HIMA Safety & Security

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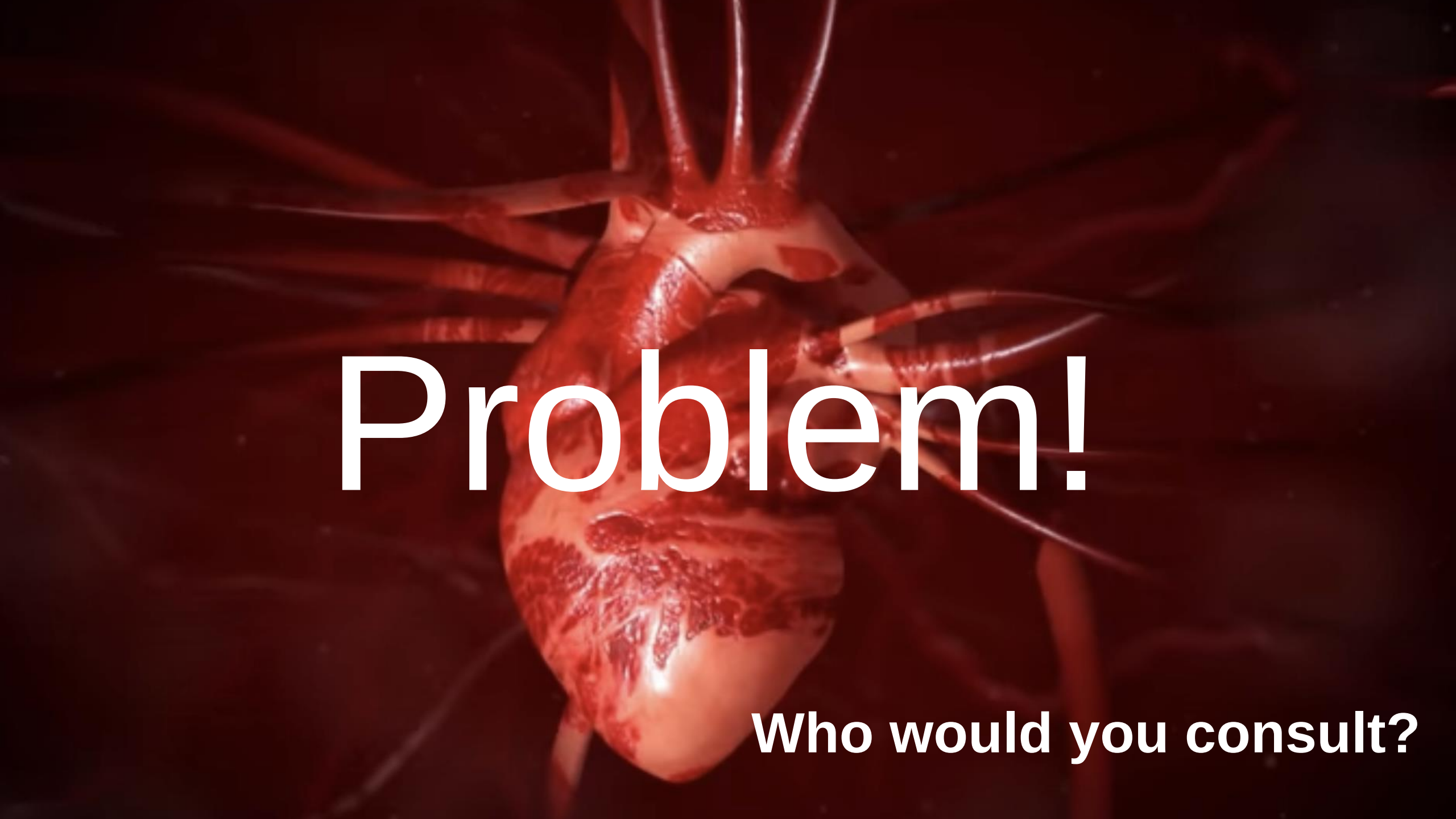
Sales Director Europe

HIMA

SMART SAFETY.

#safetygoesdigital

IEC61511 No safety without cyber security


Problem!
Who would you consult?

Who would you consult?

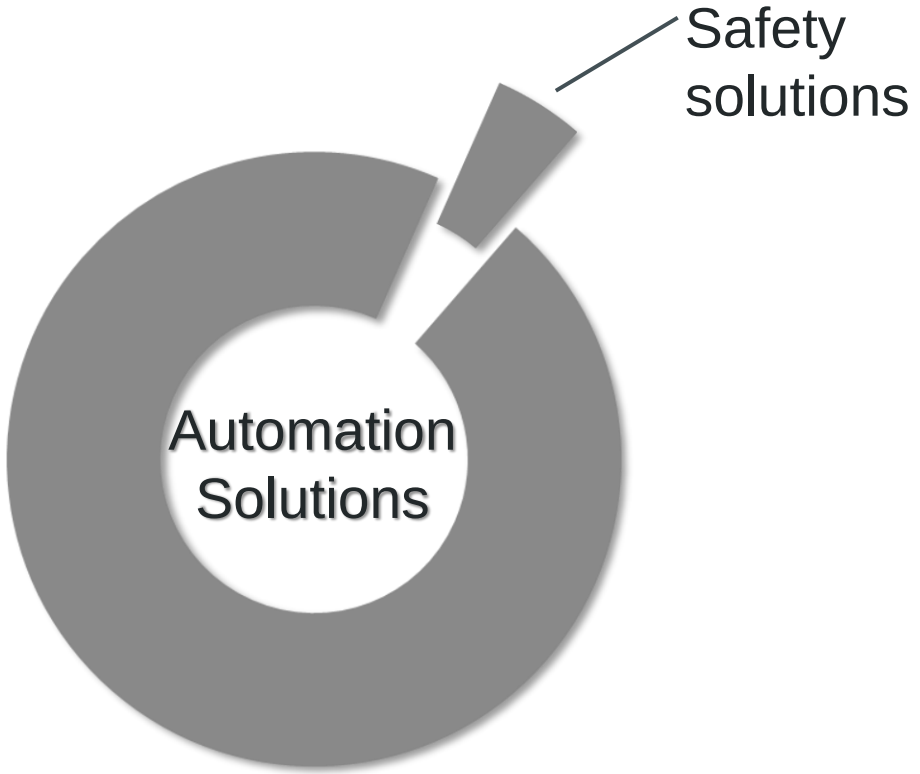
Pharmacy

General practitioner

Expert: Cardiologist

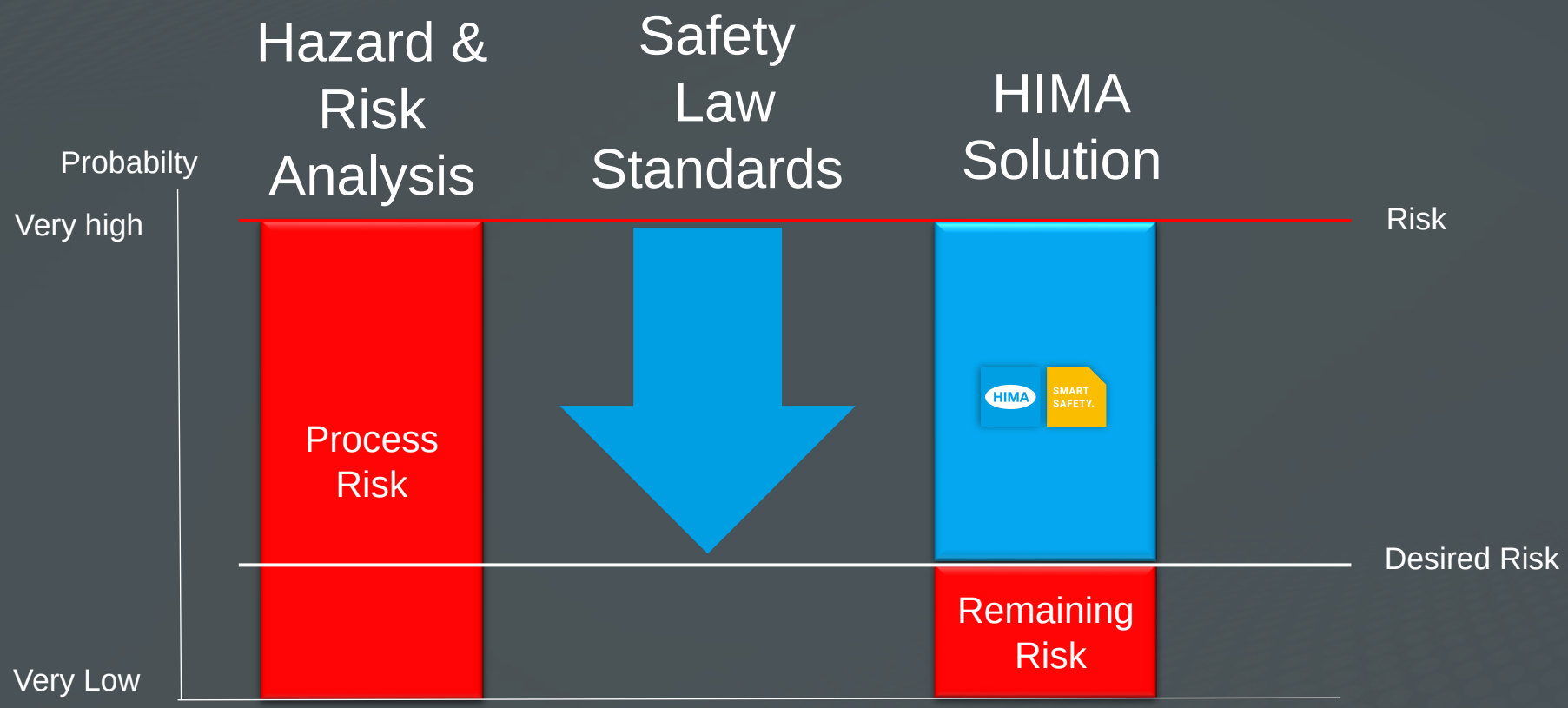
What makes HIMA unique?

Safety is our DNA



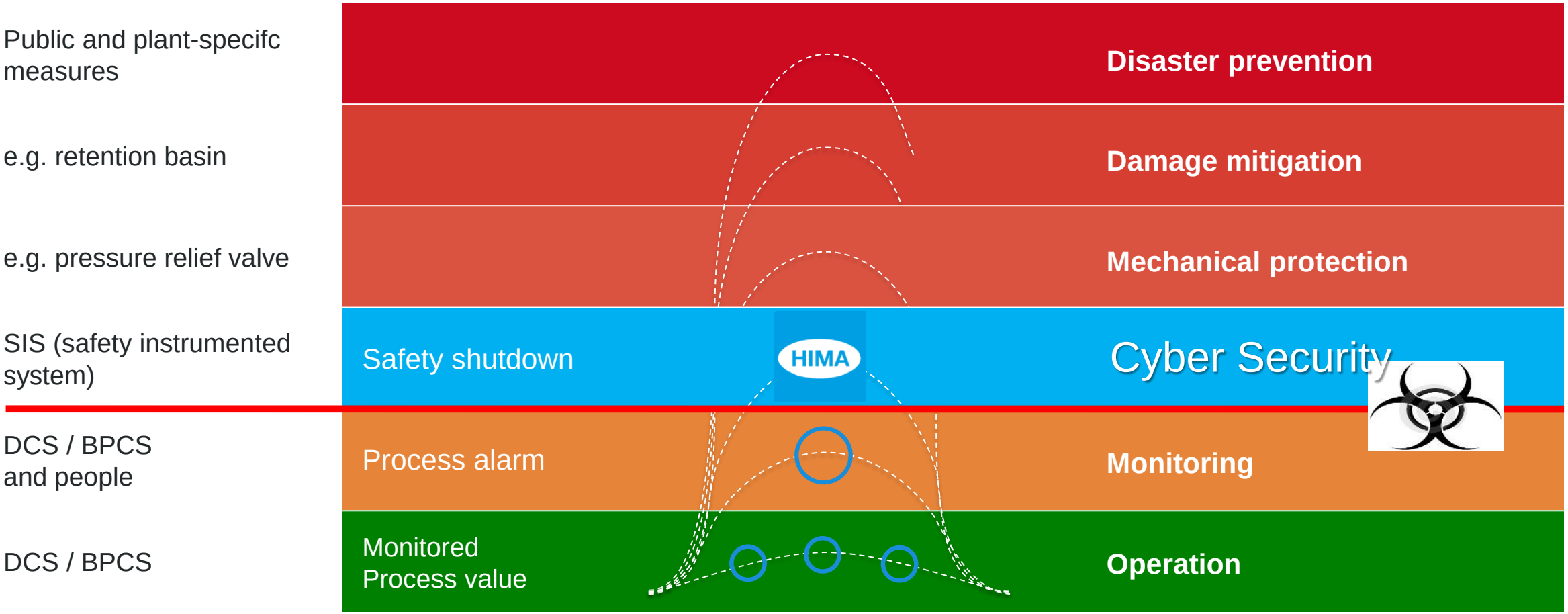
HIMA understands Safety better than any other company

HIMA: The leading Expert in Safety Solutions



HIMA helps to reduce the risk in your process with an independent layer

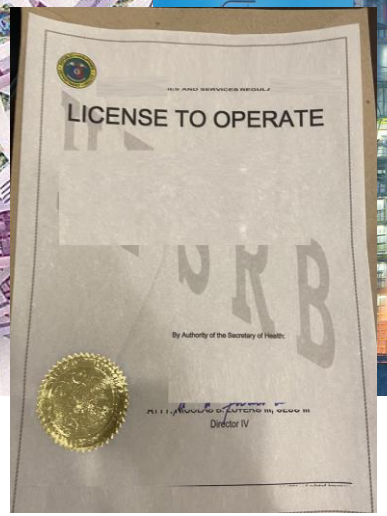
Layers of protection



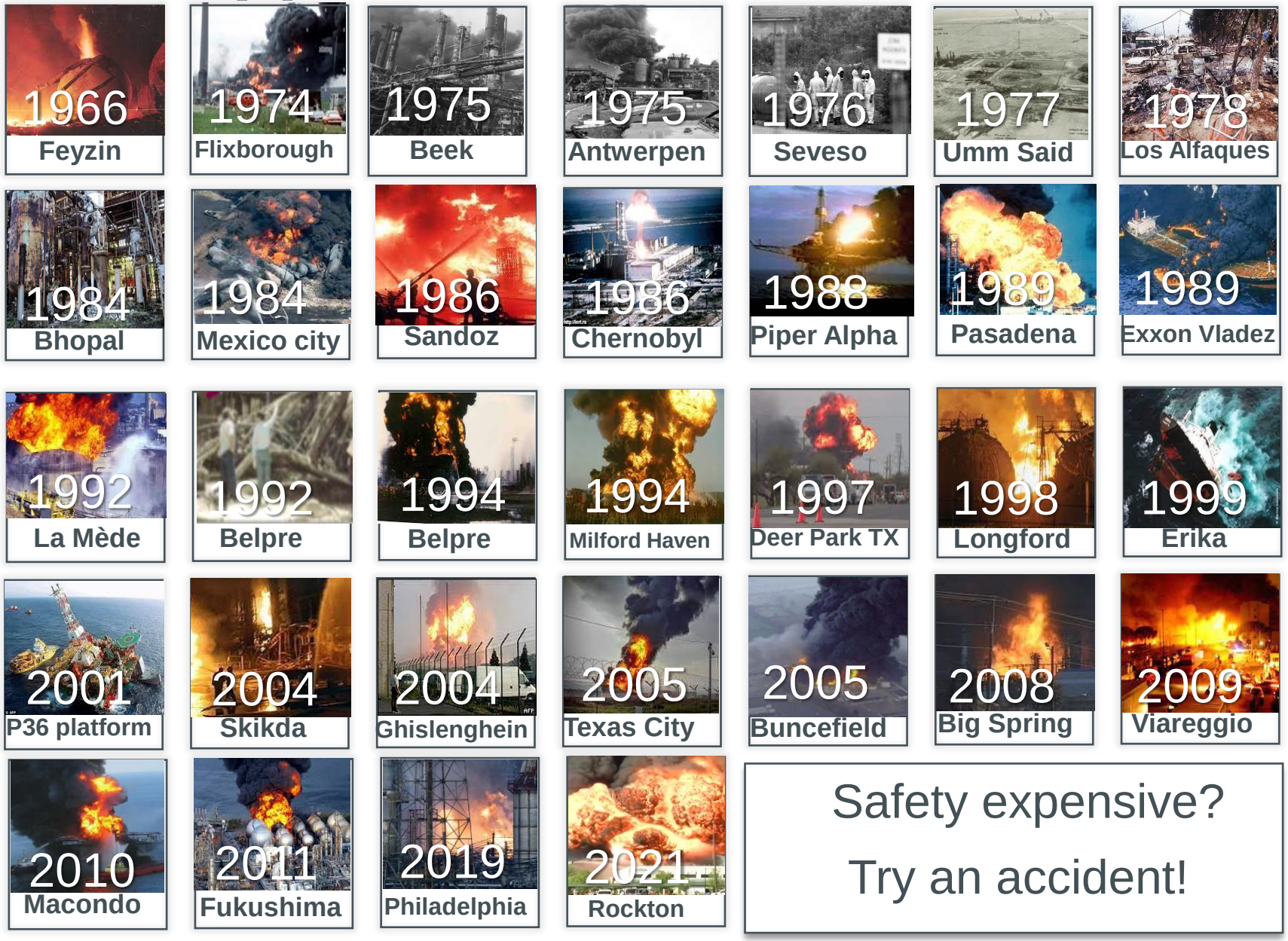
Investment

New plant

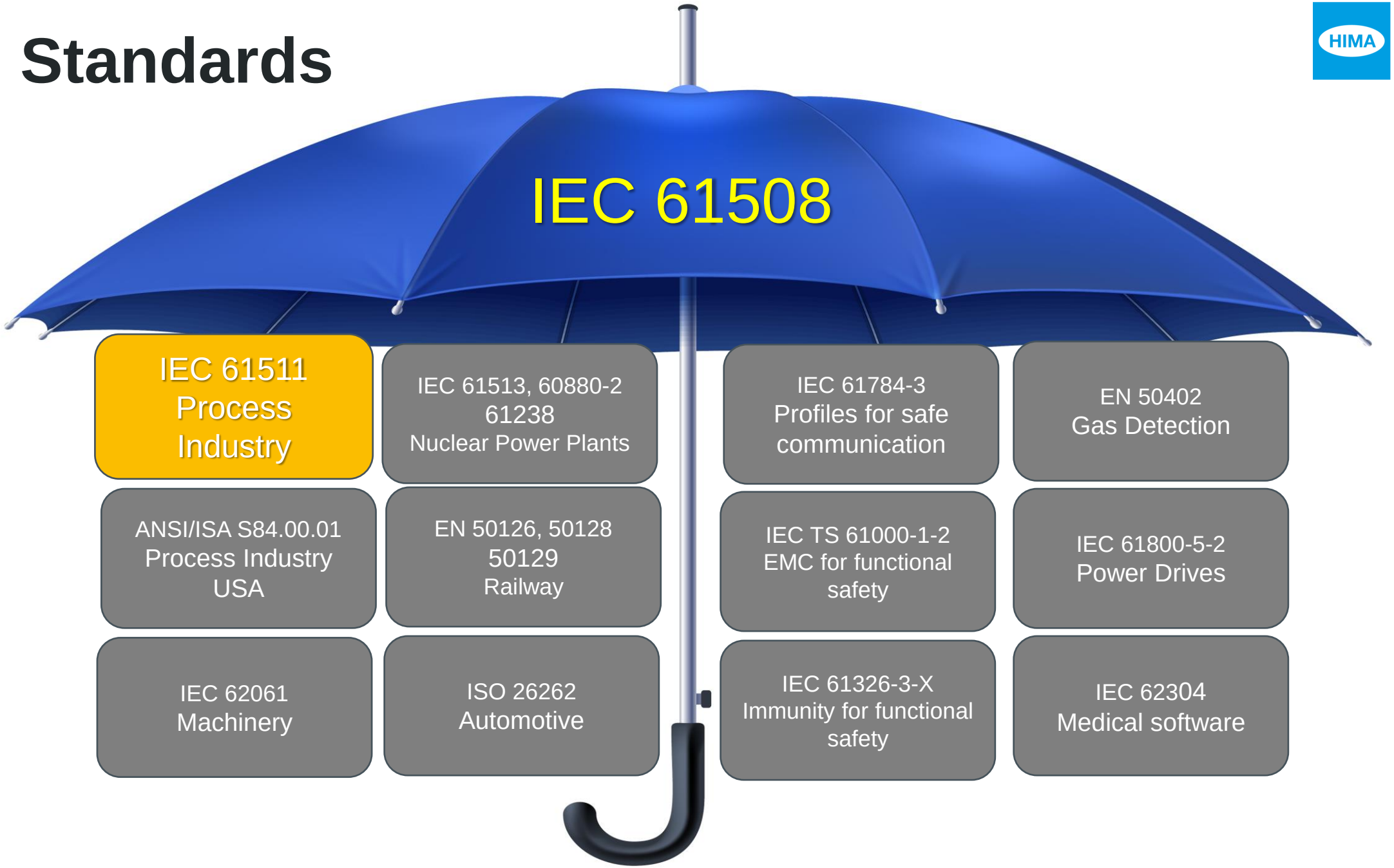
What about Safety?



Accidents happen?



Standards


IEC 61508
IEC 61511
Process
Industry
IEC 61513, 60880-2
61238
Nuclear Power Plants
IEC 61784-3
Profiles for safe
communication
EN 50402
Gas Detection
ANSI/ISA S84.00.01
Process Industry
USA
EN 50126, 50128
50129
Railway
IEC TS 61000-1-2
EMC for functional
safety
IEC 61800-5-2
Power Drives
IEC 62061
Machinery
ISO 26262
Automotive
IEC 61326-3-X
Immunity for functional
safety
IEC 62304
Medical software

Safety standard: IEC 61511 Ed.2

Control system (DCS)

Safety system (SIS)

The Safety System shall be separate and independent

Safety standard: IEC 61511 Ed.2

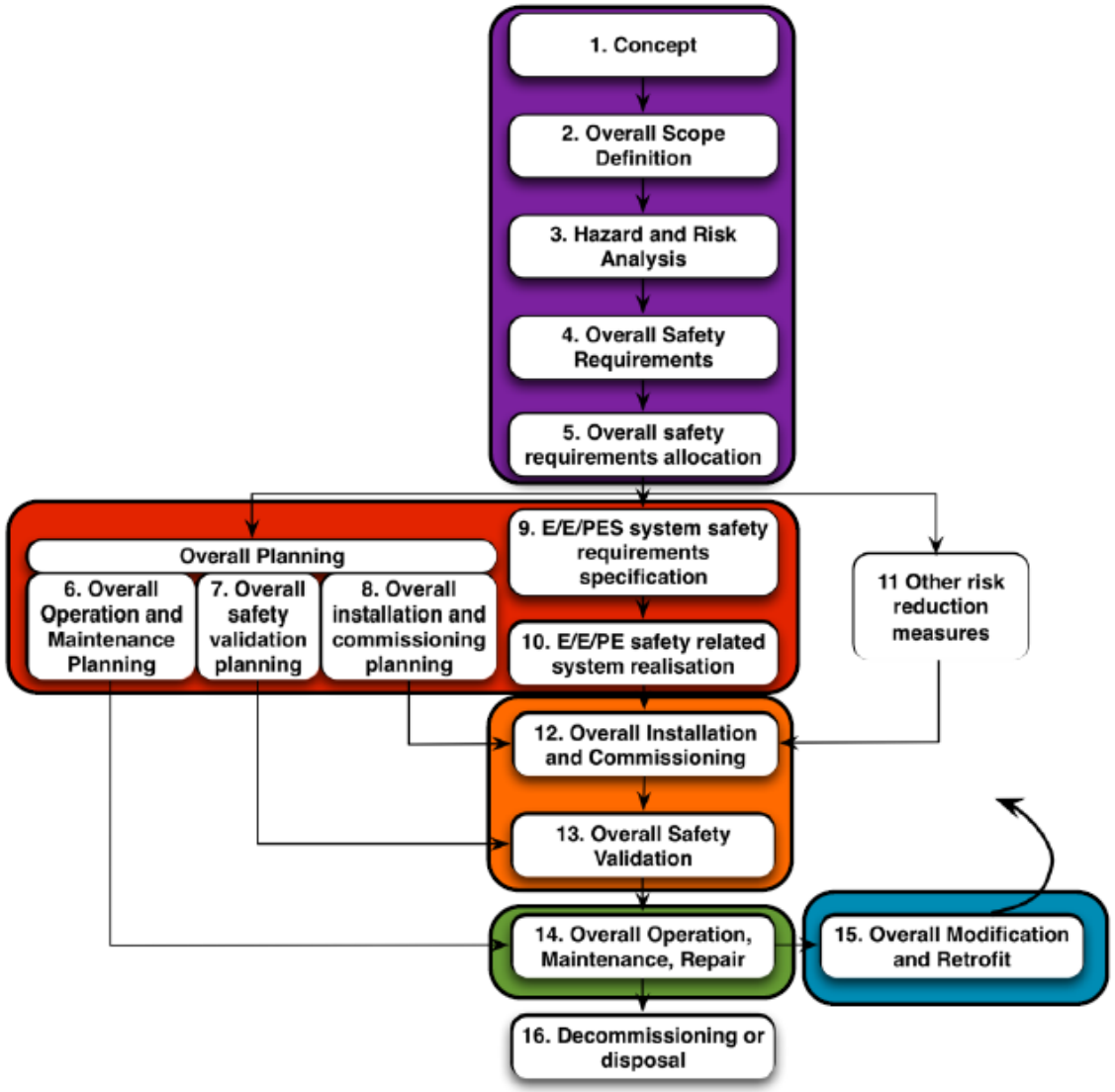
Control system (DCS)

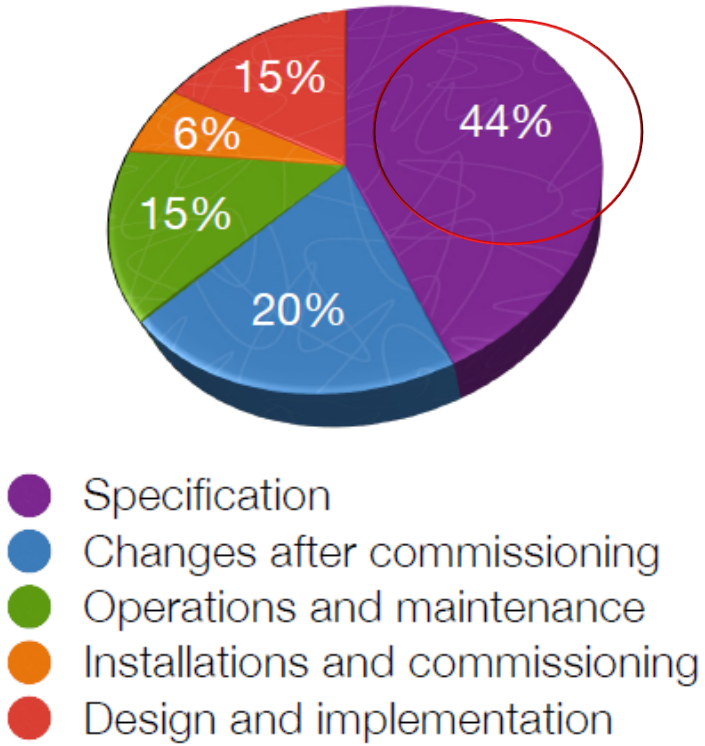
Safety system (SIS)

Do you want “tick the box” safety ?

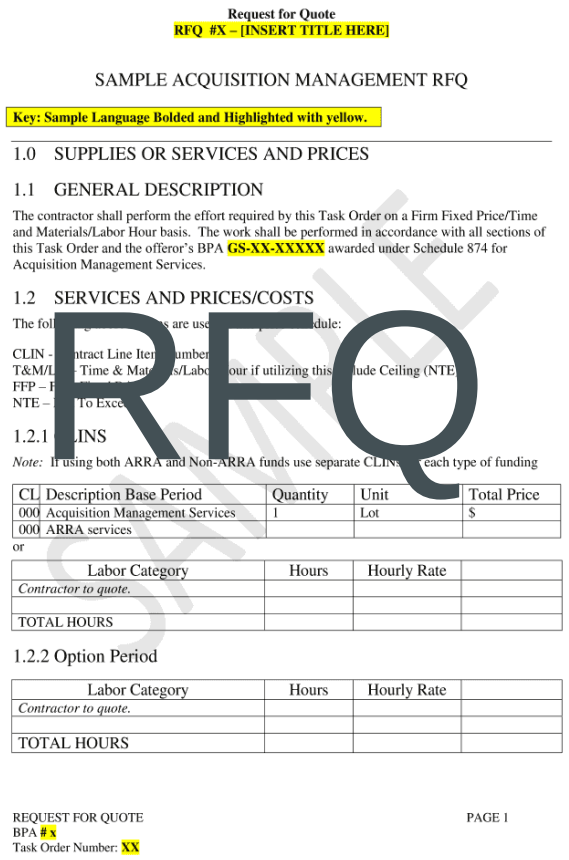
or enjoy the advantaged of a separated and independent SIS?

Lifecycle & Frequency of Failures





Specifications of SIS



Request for Quote
RFQ #X – [INSERT TITLE HERE]

SAMPLE ACQUISITION MANAGEMENT RFQ

Key: Sample Language Bolded and Highlighted with yellow.

1.0 SUPPLIES OR SERVICES AND PRICES

1.1 GENERAL DESCRIPTION

The contractor shall perform the effort required by this Task Order on a Firm Fixed Price/Time and Materials/Labor Hour basis. The work shall be performed in accordance with all sections of this Task Order and the offeror's BPA **GS-XX-XXXXX** awarded under Schedule 874 for Acquisition Management Services.

1.2 SERVICES AND PRICES/COSTS

The fol… …s are use… …dule:

CLIN - …ntract Line Iter… …umber
T&M/L… Time & Mate…s/Labo… …our if utilizing this… …lude Ceiling (NTE)
FFP – F…
NTE – …To Exce…

1.2.1 …LINS

Note: If using both ARRA and Non-ARRA funds use separate CLINs for each type of funding

CL	Description Base Period	Quantity	Unit	Total Price
000	Acquisition Management Services	1	Lot	$
000	ARRA services			

or

Labor Category	Hours	Hourly Rate	
Contractor to quote.			
TOTAL HOURS			

1.2.2 Option Period

Labor Category	Hours	Hourly Rate	
Contractor to quote.			
TOTAL HOURS			

REQUEST FOR QUOTE PAGE 1
BPA # x
Task Order Number: XX

RFQ

SAMPLE

RFQ: Safety Requirements Specification (SRS)

Your requirements:
A red car with a horse

What would you get?

A red car with a horse

A red car with a horse

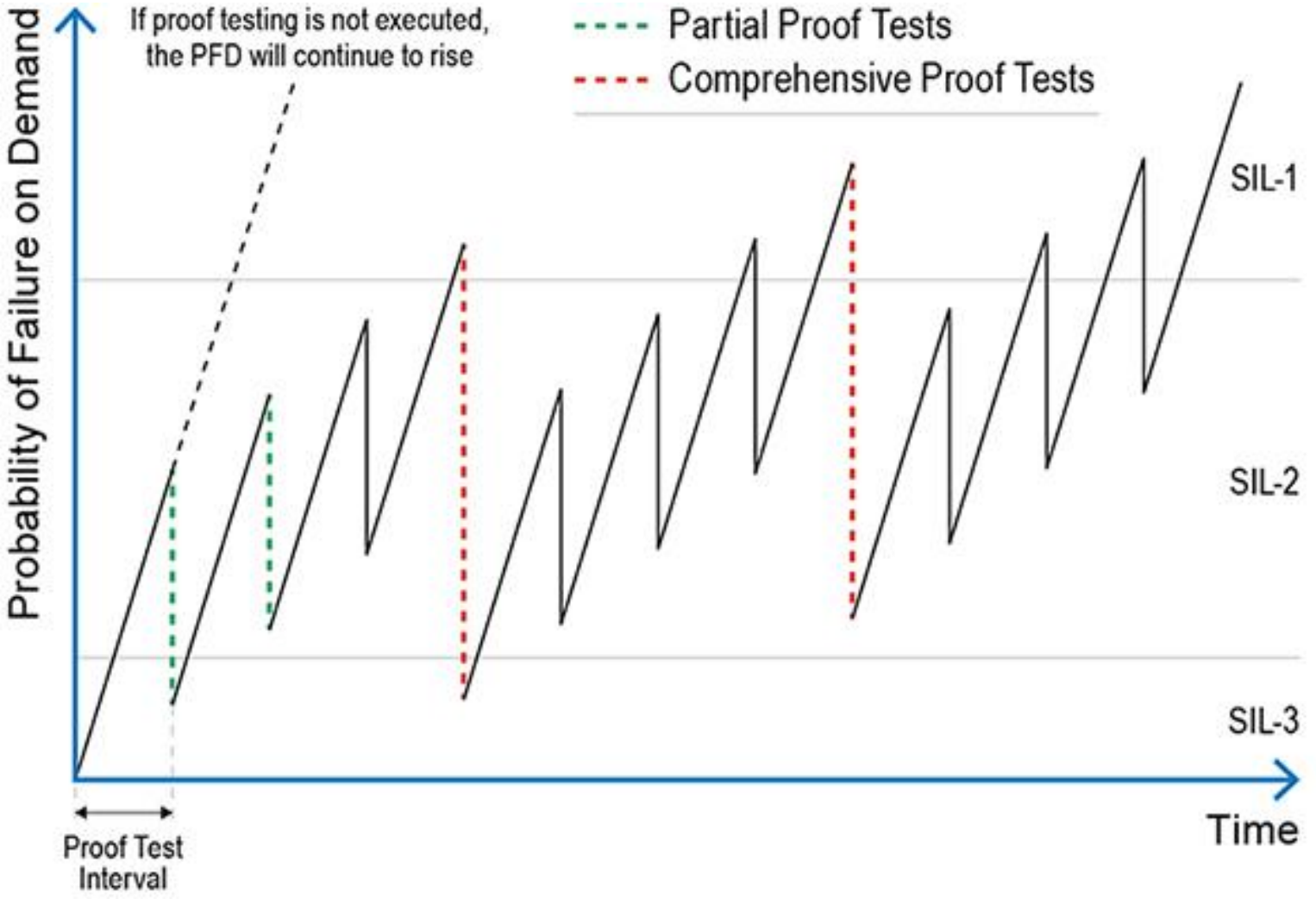
SIL Levels

Most famous SIL requirement is the Probability of Failure on Demand

SIL	PFDavg	Safety Availability	Risk Reduction
4	0.0001 - 0.00001	0.9999 - 0.99999	10000 - 100000
3	0.001 - 0.0001	0.999 - 0.9999	1000 - 10000
2	0.01 - 0.001	0.99 - 0.999	100 - 1000
1	0.1 - 0.01	0.9 - 0.99	10 - 100

PFDavg = Probability of Failure on Demand average

Proof tests to keep your safety level



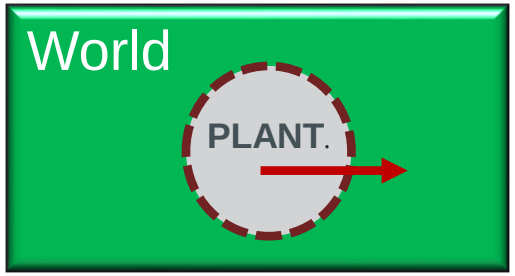
Proof-test challenges versus operation / production uptime

- Battle between Production & Safety engineers
- Production uptime has the priority
- the proof test are delayed to please the production
- Often during a planned/scheduled shutdown
  so what can you proof?

What is Safety

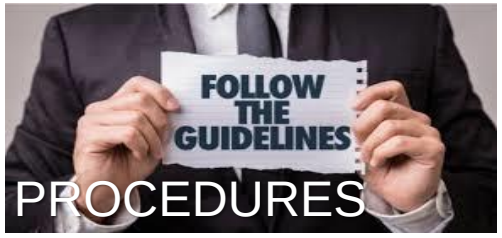
Functional safety IEC 61511-2

*$Risk_{safety}$ = probability of a damage * potential of the damage*



Cyber security IEC 62443-3-3

*$Risk_{security}$ = threat * vulnerability * potential of the damage*



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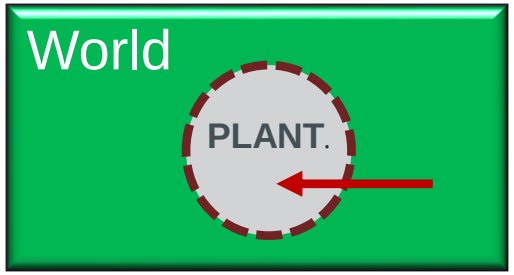
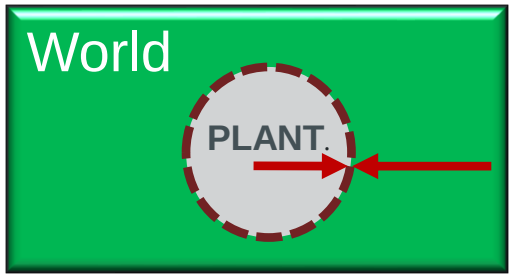




= Safety

You think: it will never happens to me…

Until you are the target..

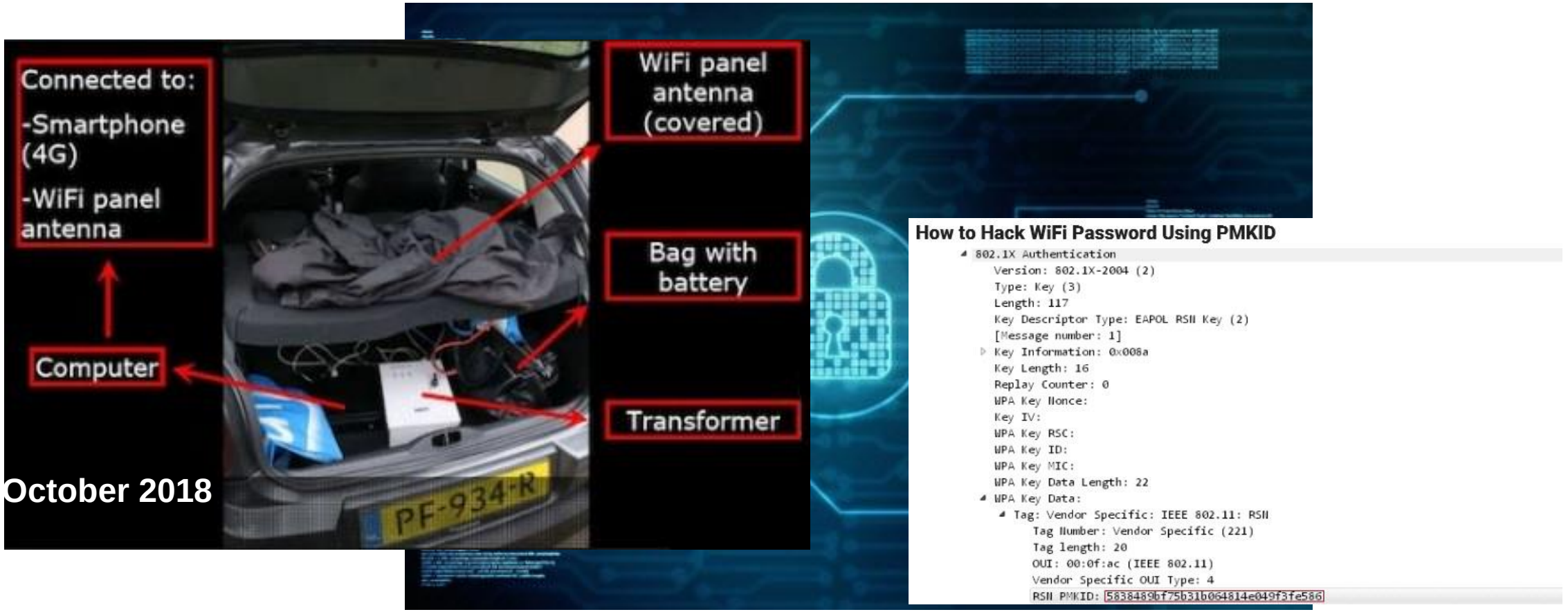
Cyber attacks are real

Petya-ransomware at Maersk

a Worldwide hack

Cyber attacks are real

Russia GRU caught hacking into OPCW via WIFI



OPCW = Organization for the Prohibition of Chemical Weapons

Cyber attacks are real

Cyber Attack on German Steel Mill Leads to ‘Massive’ Real World Damage

A steel mill in Germany lost control of its blast furnace. Hackers had infiltrated the mill’s control system, according to the German government’s office for information security.

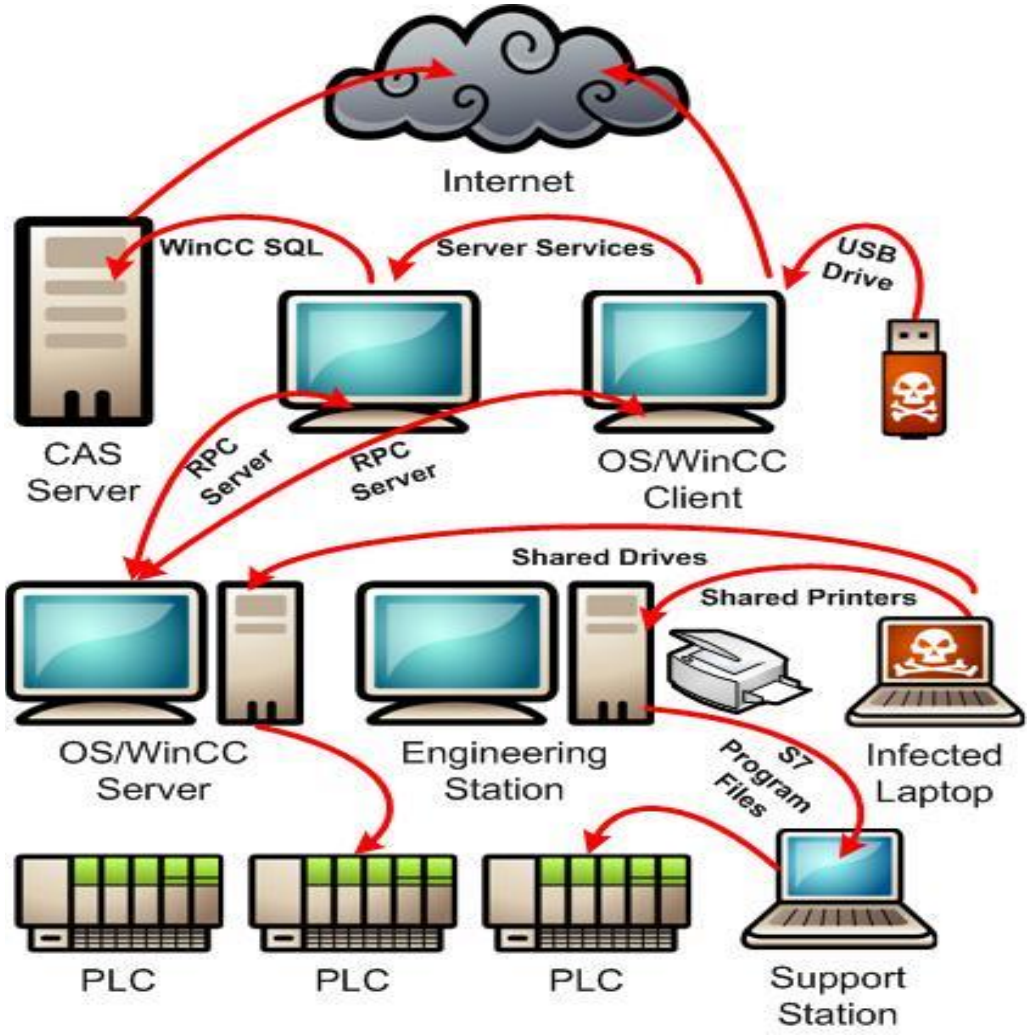
BY R.A. BECKER THURSDAY, JANUARY 8, 2015 NOVA NEXT

REVEALED: New era of state sponsored HACKING can turn oil rigs into 'BOMB that can KILL'

EXPERTS fear that hackers who seized control of a Saudi Arabian petrochemical site using malicious software labelled as 'Triton' and 'Trisis' could be being used by Iran, Russia and North Korea, marking a new era of cybercrime.

Cyber attacks are real

STUXNET: used in IRAN



Cyber attacks are real

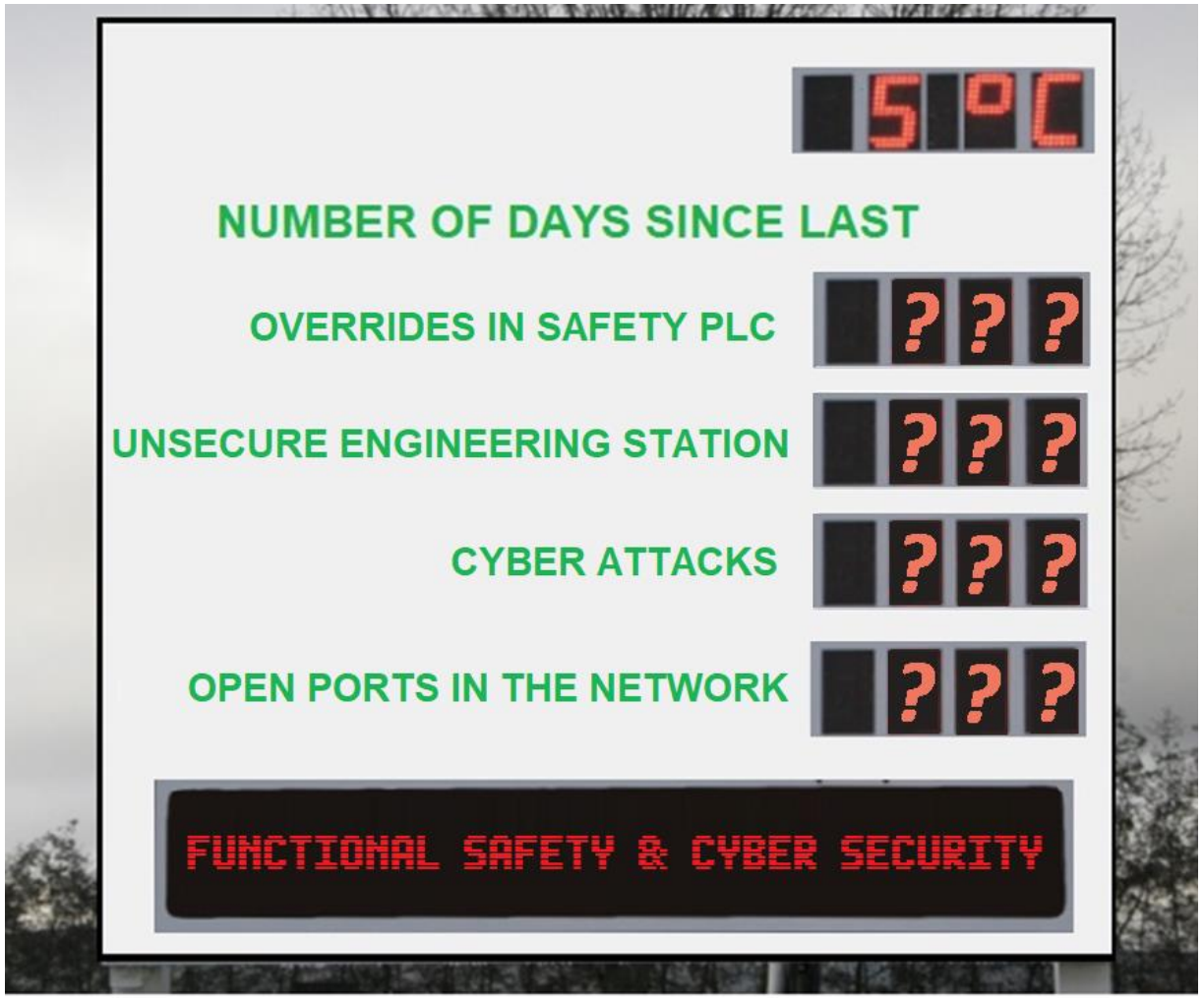
Triton /Trisis/ HATMAN December 2017

Attackers Deploy New ICS Attack Framework “TRITON” and Cause Operational Disruption to Critical Infrastructure

Incident Summary
The attacker gained remote access to an SIS engineering workstation and deployed the TRITON attack framework to reprogram the SIS controllers

www.meltdownattack.com

Security environment for Safety



Do you have full visibility of the risks on your SIS / IOT system?

You think you are safe?

With separated safety system of HIMA:
You know you are safe!

Override of safety function

Cost > 70.000.000 €

Advantages of an Independent SIS

1. No need to upgrade when DCS upgrades
2. Clear separation between operations and safety
3. Higher Cyber security
4. No common cause errors
5. Smart safety test: automated proof testing reduce stop
6. Energy saving
7. In line with standards, license to operate
8. NON-STOP safety
9. Lower OPEX

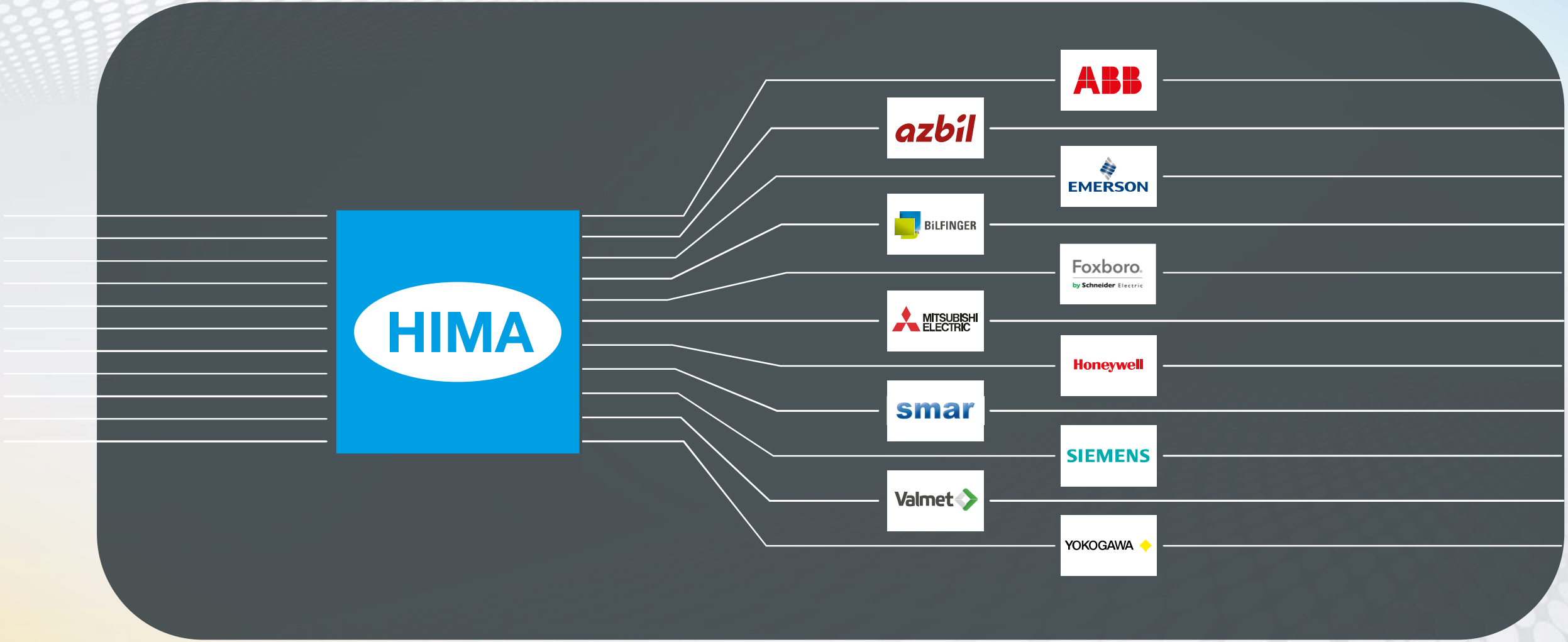
#safetygoesdigital

HIMA

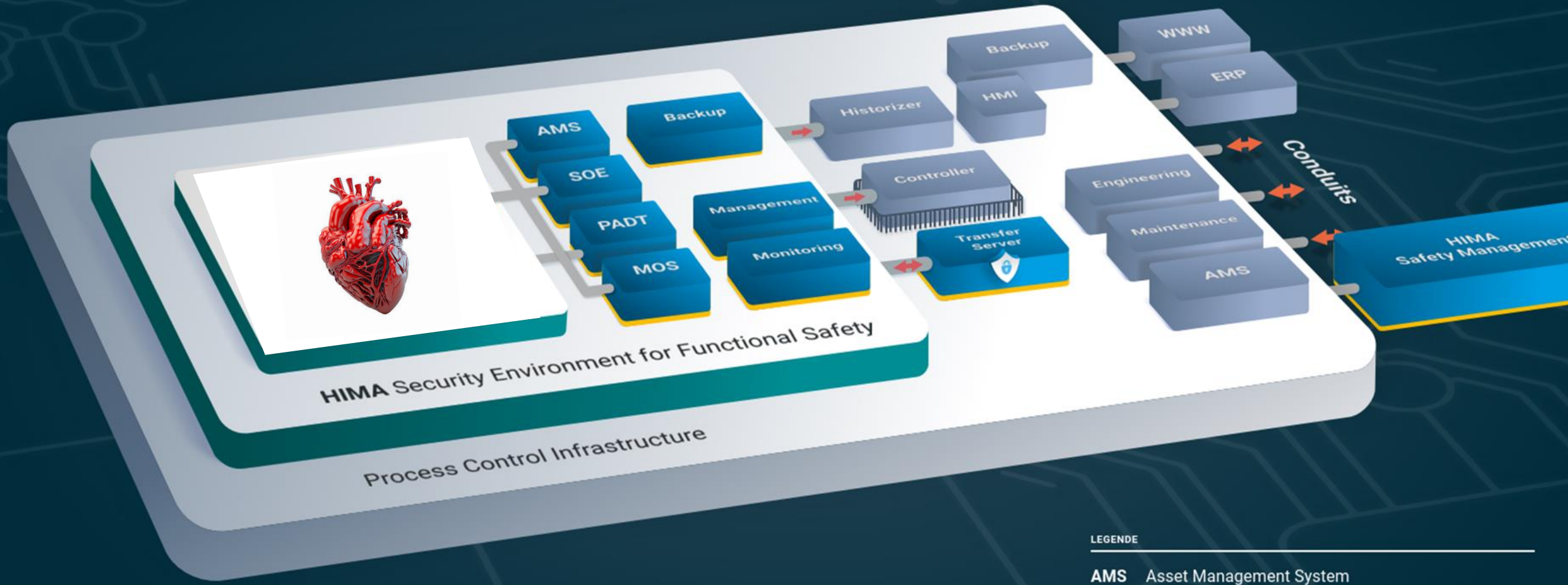
SMART SAFETY.

HIMA: The leading Expert in Safety Solutions!

HIMA: The leading Expert in Safety Solutions



NON-STOP Functional safety



LEGENDE

AMS	Asset Management System
HMI	Human Machine Interface
MOS	Maintenance Override Switch
PADT	Programming and Debugging Tools
SOE	Sequence of Events

Who would you consult?

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Thank you.

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