

Johnson & Johnson



How Digitalization is Redefining Workplace Safety

EHS Executive Huddle
June 8th, 2021

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Agenda

- ① **Our Scope**

- ② **Innovative solutions to drive improvements**

- ③ **Emerging Technologies through workforce**

- ④ **Shaping the future of EHS**

- ⑤ **Q&A**

Our Scope

450
dedicated EHS
professionals

125,000
employees



230
operating
companies



60
countries



600
stand-alone
offices



110
manufacturing
locations



700
external
manufacturers



78,000
suppliers



400,000
products or
product variants



350
warehouses



34,000
fleet vehicles



230,000
customers

1 Billion
people our products
touch each day

*All data points are approximate



EHS Innovation Vision and Mission



Vision

Change the trajectory of health for humanity.



Mission

Accelerating EHS's journey to ensure our **People & Places** we live, work, and sell our products are safe and healthy through **innovation**

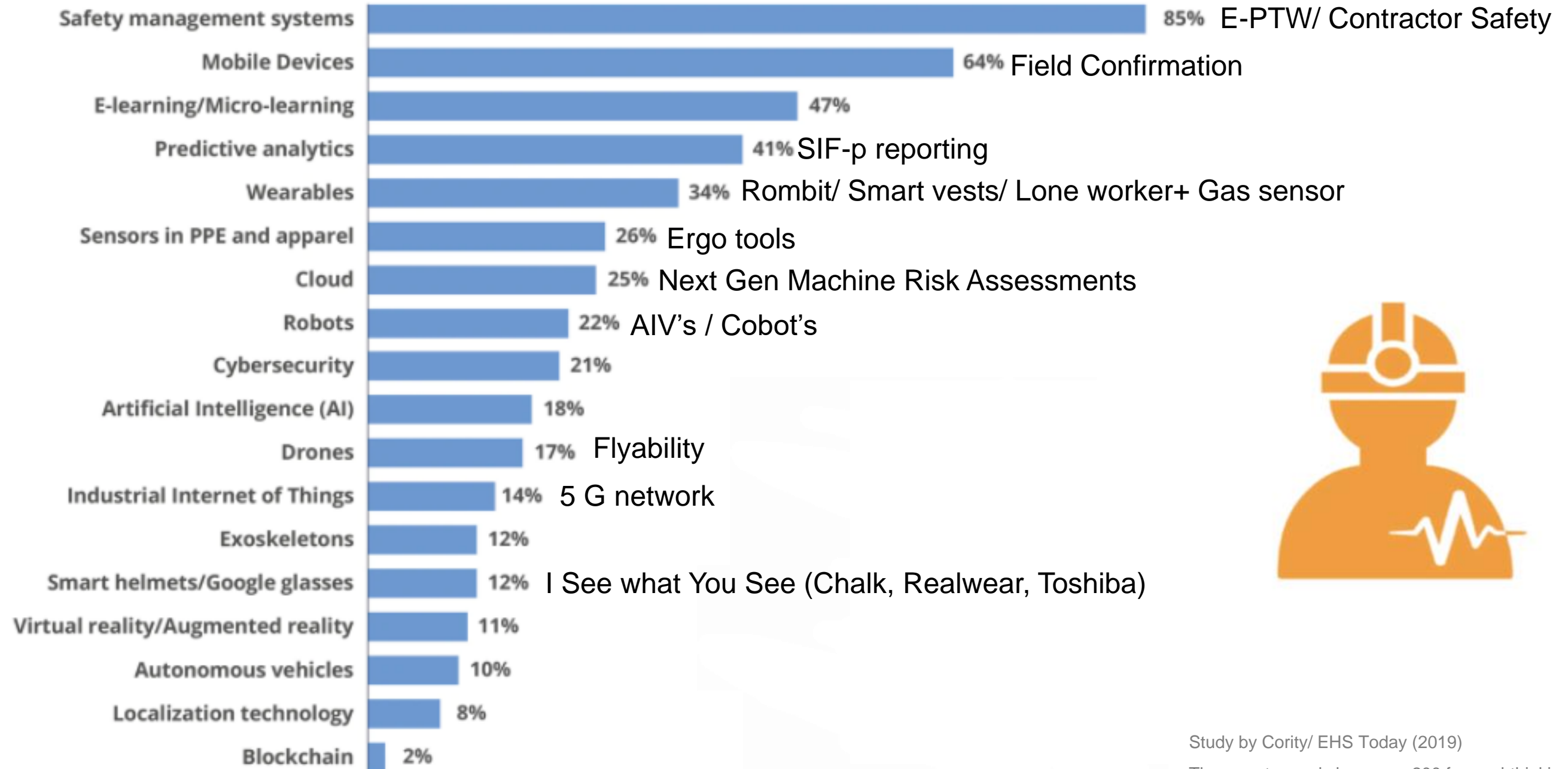


Build differentiating EHS Capabilities

- EHS as an Efficient & Effective Service
- Agile and Flexible EHS
- Responsive and Resilient EHS

EHS Embraces the Technology Revolution

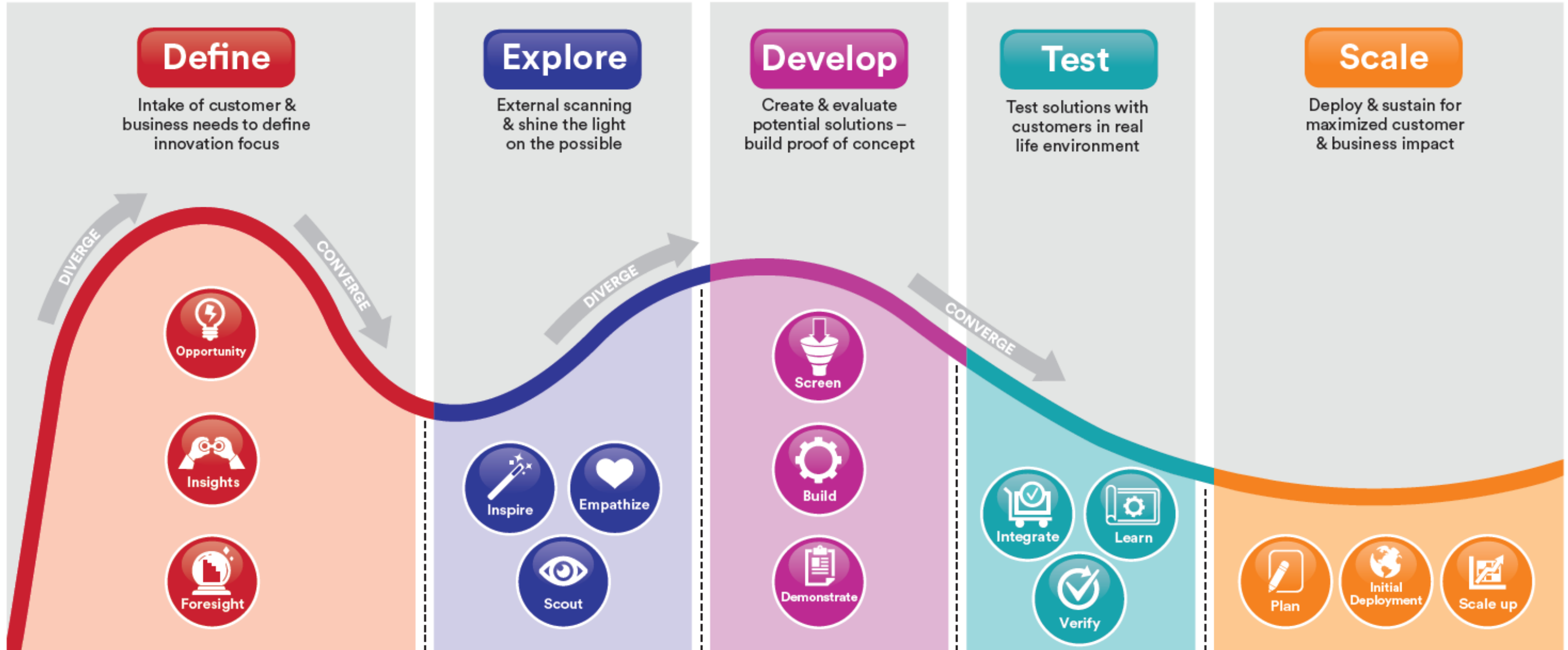
Which safety technologies are considered most relevant to a company's operations?



Study by Cority/ EHS Today (2019)

The report reveals how over 200 forward-thinking EHS professionals are leveraging technology to mitigate risk, reduce incidents, and improve outcomes.

Overall EHS Innovation Framework



Our EHS Innovation Operating Model

EHS Innovation Engine/ Process



EHS Innovation Council

Governance & Decision Making



Safety SME (Flavio), Env SME, Regional EHS AsPac, EMEA, America's, Alexis Meredith, Deliver, AdvTech

Operating Model & Tools – SC Innovation Playbook

Execution Eco-system

Hotspots for innovation spotting

EHS Ops (e.g. MFF, Lighthouse sites), Safety COE (ORC, PSG, NETS etc.), Leader benchmarking/scouting, EHS Excellence Awards, SC Innovation Team (SME support), Engineering Council

All sites

Scale/deploy

Capability Labs

Small scale one-off test/demo at specific site/location

Test & Learn

Test & Learn sprints, build & deploy - execution teams

Inspire Innovation

- Reward & Recognize (EHS Excellence Awards/Inspire)
- Innovation Hour Bi-monthly – communicate progress, success & opportunities to participate
- Catalogue of innovations by discipline (e.g PIV-telematics, lone work – sensors etc...)
- Inspire (e.g. Crowd sourcing challenge - Hype, Fast Track ideas platforms, Reward/Inspire new ideas/T&L (success & fail))
- Early-stage innovation funding based on learnings and the potential to disrupt

Some examples

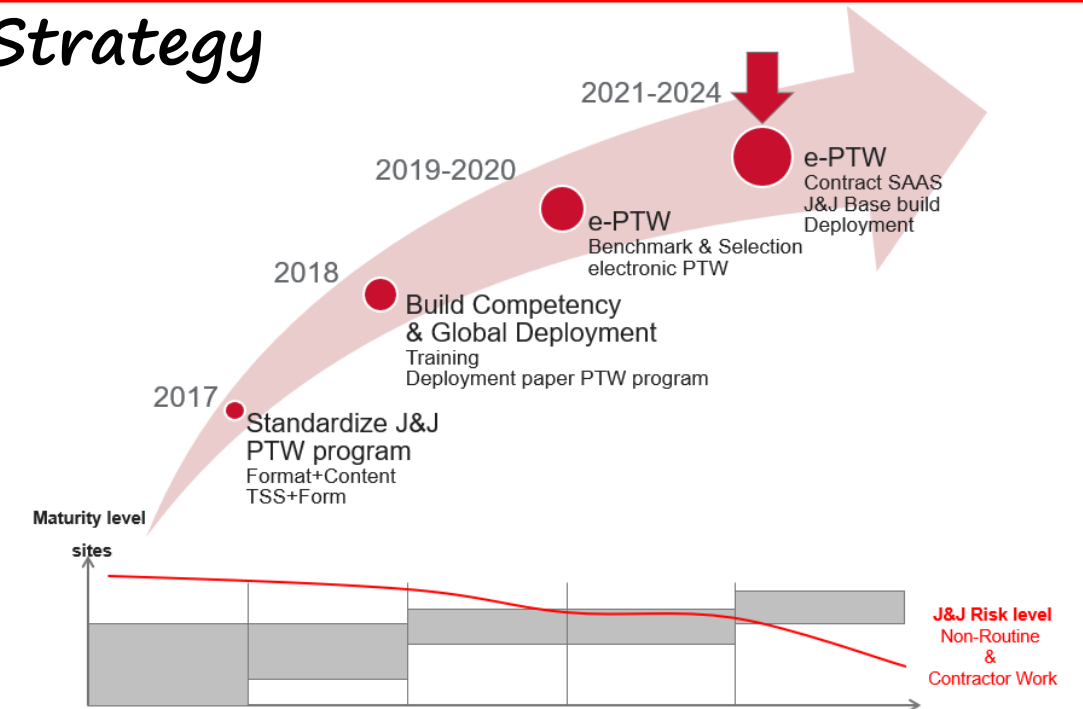
Applying Innovative solutions to drive continuous improvement of operational EHS management systems.

Business Case Summary: Electronic Work Permit development & deployment

Current

- Paper based and manual Permit to Work program (PTW) since 2018 resulting in +/- 215k (paper) work permits a year.
- Limitations are reached when managing large number of permits:
 - Process becomes complex, labor intensive and vulnerable to human error
 - Resulting in non-compliance; PTW as system cause of SIF(-P)
 - High cost with negative impact on productivity / hands on tool time.
- Paper permits prevent:
 - Efficient and effective data analytics & auditing
 - Data usage in business partners Digital Strategy

Strategy



Project Synopsis

- Improve safety & compliance while reducing operational cost by deploying an electronic PTW program.
- **Business driver: Safety**
 - 35% Reduction of PTW being a root or system cause of incidents (Sif or Sif-P).
 - Reduce human error impact by software system and simplification.
 - Improve conflict management and visualization.
- **Business driver: Operational excellence**
 - 50% lead time of permit preparation and approval reduction (+/-157k hours / year).
 - Improved data integrity through a software system.
 - Supports Business and Enabling Partners digitization strategy.

Financial Summary

Project	e-Permit to Work
Project length	4 Years
Scope	76 HS Make sites
NPV	\$2.4MM
IRR	14%

Safety and Compliance Benefits

Safety and Compliance Benefits

Summary J&J and Pfizer benchmark data:

- 35% of the J&J SIF(-P) are related to PTW/RA
(SIF-P Curve data EHS 2020, 134 out of 381 SIF-p's)
- ePTW reduces avg -30% (up to -94%) PTW related SIF-Ps
(data : eVision avg customer -30%; Pfizer Cork: -94%)
- ePTW will improve the Compliance level significantly
(+164% based on 3 J&J pilots)
(data : J&J sites applying ePTW : Cork Chem, Cork Bio , Leiden Bio)



Safer Control of Work

Reduced number of permit related safety incidents at pilot sites



Improved Conflict Management & Visualization

Resolves issues where more than one permitting authority can issue permits in the same area.



Improved Safety Culture

Quickly identifies poor behavior, incomplete permits
Clear stage gates for roles and responsibilities



Data Integrity

No illegible, incomplete permits or missing signatures because of system rules



Common Way of Working

Solution flexible enough to support different types of manufacturing operations e.g. API, Biotech in compliance with global EHS and Engineering standards.

Some examples

Learning how to adopt and utilize emerging technologies through your workforce.

Innovation Award

Chance to showcase innovative EHS ideas adding business value & reducing risk exposure

Submit

- Simple application (1–2 slides) => Template

Evaluate

- Innovation Forum
- Top 5 by Region => Interview/ Presentation
- 3 Winners (Gold/ Silver, Bronze) By Region (ASPAC, NA, LATAM, EMEA)
- Overall global Winner (Gold/ Silver, Bronze)

Reward & Recognize

- Team members => Inspire awards
- Projects
- Evaluated for Test & Scale => Innovation Forum
- Presented at EHS council/ GM/PM call/ Eng. Council ...



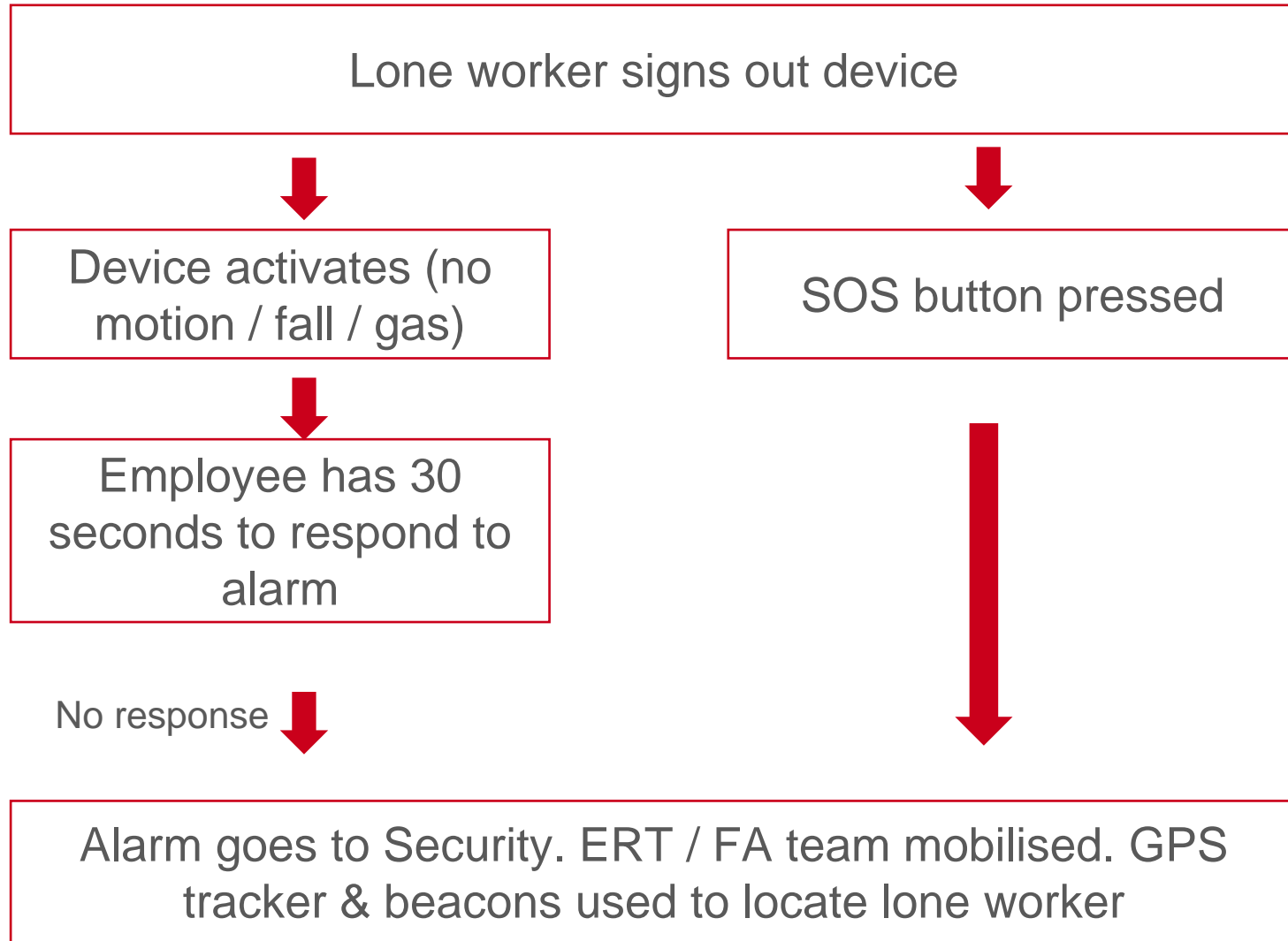
Lone Worker Monitoring



- Two of our sites did a T&L with the “Blackline Safety G7” system for lone working (Often described as man down)
- Features
 - Wearable, personal safety device
 - Gas detection / no motion / fall detection / SOS alert
 - 2 way communication
 - GPS location tracking, supplemented with location beacons
 - 24/7 monitoring
 - ATEX certified



High Level Process Flow



Old vs New Comparison

Radio -Lone Worker

- Bulky unit
- Tilt switch for fall detection – crude
- No –no motion detection
- No emergency call button
- Volume can be adjusted – down/ off
- No GPS / area location (worker must advise location- may move)
- No vibration / flashing lights /low bleep
- Manual book out/in system

Blackline -Lone worker

- Compact unit
- Programmable smart fall detection (0-100%)
- Programmable No motion detection (Time and Movement)
- Red SOS latch button
- No volume adjustment – hold on/off button for 3 seconds – can disable if required.
- External – 5m GPS location / Internal Beacon – room/area – google map – site drawings
- Vibration / Multiple flashing lights / loud alarm

Blackline -Lone worker

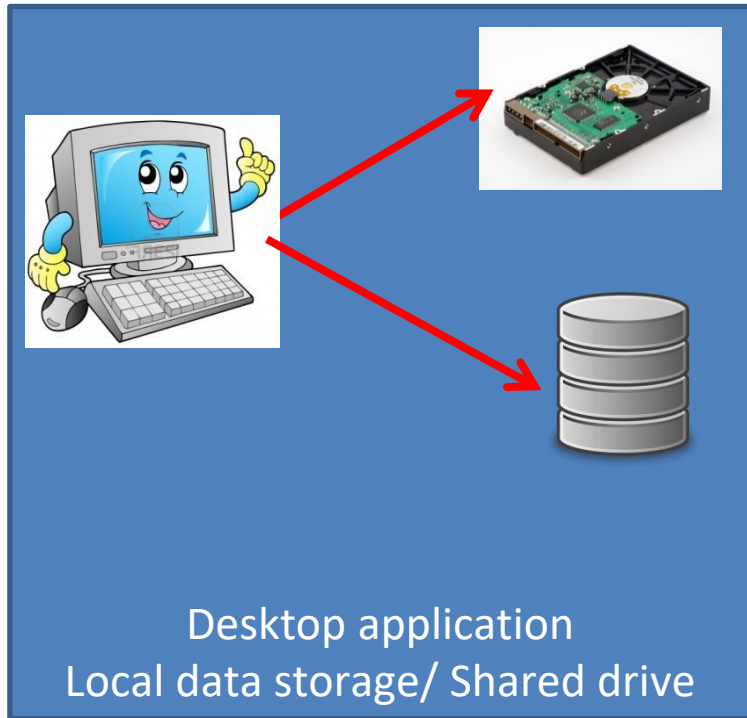
- Cloud based interphase – units logged in/out electronically.
- Multiple responders /users
- Supervisory monitoring – text/e-mail alert
- “Silent SOS Alert” programmable
- Gas Detection – remote monitoring /
- Dashboard – fleet health (Compliant/ Action required tracking)
- Alarms – actions tracked – time to respond, action taken, voice call recording
- Text individual user or all users

Some examples

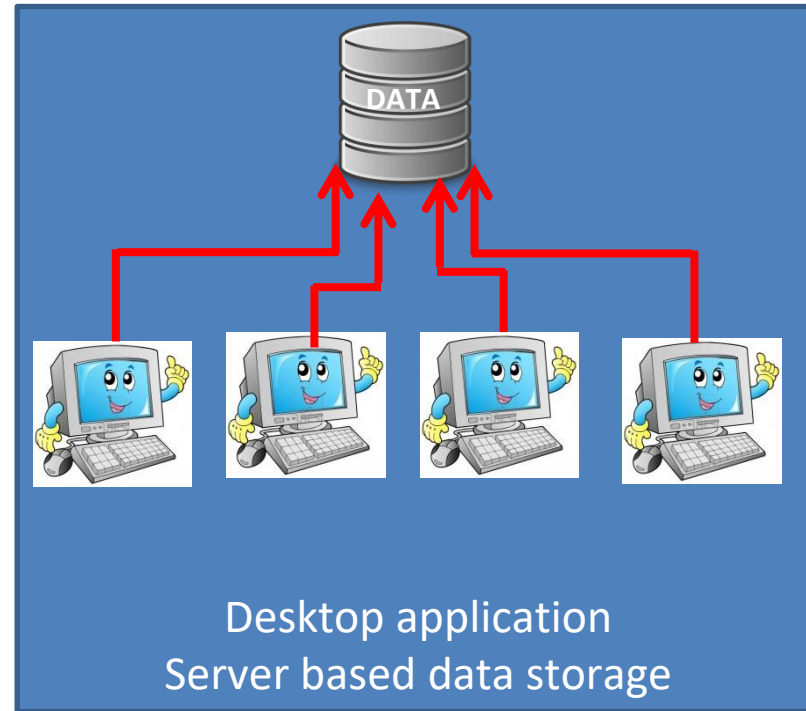
Which new technologies help to shape the future of EHS through a variety of ways such as training, web-based platforms, wearable technology and changing metrics

Machine Safety Risk Assessment

Past state



Current state



Future state



+/- 25,000 machines
+/- 2 MM datapoints



YTD % impl. VS YE2020 baseline by Site Name



YTD % impl. VS YE2020 baseline

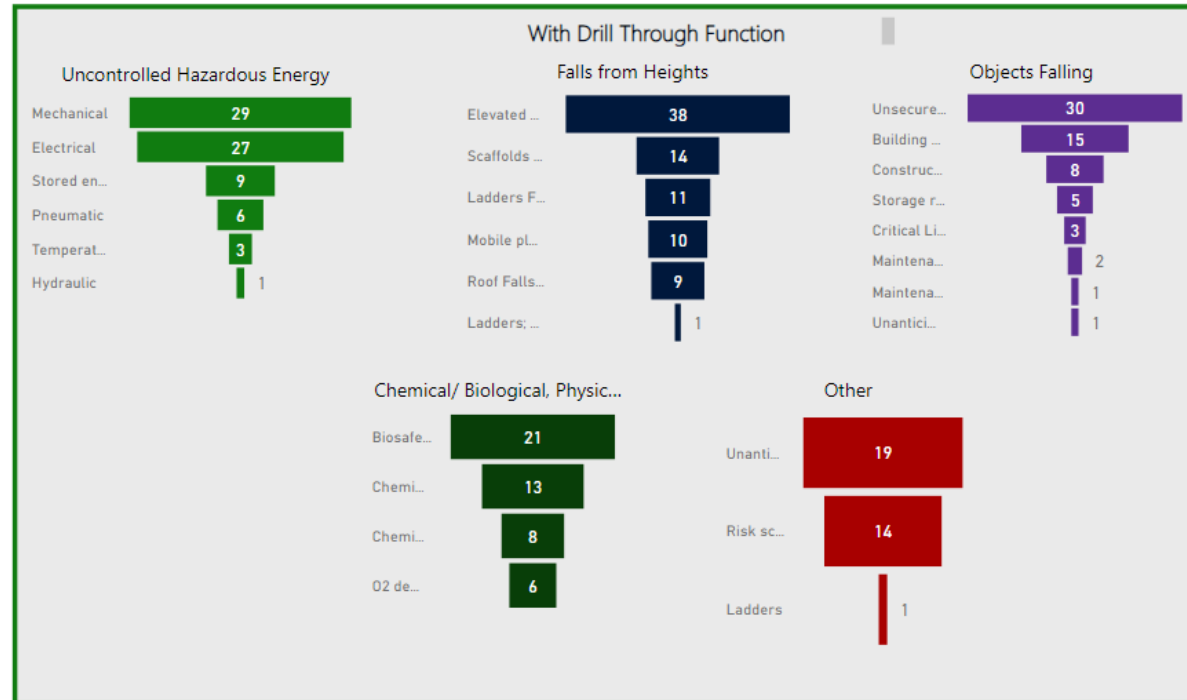
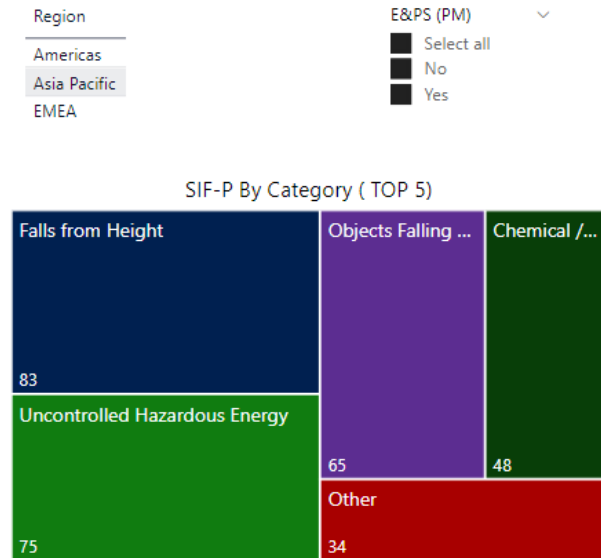


Production Line	Manufacturer	Type	LeftTodo of 2020 base
COTONETES	J&J CONSUMER	EURO 19 - EURO 19	1
Todas	WINKLER-DUNNEBIER	01.Fabricadora, Tripliega y Agrupadora_WD 670.01	4
Todas	DIATEC	01.Fabricadora_DIATEC DIANA PL	12
Todas	FAMMECANICA	01.Fabricadora_FAMMECANICA	14
Todas	OPTIMA	02.Empacadora	3
Todas	FAMMECANICA	02.Tripliega_FAMMECANICA	12
Todas	DIATEC	02.Tripliega_ZUIKO PK780J	6
Todas	FAMMECANICA	03.Agrupadora_FAMMECANICA ROB 3	11
Todas	OPTIMA	03.Agrupadora_OPTIMA ES3	6
Todas	OPTIMA	04.Empacadora_OPTIMA LBT2	5
Todas	FAMMECANICA	04.Fabricadora de bolsa_FAMMECANICA	7
Todas	FAMMECANICA	05.Empacadora_FAMMECANICA ACE	8
N/A	See comments	11&J_Premia T1	1
Mixer Brickhantering T1	See "Comments"	11&J_Mixer Brickhantering T1	2
N/A	See "Comments"	11&J_Molinsak T1	1
Total			2017

FinalQuestion	LeftTodo of 2020 base
ZAG V3 3.14 Is the safety control system wired fail-to-safe (where appropriate cat 3 or 4)?	302
ZAG V3 2.4 Is the current guarding adequate and does it protect the operator from hazards while allowing safe access to perform operational tasks and maintain competitive production efficiency?	195
ZAG V3 2.7 Does the guarding provide adequate protection from the danger zone (top or bottom access, ladders or steps in the immediate area)?	159
ZAG V3 2.2 Are moveable or operator accessible fixed guards fitted with positive acting interlocks or coded magnet where appropriate that are safety rated and of suitable robust industrial construction?	90
ZAG V3 3.11 Do the Emergency stops function correctly and are not wired through a single channel PLC?	81
ZAG V3 3.12 Are Emergency stops wired as per J&J Electrical Category Risk Assessment (1, 3 or 4)?	81
ZAG V3 5.2 Is all stored energy removed where necessary (hydraulic/pneumatic, other)?	63
ZAG V3 2.9 Can loading of raw materials and unloading of finished product be carried out safely?	58
ZAG V3 3.15 Are the used safety interlocks wired as per J&J Policy (Safety rated with positive acting key type switches or coded magnets with multiple channel channels and monitoring)	57
ZAG V3 2.1 Are fixed guards securely held in place with fixings (fasteners) which require special tools	52
Total	2017

Changing Metrics

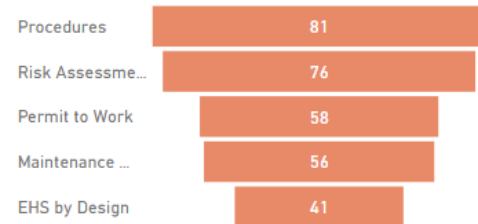
- From Lagging to Leading indicators (SIF-p)



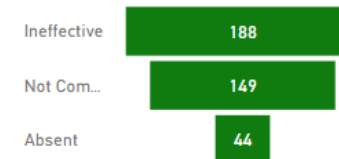
Using NLP to create models to predict if a reported event meets SIF-p criteria

Primary Management System	Failure Mode		
	Absent	Ineffective	Not Complied With
Audit & inspections	1	3	
CAPA management	1	7	3
Competency	3	16	9
EHS by Design	4	33	4
Maintenance Program	13	35	8
Management of Change	1	7	3
Permit to Work	7	16	35
Procedures	4	25	52
Risk Assessment	10	41	25
Roles & Responsibilities		5	10
Total	44	188	149

Top 5 by Primary Management System



Top 5 by Failure Mode



Q&A

Thank you.



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