

KOCAELİ SANAYİ ODASI

PROSES
EMNİYETİ SEMPOZYUMU

Proses Emniyetinde Dijitalleşme

Necmi TÜRER / Orta Doğu Satış Direktörü

HIMA Middle East FZE, Dubai

10-11 Mayıs 2022



HIMA: The World's Leading Specialist in Safety Automation

About HIMA



Of Certified Safety



> 40,000 safety systems in 80 countries



> 50 locations worldwide



100% Made in Germany

A few of our customers



We focus on what matters



Safety solutions



Process Industry:
Safety Services

We have Safety standards .. At the same time..



Philippines 2010, Georgia sugar refinery explosion 2019, Turkey 2018, Dahe chemical plant explosion 2022, Suruz 2022

2010 2019 2018 2022

90 percent

of accidents since 1982 were caused by

Improper / No Safety Lifecycle Management plan

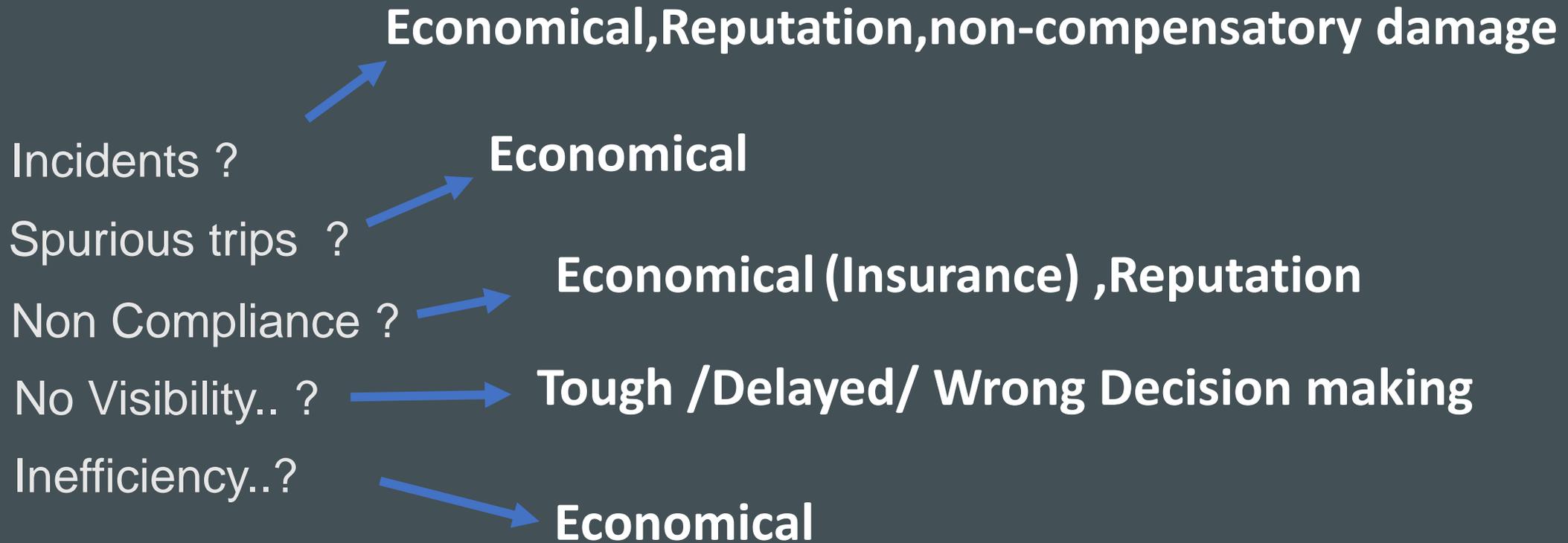
This means ... These Incidents **Could be Avoided** if we have an efficient Process safety Management

What is the cost of ...?

Incidents ?
Spurious trips ?
Non-Compliance ?
No Visibility.. ?
Less efficiency..?



What is the cost of ...?

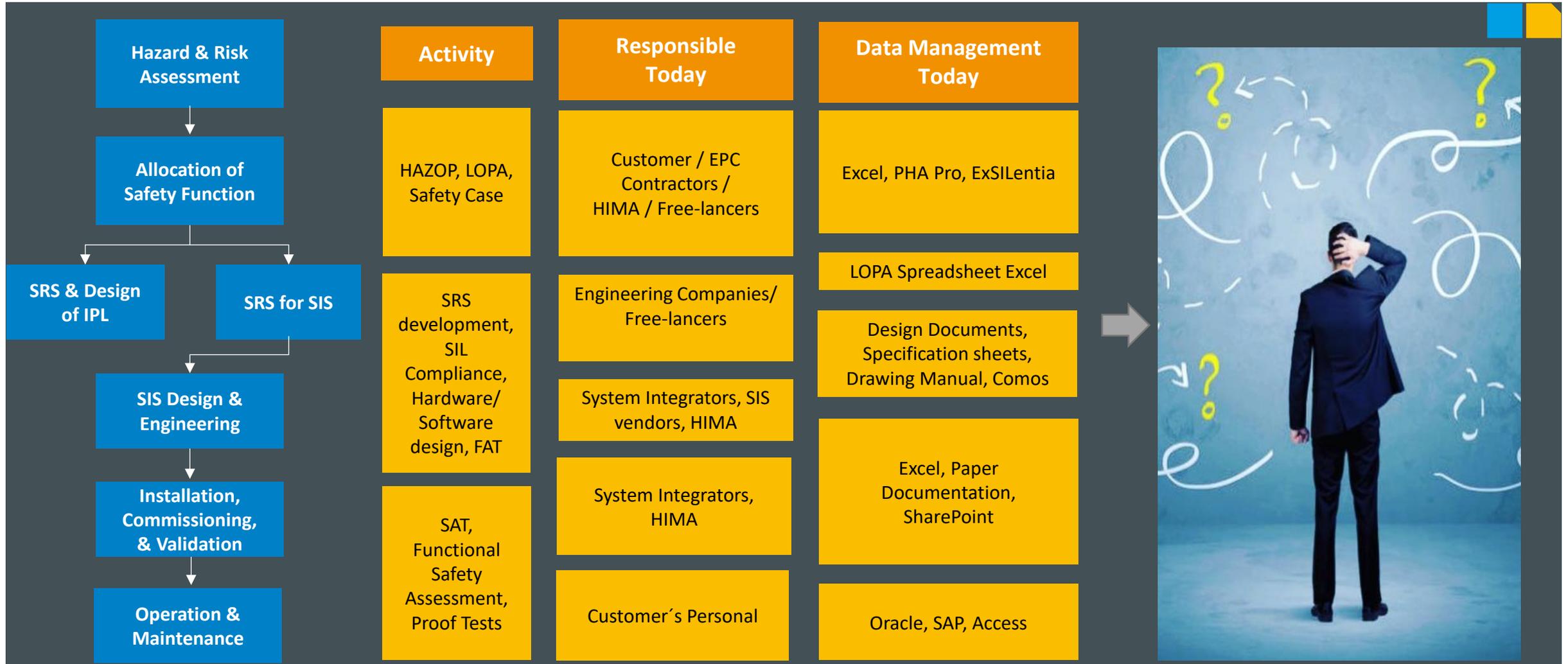


The Challenge ...?

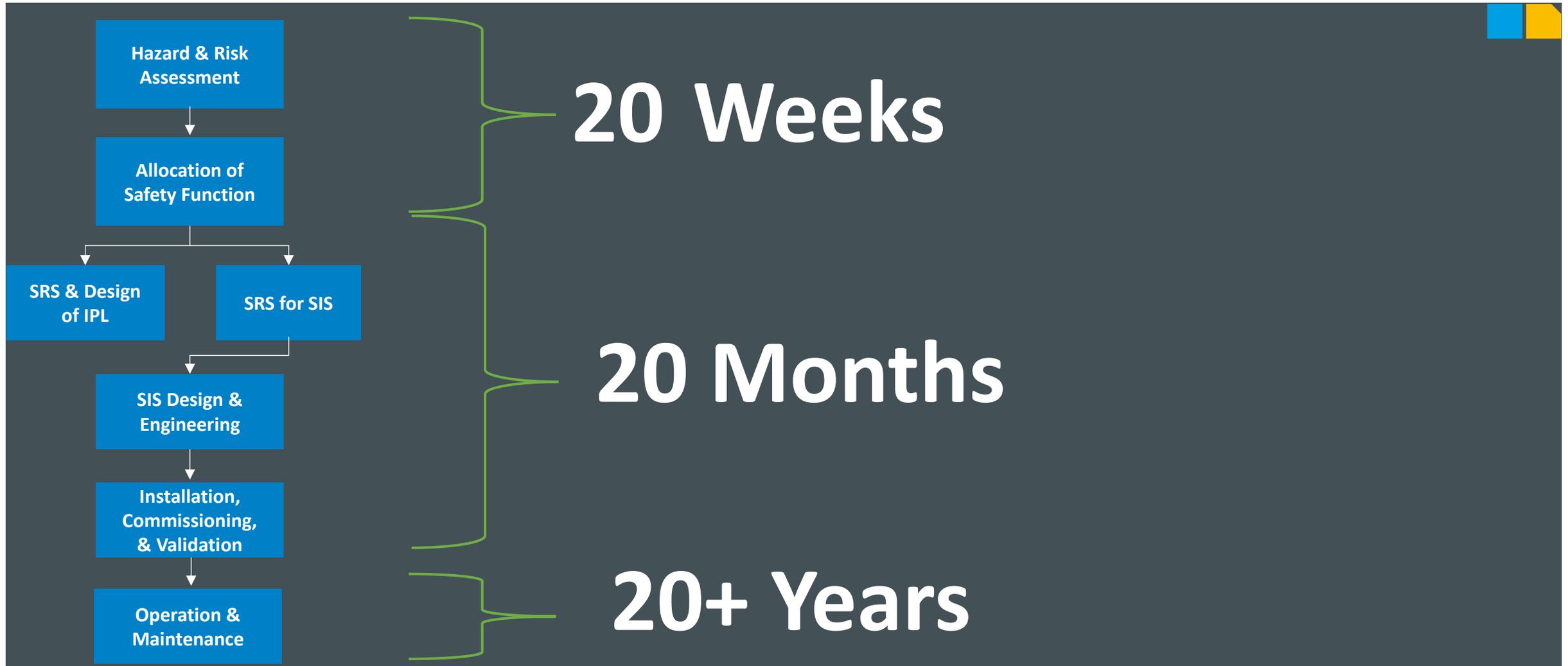
Maximum Plant Uptime
Safe & Compliant
Optimized CAPEX & OPEX

How to be Safe, Compliant and Cost efficient in this complex world ?

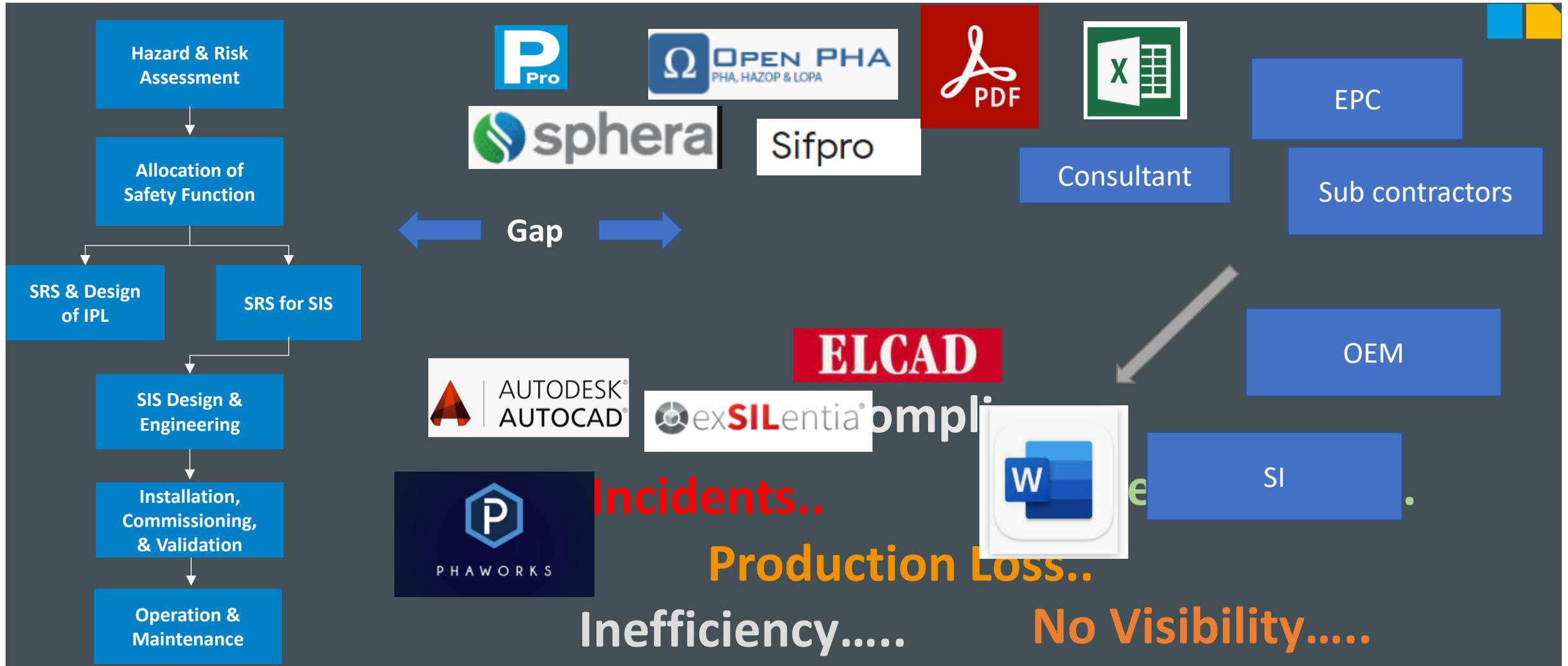
How Complex ?



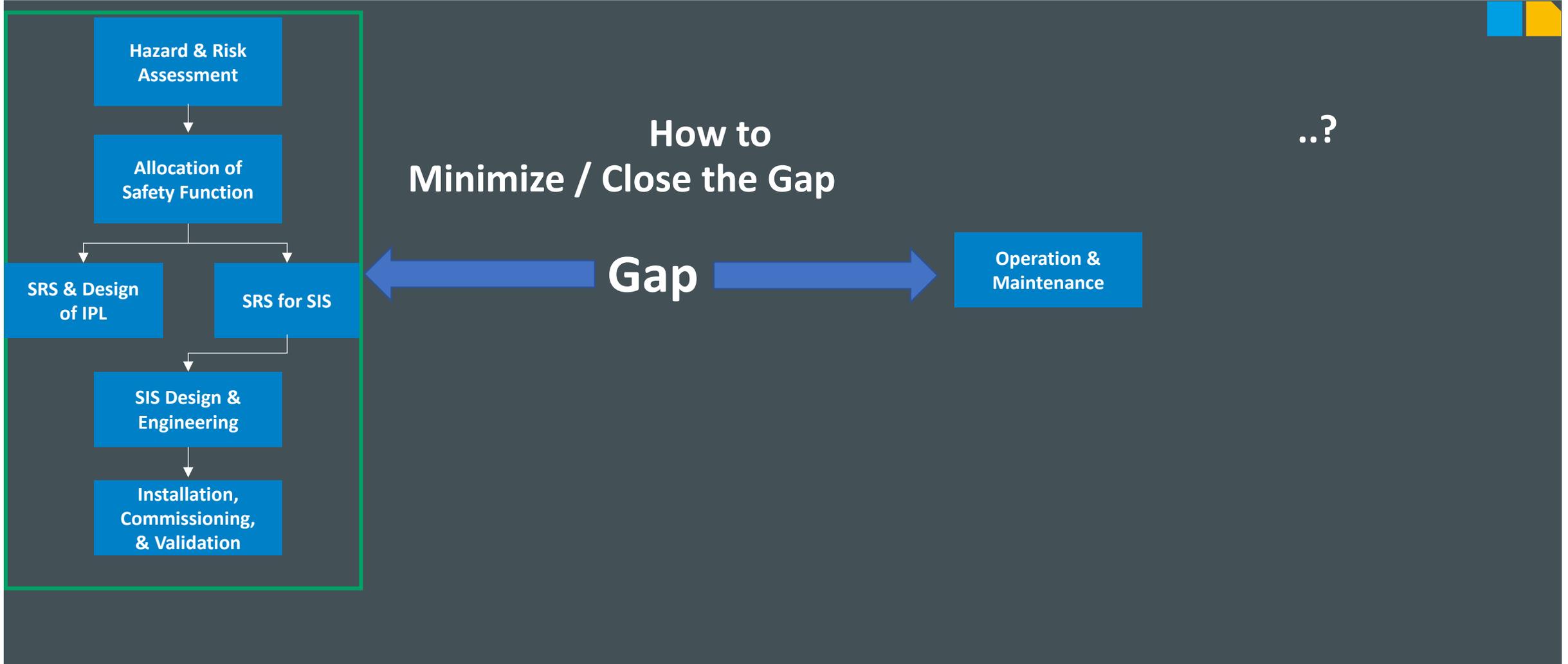
How Complex ?



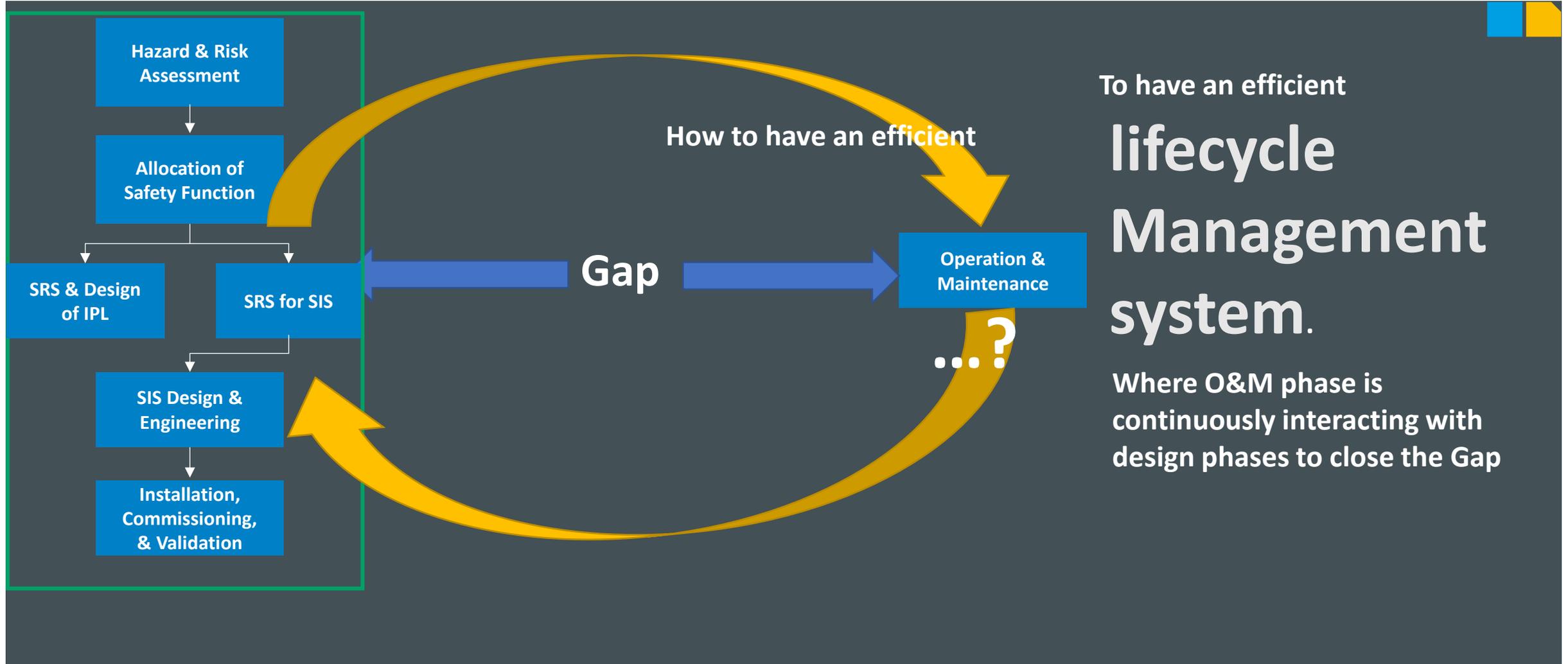
Fragmentation/ Complexity increases the Gap...



Solution..?



Solution is..



Digitalization of safety data

The Answer is....



Safety Digitalization output



Global or Plant
Dashboard

KPIs and Metrics

CLOUD-BASED ANALYTICS,
REPORTING, WORKFLOWS

How Digitalization will help you to avoid..

Non-Compliance..

Incidents..

Bad Reputation.....

Production Loss..

Inefficiency.....

No Visibility.....

Digitalization

- 365 days Analysis of your Safety data/Workflows as per the Safety standards like IEC 61511
- Identification of Bad- actors for the safety performance
- Continuous Performance Monitoring against design
- A single platform shall provide Comprehensive reporting /Dashboards
- A single platform can collect Enterprise-wide failure rates
- Highly improved Safety data collection/Reporting etc.

Real time gap indication against Non-Compliance

Will help to avoid Spurious trips and related Production loss

Will Provide early indication which helps to avoid incidents

Will Provide high visibility for different stake holders

Optimized test interval based on plant failure rates- more uptime

Highly Efficient resources

Example 1 Assuring Adequate Protection Layers Are Installed

With Existing Technology

After Digitalization of Safety data

Manual

- Time consuming process to capture and analyze data
- Adverse impact on Productivity and subject to human error

Automated

- Automatic Population of Hazop/LOPA data
- Evergreen and instant reporting and tracking

Costly

- Data Capture conducted by Engineering resources
- Duplication of resources have an impact on productivity

Efficient

- IPL registers/risk gaps automatically created
- SRS templates and tools reduce outsourcing needs

Inconsistent

- Different LOPA methodologies may impact operational efficiencies
- Attachment missing ,hard to find or out of data

Alignment

- Reports and dashboards highlights IPL gaps
- Analyze risk reduction strategies efficiently

Uncertainty

- No single source of truth for process safety data
- LOPA recommendations rarely prioritized by risk level

Visibility

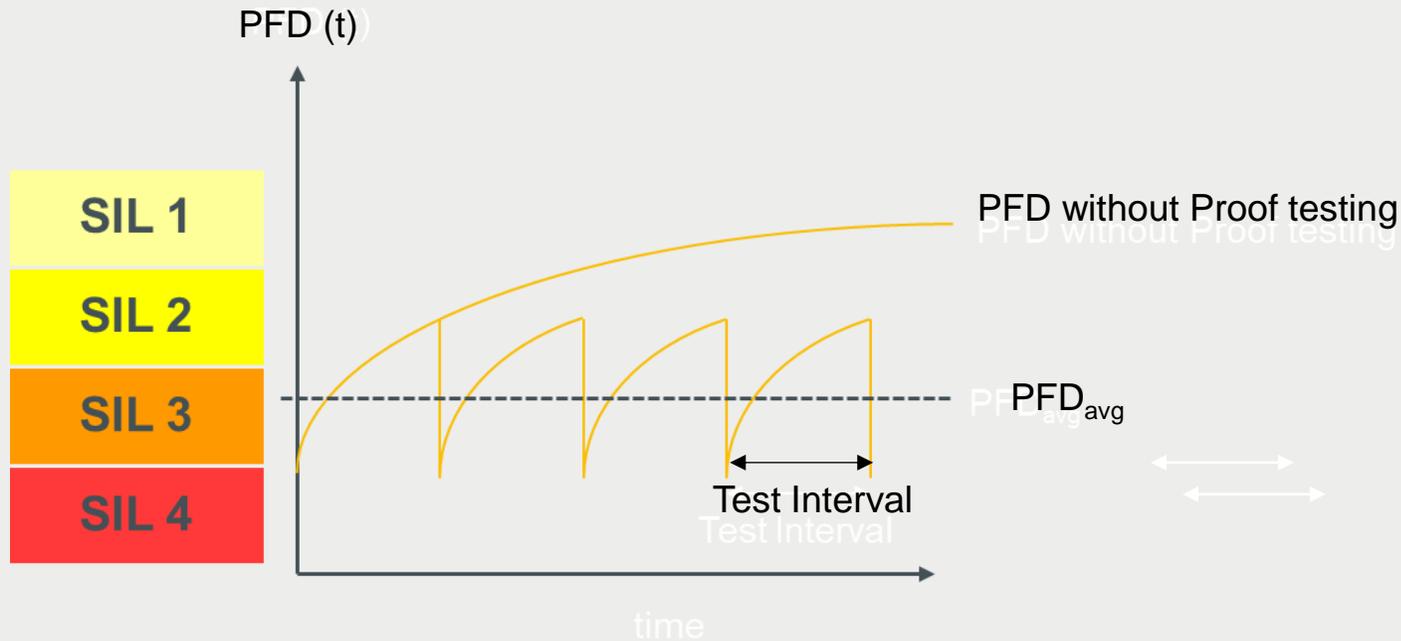
- Authorized users have access to LOPA and Hazop data
- Reporting tools allow users to prioritize risk gap closure

Example 2

Proof test Optimization

$$PFD_{avg} \approx \lambda_{DU} T / 2$$

T is Proof test Interval



Example 2 –cont..

Proof test Optimization done using Digitalization

SIF RRF Test Interval Sensitivity Results

		Input Test Interval (mo)									
		3	6	9	12	15	18	21	24	27	30
Output Test Interval (mo)	3	177	159	144	131	121	112	104	98	92	86
	6	146	133	122	113	105	99	93	87	83	78
	9	124	115	106	100	93	88	83	79	75	71
	12	108	101	94	89	84	79	76	72	69	66
	15	95	90	85	80	76	72	69	66	63	61
	18	85	81	77	73	70	66	64	61	59	57
	21	77	73	70	67	64	61	59	57	55	53
	24	70	67	64	62	59	57	55	53	51	50
	27	65	62	60	57	55	53	52	50	48	47
	30	60	58	55	54	52	50	48	47	46	44

Input Test Interval * 3.00 mo

Input Step * 3.00

Input Failure Rate * Custom Failure Rate

Output Test Interval * 3.00 mo

Output Step * 3.00

Output Failure Rate * Custom Failure Rate

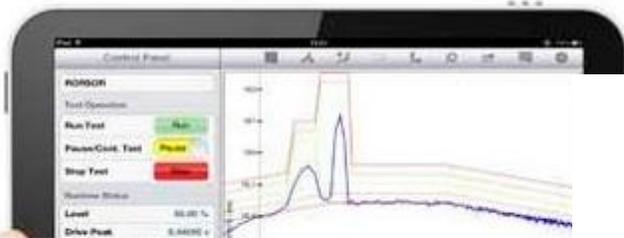
Logic Solver Failure Rate * Custom Failure Rate

Generate

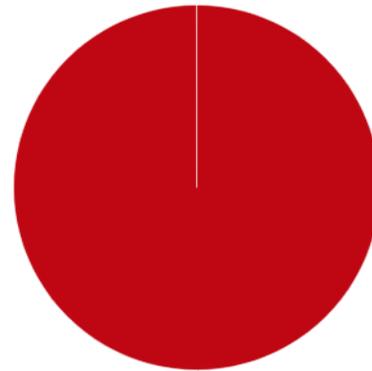
The PFD Values against different proof test interval is shown and the failure rates reference can be the plant failure rate

Result is **Optimum Safety** and **Optimum Plant uptime**

Digital transformation in all the aspects of the lifecycle



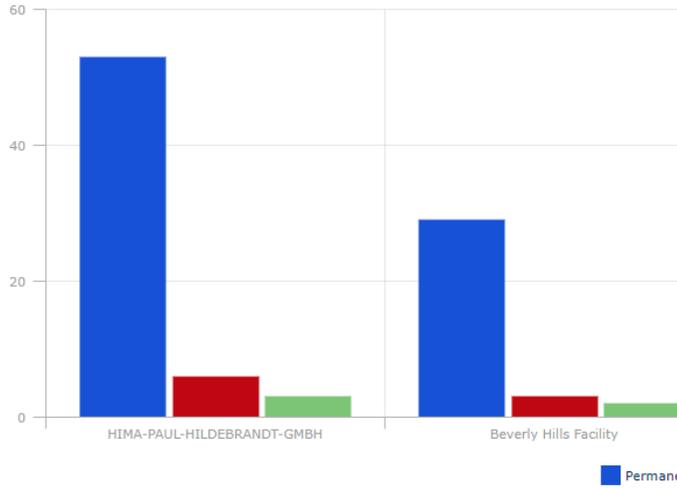
Bypass Events Within and Outside Expected Durations for 35: Middle East



Outside Expected Duration: 100.00%

	1	2	3	4	5
Similar event has occurred or is likely to occur in the process	0	0	0	0	0
Similar event has occurred or is likely to occur in similar facilities	0	0	0	0	0
Similar event has occurred or is likely to occur within the company facilities	0	1	0	0	0
Similar event has occurred in the industry	5	1	0	0	0
Similar event has not yet occurred in industry and is an extremely remote possibility	3	0	1	0	0
	1	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0

Open MOCs by Type



Smart Bypass Management



Smart DRM

We ~~think~~ we are safe.
know

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