



# A COMMITMENT TO SAFETY

ULD CARE 2022

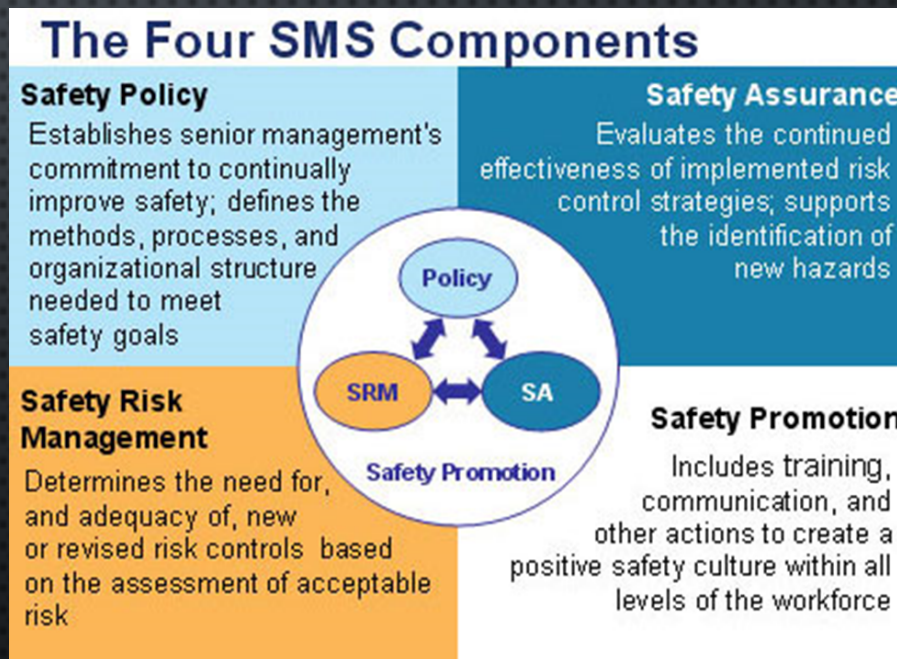
ATHENS, GREECE





# SAFETY MANAGEMENT SYSTEM (SMS)

- A FORMAL **TOP-DOWN** APPROACH TO MANAGING SAFETY RISK AND OVERSIGHT OF EFFECTIVE SAFETY RISK CONTROLS.
- SMS IS A STRUCTURED PROCESS THAT OBLIGATES ORGANIZATIONS TO MANAGE SAFETY WITH THE SAME LEVEL OF PRIORITY THAT OTHER CORE BUSINESS PROCESSES ARE MANAGED.
- ENCOMPASSES FOUR KEY COMPONENTS FOR THE MANAGEMENT OF RISK.
- BENEFITS
  - HEALTHY & HAPPY EMPLOYEES
  - IMPROVED PRODUCTION
  - FEWER MISTAKES, DAMAGES AND ACCIDENTS OCCUR



What is a real world example of SMS in action?



# INDUSTRY SAFETY RISKS

What does this  
Serviceability  
Inspection  
language mean?

*Proper use of cargo  
straps to secure  
cargo*

Does it matter  
that I can't find  
the TSO plate for  
this pallet?

I need a lashing  
line to finish  
netting this cargo,  
can you take one  
off that other net  
so I can use it?

Do we have to  
use an FCC to  
cover this freight?

Δεν μπορώ να  
διαβάσω αυτό το  
Εγχειρίδιο CMM!

Why does every  
airline have different  
procedures to do  
the same thing?

Why doesn't  
every ULD have  
an ODLN?

**Lithium Battery  
Transport**

Lack of proper  
training

**UNDECLARED  
Battery Shipments**

Can I use that net  
on this pallet?

Do I need to install  
shoring for this pallet  
build-up?







# THREAT OF LITHIUM BATTERY FIRES

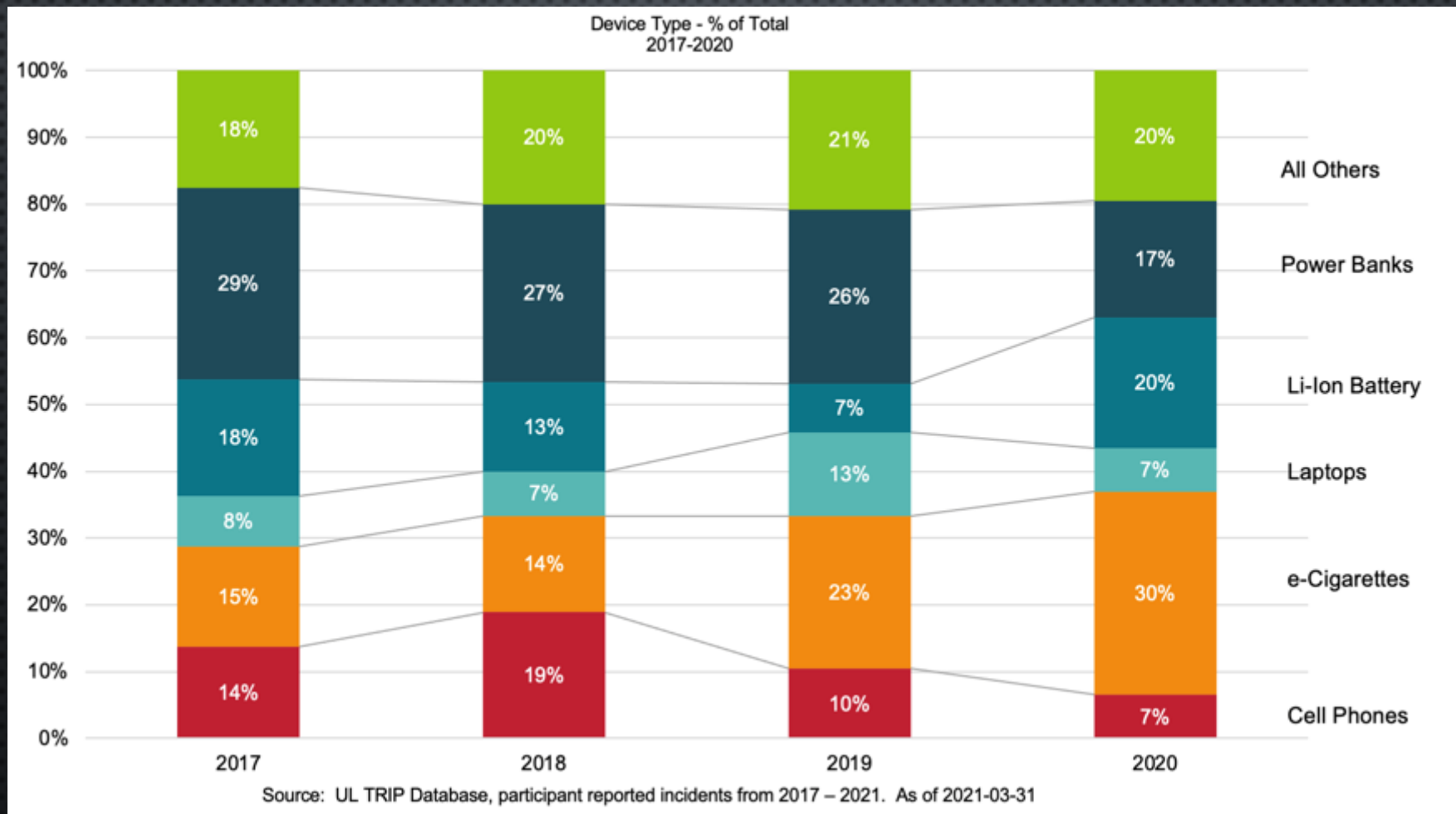
- BATTERY PRODUCTION INCREASING, THE TESLA EXAMPLE
  - TESLA GIGA FACTORY WILL PRODUCE 500K AUTO BATTERY PACKS AT 70% OF CURRENT COSTS
  - GIGA FACTORIES IN US, CHINA, GERMANY, JAPAN, SOUTH KOREA, UK, INDIA, CANADA
  - MORE BATTERIES WILL BE PRODUCED IN ONE GIGAFACTORY IN ONE YEAR THAN WERE PRODUCED WORLDWIDE IN 2013
- COUNTERFEIT BATTERIES IN THE MARKETPLACE
  - PROSECUTION FOR OFFENDING COUNTERFEIT PRODUCT MANUFACTURERS IS NECESSARY
  - IMPROVED DETECTION METHODS NEED TO BE DEVELOPED
  - HIGH THREAT OF LOW QUALITY MANUFACTURED BATTERIES MOVING AS UNDECLARED IN THE TRANSPORTATION SYSTEMS
- DISPOSABLE CONSUMER PRODUCTS (E-CIGARETTES) ARE AT HIGH RISK

Lithium batteries represent a tsunami of sustainable long term risk to the transportation segment





# THREAT OF LITHIUM BATTERY FIRES





# RISK MITIGATION STRATEGY

## STANDARD PATH

- DETERMINE MITIGATION STRATEGY
  - TRAINING ENHANCEMENTS
  - DEVELOPMENT OF NEW PROCEDURES
  - APPLY EXISTING TECHNOLOGY, AUTHORITY APPROVED
- INSTALL MITIGATION STRATEGY
  - DEPLOY UPDATED PROCESSES
  - CONDUCT TRAINING
- QUALITY OVERSIGHT THROUGH SAFETY ASSURANCE

## NON-STANDARD PATH

- CREATE NEW INNOVATION
  - ENGAGE A TEAM TO COLLABORATE FOR SOLUTIONS
  - DEVELOP NEW TECHNOLOGY AND STRATEGY
  - ENGAGE AND EDUCATE REGULATORY BODIES
  - DEVELOP THE STANDARDS FOR TESTING AND CERTIFICATION
- REGULATORY APPROVAL
- ASSUME "STANDARD PATH" TO DEPLOY

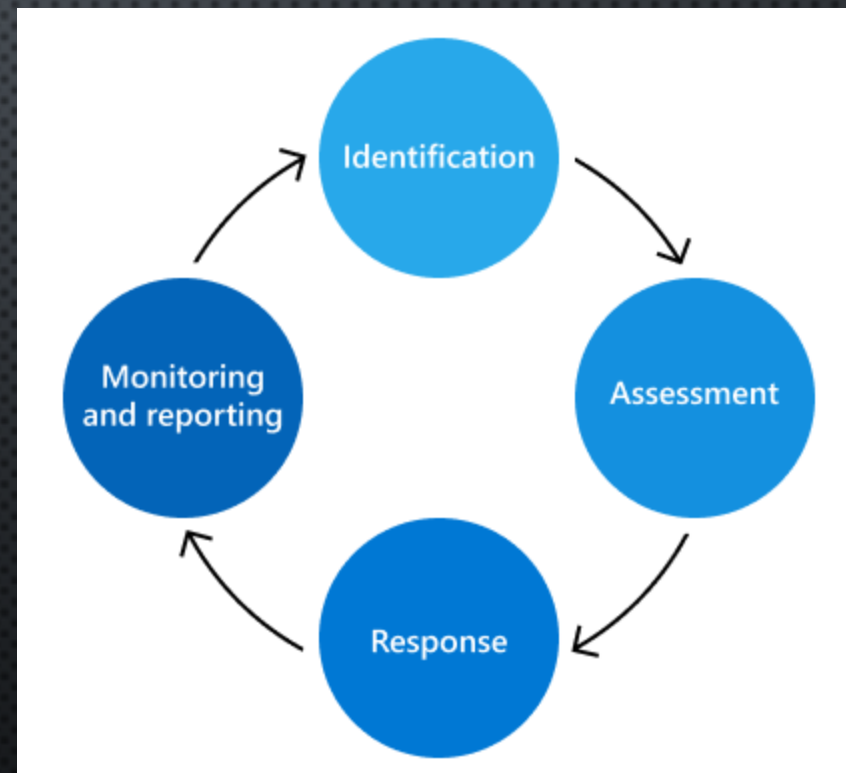
Non-standard solutions can take significant time to develop and deploy





# SAFETY ASSURANCE: ONGOING RISK SURVEILLANCE

THE INDUSTRY MUST DEVELOP A SAFETY REPORTING METHODOLOGY TO VOICE SAFETY CONCERNS







# UPS FIRE SAFETY PROGRAM

- INITIATION: SEPTEMBER 2010 UPS FLIGHT 6 CRASH & FOLLOW-UP INVESTIGATION
- GOAL: INCREASE TIME DURING AN EVENT TO EFFECT A SAFE LANDING
- KEY FOCUS: LI-BATTERY FIRE EVENTS
- STRATEGY: CREATE A MULTI-LEVEL LAYERED APPROACH TO IMPROVED FLIGHT SAFETY
  
- TO DATE ACCOMPLISHMENTS ON THE CARGO DECK:
  - 2012: PROTOTYPE FRC ULDs DELIVERED FOR OPERATIONAL TESTING
  - 2013: INSTALLED PROTOTYPE FIRE CONTAINMENT COVERS (FCC) INTO ACTIVE SERVICE
  - 2014: TSO-C203 "FIRE CONTAINMENT COVERS" PUBLISHED
  - 2021: TSO-C90E "FIRE RESISTANT CONTAINER" PUBLISHED
  - 2022 FIRE RESISTANT CONTAINER INVENTORY IS +43,000 UNITS IN ACTIVE SERVICE.

None of this happened without collaboration and teamwork





# SAFETY IS COLLABORATION

- UPS - SATCO - MACRO: FEASIBILITY COLLABORATION
  - COLLABORATE POTENTIAL DESIGNS
  - DEVELOPED PROTOTYPE
  - INITIAL FR PERFORMANCE TESTING
  - FRC OPERATIONAL LIMITATIONS, SYSTEM EFFECTIVENESS
- ADDED FAA AND SAE/ISO:
  - COLLABORATION ON DESIGN & TESTING
  - COLLABORATION ON OPERATIONAL DEPLOYMENT
  - INDUSTRY STANDARDS DEVELOPMENT
- FAA: PUBLISHED TSO C90E



A true SMS program requires a strong commitment and dedication

These FRC & FCC programs took dedication to yield new safety tools for the aviation industry





“To address this mistake we must use root-cause analysis. I’ll begin by saying it’s not my fault.”