15 seconds, 153 workers have a work-related accident.
- Every day, 6,300 people die as a result of occupational accidents or work-related diseases – more than 2.3 million deaths per year.
- 317 million accidents occur on the job annually; many of these resulting in extended absences from work.



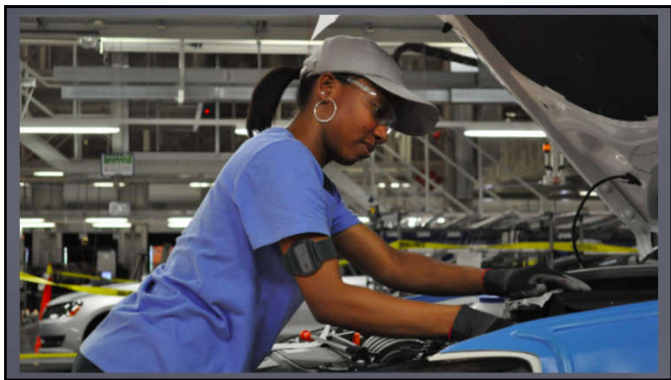
1 - <http://www.ilo.org/global/topics/safety-and-health-at-work/lang-de/index.htm>







- Overview of MakuSafe



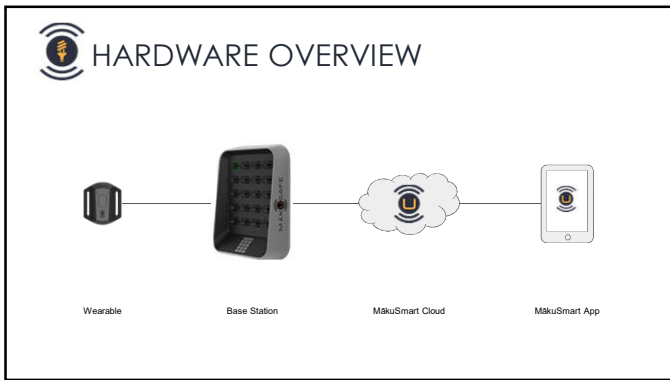


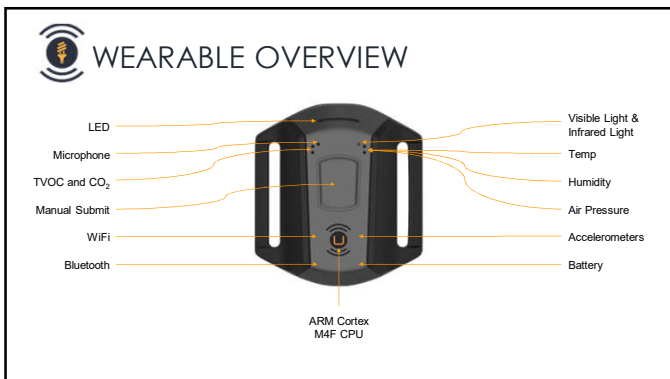
THE HARDWARE SOLUTION


The MākuSafe Wearable Device

- Constantly gather and transmit data from directly on the worker
- Tracks factors that impact worker health, safety and productivity
- Real-time alerts and notifications BEFORE a violation happens








 SOFTWARE OVERVIEW

The MākuSmart SaaS Platform

- Machine Learning identifies trends to reduce accident risks
- Connects insurance company resources with their insured
- Reduces paperwork and improves claims processes




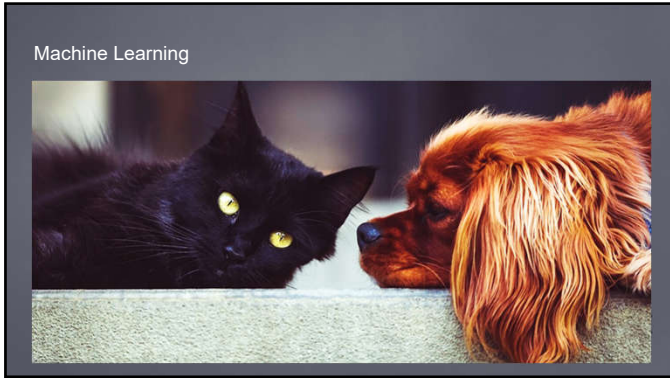
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- [MākuSafe Wearable MākuSmart Software Tour \(video link\)](#)



Machine Learning





Machine Learning

 A diagram illustrating a machine learning process. On the left, there are two stacks of data labeled 'Slip' and 'Trip'. These feed into a central box labeled 'Machine Learning Engine' which contains a brain icon. A dashed blue arrow points from the engine to a box on the right containing binary code. Below the engine, it says '96% Confident this data is a Slip'. The MAKUSAFE logo is at the bottom right.

Artificial Intelligence (AI)

Machine Learning

 A stylized icon of a human brain inside a rounded square frame.

2.5 Exabytes of data created each day

That's 250,000 Libraries of Congress each day

How do we make sense of this much data?

 The MAKUSAFE logo, featuring the word 'MAKUSAFE' with a stylized 'U' and a signal icon above it.

The Intersection

Environmental Data

- Temperature
- Humidity
- Air pressure
- Noise Levels
- Ambient Light Levels
- Air Quality (TVOC)

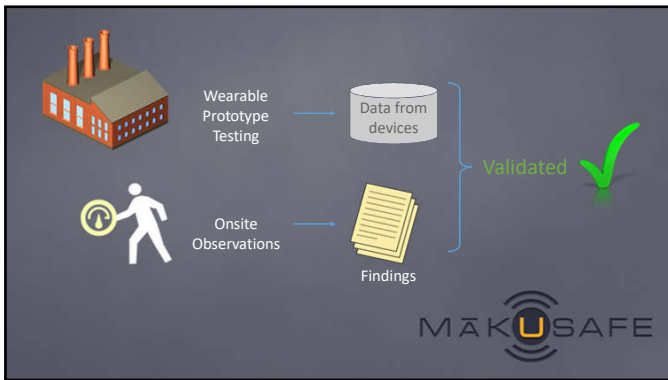
Motion Data

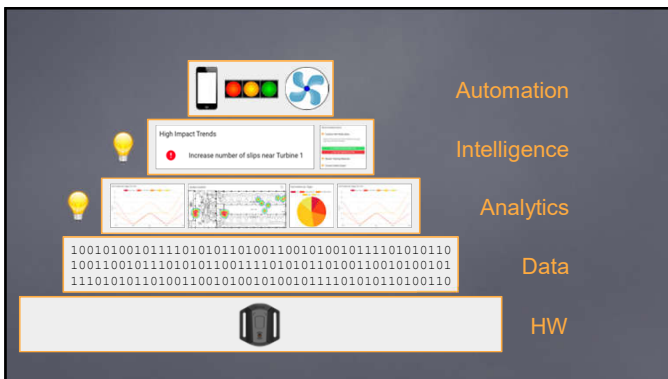
- Slips
- Trips
- Falls
- Other

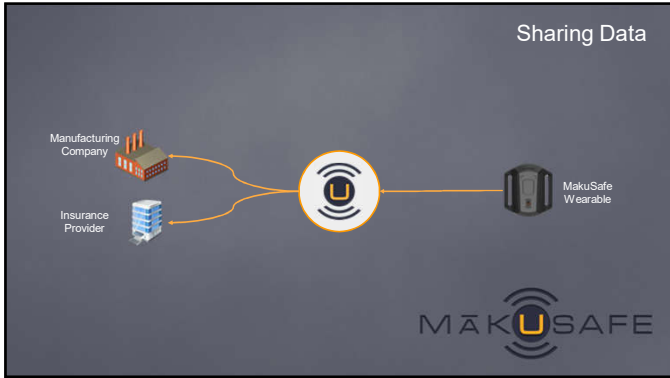
Location Data

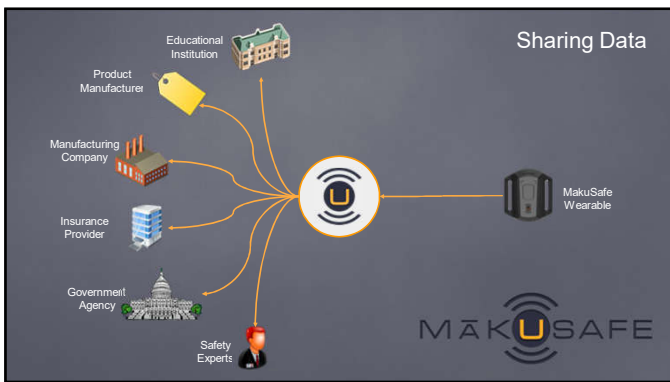
- Indoor Positioning
- Traffic Routes
- Geo-boundaries

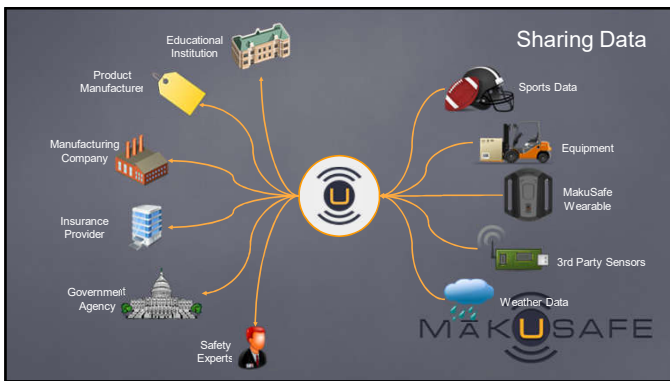


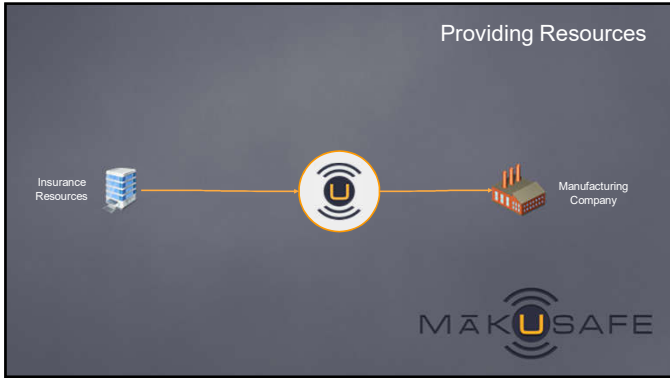


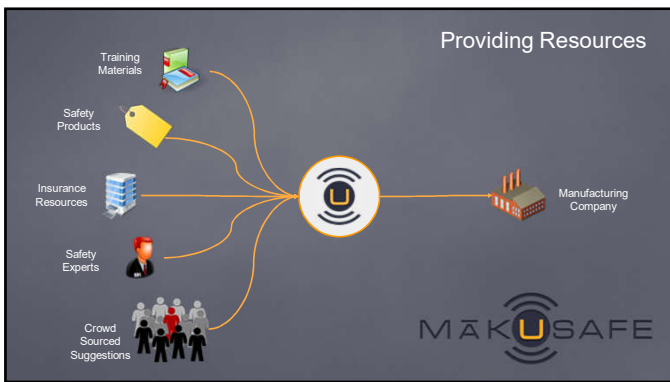












● **Special Considerations for Wearables**

Data, Data Everywhere

90% of the world's data has been created in the past 2 years

1 ZB (2010)	→ 4.4 ZB (2018)	→ 163 ZB (2025)
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We will have 10x as much data in 2 years as we did in 2013




Telematics Lessons:

- Early adopter insurers profits increase 2.5 to 3x (CIO)
- Evidence that driving habits change (IRC)
- Young drivers (17-19) car casualties decreased by more than a third since 2011(LNRS)
- Costs down 50% since 2013




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- Current Regulatory Environment

The New York State Senate
Senate Bill S6874
 2017-2018 Legislative Session
 Relates to prohibiting employers from microchipping employees

CDC Centers for Disease Control and Prevention
CDC.gov | Search

NIOSH Science Blog
Wearable Sensors: An Ethical Framework for Decision-Making
Posted January 26, 2017 by Angela Morone, Ed.MPH, Leah Emland, PhD, and Mark O. Hoover, PhD, LL.M., CH



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- Privacy Issues

- HIPAA Compliance
- Data Ownership
- Cyber/Security



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- Questions

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