

Safety Consultants & Solutions Provider

SCSP

SAFETY CONSULTANTS &
SOLUTION PROVIDERS LIMITED

DESIGN RIGHT. BUILD SAFE.

TECHNICAL SAFETY / PROCESS SAFETY / LOSS PREVENTION

FLAGSHIP | Q4 2026

BEYOND COMPLIANCE

The business of preventing industrial losses

African risk signals / Engineering safeguards / Emerging technologies / 2027 investment decisions

INSIDE THE ISSUE

01	What the 2025-26 evidence actually says	PAGE 04
02	From installed equipment to verified barriers	PAGE 07
03	Where 2027 loss prevention investment should go	PAGE 08
04	The executive dashboard and 90-day agenda	PAGES 10-11

FROM THE EDITORIAL DESK

The loss begins long before the incident

'This is a loss prevention job. It falls on your desk.' The instruction sounds simple enough. Yet what initially appears to be a fire study, a protection-system review or an engineering checklist often reveals a much larger responsibility: understanding how an organisation can lose people, assets, production capacity, environmental integrity and business confidence - and which decisions prevent that loss.

The most significant weaknesses rarely announce themselves as a single dramatic failure. They accumulate across design choices, procurement substitutions, operating changes, incomplete tests, maintenance deferrals and unresolved study actions. The incident is when those decisions become visible; it is seldom where the story begins.

This inaugural issue asks a practical question as African industries shape their 2027 priorities: are the safeguards that matter most demonstrably effective in service, or are organisations relying on the comfort of systems, reports and certifications whose protective performance has not been established?

The evidence presented here does not attempt to manufacture a continent-wide performance ranking. Instead, it examines selected published signals, draws clear boundaries around their interpretation and connects the lessons to engineering assurance, capital allocation and accountable action.

OUR PROPOSITION

A safeguard documented is not necessarily a safeguard demonstrated.

This issue connects the evidence of failure to decisions that can prevent serious loss.

THIS EDITION

03 Executive interpretation

04 What the data actually means

05 Engineering lesson: Texas City

06 Sector exposure across African industry

07 Critical barrier assurance

08 The economics of prevention

09 Technology readiness for 2027

10 Board scorecard and 2027 agenda

THE EXECUTIVE BRIEF

The assurance gap is the business risk

The available signals point to a recurring governance weakness: organisations can demonstrate extensive safety activity without demonstrating control of their highest-consequence exposures. The management task is to close the gap between documented protection and verified performance.

52

Fatalities reported by IOGP member companies globally in 2025. [1]

49

South African mining fatalities recorded by 14 Sep 2026. [2]

7.86

African-registered airline accidents per million sectors in 2025. [3]

FIVE SIGNALS REQUIRING A MANAGEMENT DECISION

01 Risk concentration
Know the credible events that could cause the gravest loss, not only the most frequent injuries.

02 Verified barriers
Obtain recent evidence that the critical protective functions actually perform as intended.

03 Exposure during impairment
Make bypasses, overrides, overdue tests and degraded protection visible to authorised risk owners.

04 Capital discipline
Fund mandatory controls, intolerable-risk reduction and the measures with the strongest defensible impact.

05 Evidence after closure
Confirm that completed actions reduce risk, rather than simply that a work order has been closed.

EDITORIAL BOUNDARY | These are selected industry-specific indicators, not a measured Africa-wide implementation rate or a Q1-Q3 2026 trend series.

SIGNALS, NOT A SINGLE INDEX

What the numbers reveal - and what they do not

Three authoritative datasets illustrate why safety performance cannot be reduced to one number. They differ by population, industry, denominator, reporting period and event type. The comparison below is editorial analysis, not a combined African loss-prevention index.

01 / GLOBAL UPSTREAM OIL AND GAS: IOGP 2025

+75%
Fatal accident rate

-6%
Total recordable injury rate

52 fatalities | Global IOGP reporting population | 2025 vs 2024 [1]

Crucial distinction: process-safety-related fatalities were lower, yet Tier 1 process safety events were unchanged. A rise in all-cause fatality performance is not itself proof that process safety events increased. [1]

02 / SOUTH AFRICAN MINING: REPORTED FATALITIES



The 2026 figure is partial-year and is not directly comparable as an annual rate. A matched-period and exposure-adjusted analysis would be needed. [2]

03 / AFRICAN AVIATION: FREQUENCY IS NOT SEVERITY

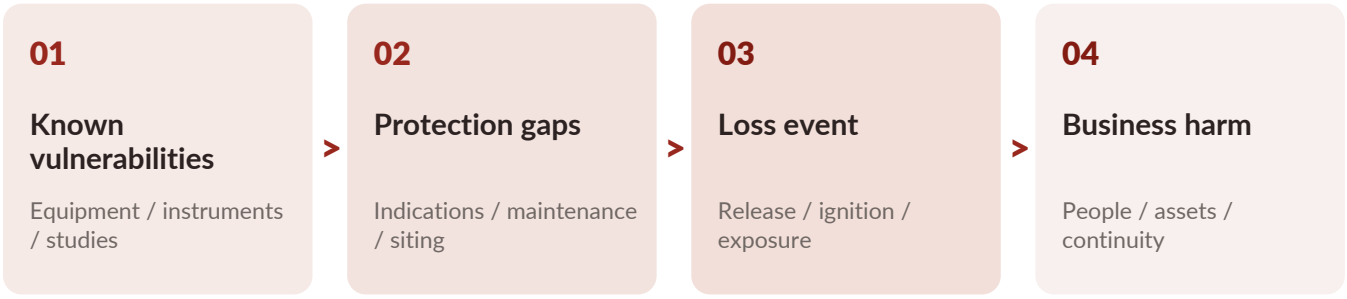
IATA reported a reduction in the all-accident rate from 12.13 to 7.86 per million sectors (2024-25), while its fatality-risk metric rose from 0 to 2.19. Cross-sector illustration only; not an industrial FLS index. [3]

LESSONS THAT STILL MATTER

A loss is the last link in a chain

The 2005 BP Texas City refinery explosion demonstrates why controls must be assessed as an interconnected defence, not as isolated checklist items.

THE FAILURE PATHWAY / A SIMPLIFIED LEARNING MODEL



On 23 March 2005 an explosion at the BP Texas City refinery killed 15 people and injured 180. The US Chemical Safety Board's investigation identified technical, organisational and managerial failures, including weaknesses in instruments, maintenance, hazard analysis, equipment siting and the treatment of warning signals. [5]

The enduring engineering lesson is not simply that equipment failed. The investigation described how known vulnerabilities persisted across multiple protection layers. In that environment, routine performance indicators and completed administrative activities could not substitute for evidence that the installation's most consequential hazards were controlled.

For an asset manager, the practical question is whether today's unresolved exceptions could combine in the same way. A failed high-level device, an overdue test, an unreviewed modification or an occupied building in an inappropriate location may appear as separate line items. Viewed as one credible scenario, they can reveal an exposure that needs urgent intervention.

Major loss prevention therefore begins with scenario ownership. The relevant question is not merely 'Has the audit closed?' but 'What could happen, which barrier would stop it, what evidence shows that barrier will work, and who can authorise continued operations when it does not?'

PRACTICAL TEST | For each major-loss scenario, identify initiating causes, dependent failures, independent protective layers, escalation conditions and evidence of readiness.

AFRICAN ASSET RISK LENSES

Five exposures that deserve sharper attention

No single technical template fits every African asset. The hazards, regulatory requirements, maintenance conditions and commercial dependencies differ. The following lenses are priority considerations for asset-specific assessment, not evidence of continent-wide implementation rates.

01 OIL, GAS & PROCESSING

Exposure: Loss of containment, escalation, failed isolation and emergency power dependence.

Priority response: Verify mechanical integrity; revalidate F&G; coverage, ESD logic and change control.

02 MINING & MANUFACTURING

Exposure: Mobile equipment, high energy, fires and critical machinery failures.

Priority response: Use critical-control verification, task-specific interfaces and risk-based maintenance.

03 BUILDINGS & HEALTHCARE

Exposure: Smoke migration, impaired egress and disruption of essential clinical or tenant services.

Priority response: Review compartmentation, integrated alarm logic, evacuation and continuity dependencies.

04 POWER, UTILITIES & LOGISTICS

Exposure: Single-point outages, ignition sources and cascading service interruption.

Priority response: Prioritise redundancy, fault response, recovery testing and supplier contingencies.

05 CONSTRUCTION & INFRASTRUCTURE

Exposure: Design omissions, temporary works and handover of unresolved risks.

Priority response: Set safety-by-design decision gates and verify closeout before occupancy or operation.

SCSP PERSPECTIVE | Begin with the facility design basis, credible scenarios and current asset-integrity evidence - not a generic sector checklist.

THE ENGINEERING TEST

Installed is not the same as available

A safety-critical safeguard is more than an installed device. It is a defined function with a required performance standard, an operating environment, an inspection and test regime, an impairment process and an accountable owner. Engineering assurance must show that these elements remain connected throughout the asset life cycle.

Consider a fire and gas detection system. Approved drawings demonstrate design intent; commissioning tests demonstrate an initial state. Neither alone proves that detector coverage, voting logic, cause-and-effect actions, power supplies, alarms and field responses continue to meet the required performance under current operating conditions.

Barrier evidence must therefore include test quality, defect closure, configuration integrity, change control and the response to temporary unavailability. When a critical safeguard is impaired, an assessed interim protection strategy - potentially including operational restriction or shutdown - is essential where risk or legal obligations require it.

THE THREE FUNCTIONS OF EFFECTIVE PROTECTION

PREVENT

Avoid or reduce initiating events

Integrity, isolation, design margins

MITIGATE

Limit escalation and consequence

Detection, shutdown, suppression

RECOVER

Protect people and restore function

Egress, emergency response, continuity

SIX QUESTIONS BEFORE MANAGEMENT ACCEPTS ASSURANCE

01 What loss scenario does this barrier address?

02 What performance requirement applies in that scenario?

03 What verified evidence demonstrates current readiness?

04 What faults, overrides, bypasses or dependencies could defeat it?

05 Who owns the impairment and operational response?

06 What must be restored or restricted if it is ineffective?

THE ECONOMICS OF PREVENTION

Where should the next naira go?

The financial case for prevention is often framed as a comparison between the cost of a safeguard and the cost of an incident. That is incomplete. Serious losses may involve injuries, environmental harm, asset reinstatement, production interruption, contract disruption, emergency spending, litigation, increased insurance costs and diversion of leadership attention.

Not every consequence can or should be monetised. Mandatory legal duties and intolerable risks cannot be traded away merely because an investment model shows an unattractive return. Within the limits of those obligations, the strongest decisions compare credible scenarios, existing safeguards, alternative measures, whole-life costs, implementation timing and verified reductions in exposure.

A useful investment paper is explicit about uncertainty. Where event-frequency or financial-loss data are weak, decision-makers should see ranges, assumptions and sensitivity - not a manufactured single value. The desired output is an auditable prioritisation decision, not a falsely precise number.

CONSIDER THE FULL LOSS ENVELOPE

01	**People & environment**	Harm, remediation, obligations
02	**Assets**	Repair, reinstatement, write-offs
03	**Operations**	Output, outage, recovery time
04	**Commercial**	Delivery, customers, insurance
05	**Reputation & governance**	Trust, leadership, investigations

CAPITAL ALLOCATION GATES

1. **Meet obligations**
2. **Eliminate intolerable risk**
3. **Restore critical barriers**
4. **Verify benefit**

TECHNOLOGY WITH A PROVEN PURPOSE

Evidence before scale

Digitalisation can make emerging weaknesses more visible, but sensing and analytics are not themselves proof of protection. The value of connected devices, predictive models, drones and simulation lies in enabling an earlier, more reliable decision or intervention against a defined loss scenario.

A pilot should begin with a risk question and end with independently checked evidence. An AI-based thermal detection alert, for example, requires site-specific validation of sensitivity, false alarms, response latency, ownership and integration with dependable corrective action. A digital twin must have current geometry, credible scenarios and explicit model limitations.

The procurement question for 2027 is therefore not 'Which technology is newest?' It is 'Which failure mode will this technology detect or prevent, what human or automated response follows, and how will we know it has changed risk?'

2027 READINESS SCREEN / SCSP EDITORIAL GUIDANCE

TECHNOLOGY	POSTURE	PROOF TO REQUIRE
Connected F&G; / alarms	**Deploy selectively**	Cause-and-effect, fault handling, maintenance, cyber interfaces
IIoT condition monitoring	**Targeted deployment**	Calibrated sensors, thresholds, response owner, demonstrated action
AI vision / thermal analytics	**Controlled pilot**	Site detection accuracy, false alerts, privacy, human oversight
Digital twins / simulation	**Engineering-specific**	Verified geometry, scenario quality, sensitivity, model validation
Predictive maintenance	**High-criticality pilot**	Data quality, missed-event rate, practical lead time
Drones / remote surveys	**Use where suitable**	Competence, permissions, defect confirmation, inspection limits
Digital PTW / MOC	**Governed deployment**	Field adoption, isolation checks, audit trail, offline fallback

TECHNOLOGY PRINCIPLE | An unverified digital alert is not, by itself, a dependable safeguard. Every technology investment should connect to a defined risk, an accountable responder and a tested intervention pathway.

ASSURANCE BOARDROOM READY

Measure the condition of protection

Boards need a small set of consequential measures with traceable evidence. Percentages of inspections completed or recommendations closed may be useful workload measures, but their aggregate values can conceal a single impaired barrier on a high-consequence asset.

Use the following scorecard as a specification to adapt, not as a universal template. Every indicator needs a defined asset boundary, counting rules, exposure denominator where relevant, review owner, escalation threshold and supporting records. Leading and lagging indicators should be used together, consistent with the 2026 fourth edition of API RP 754. [4]

A BOARD SCORECARD THAT REFLECTS EXPOSURE

INDICATOR	DEFINITION / EVIDENCE	AIM
Critical barriers verified	Passing performance tests / items due, by criticality	UP
Critical impairment exposure	Hours degraded or unavailable, weighted by risk	DOWN
Overdue high-risk actions	Count, age, risk ranking and owner of open items	DOWN
Safety-critical maintenance	Overdue tasks by asset and failure consequence	DOWN
Process safety event trends	Applicable Tier 1-4 metrics and high-potential cases [4]	WATCH
Recovery capability	Validated restoration time against approved objective	IMPROVE
Digital pilot effectiveness	Verified intervention and outcomes against baseline	PROVE

DASHBOARD CONTROL | Define counting rules, denominators, escalation limits and independent evidence. Do not let an aggregate green indicator conceal one unacceptable scenario.

FROM INSIGHT TO ACTION

2027 starts with the next 90 days

The priority is to translate current exposure into funded and technically verifiable decisions. Urgent unsafe conditions must be acted on immediately; the sequence below is a governance plan, not permission to delay critical controls.

FIVE 2027 STRATEGIC IMPERATIVES

01 **Safety by design**
Embed risk reviews at concept, procurement, modification and start-up.

02 **Critical barrier assurance**
Integrate tests, maintenance, impairment management and field verification.

03 **Predictive intervention**
Target monitoring at loss scenarios where early action can change outcomes.

04 **Resilience & recovery**
Connect engineered safeguards to emergency and continuity capability.

05 **Evidence-led governance**
Report verified protection, exposure and action effectiveness.

THE EXECUTIVE 90-DAY PLAN

DAYS 01-30

Establish exposure

Approve major-loss scenarios, barrier owners and current impairment register.

DAYS 31-60

Verify and intervene

Field-check critical protections, restore priority deficits and set narrow pilot criteria.

DAYS 61-90

Demonstrate control

Validate improvement, approve risk-based 2027 funding and board reporting.

RESEARCH, SCOPE & CONTACT

Sources, boundaries and accountability

Evidence current to 27 October 2026. This edition draws on sources available by that date; Q4 2026 is not a completed reporting period. Data are preserved by original sector, population, measurement and reporting window.

SOURCE REGISTER

[1] **IOGP (2026). Safety Performance Indicators - 2025 Data; Safety Directorate Reflections, July 2026.**
www.iogp.org

[2] **South African Department of Mineral and Petroleum Resources (17 September 2026). Mine Health and Safety Summit address.**
www.dmpr.gov.za

[3] **IATA (9 March 2026). IATA Releases 2025 Safety Report.**
www.iata.org

[4] **American Petroleum Institute (6 August 2026). Fourth edition of API RP 754: Process Safety Performance Indicators.**
www.api.org

[5] **US Chemical Safety Board (2007). BP Texas City refinery explosion investigation and conclusions.**
www.csb.gov

[6] **IOGP (2023). Report 456: Process Safety - Recommended Practice on Key Performance Indicators.**
www.iogp.org

[7] **SCSP. About Us and service positioning (company reference).**
scspng.com

METHODOLOGY & LIMITATIONS

Industry observations are not pooled into a regional performance index. The simplified models and technology postures are SCSP editorial guidance, not measured market forecasts. Case findings follow the cited investigation. Cover artwork is a conceptual AI-generated illustration, not a real facility.

ABOUT SCSP

Safety Consultants & Solution Providers Limited provides multidisciplinary consulting and engineering services in Fire Safety, HSE Management Systems, Technical & Process Safety and Security Risk Mitigation.

SCSPNG.COM